



Department of Energy
 Richland Operations Office
 P.O. Box 550
 Richland, Washington 99352

15-ESQ-0014

NOV 25 2014

RECEIVED

DEC -2 2014

WA Dept of Health
 Radioactive Air Emissions Section

Mr. J. Martell, Manager
 Radioactive Air Emissions Section
 State of Washington
 Department of Health
 309 Bradley Boulevard, Suite 201
 Richland, Washington 99352

Mr. P. M. Gent
 Nuclear Waste Program
 State of Washington
 Department of Ecology
 3100 Port Benton Boulevard
 Richland, Washington 99354

Addressees:

NOTICE OF CONSTRUCTION (NOC) APPLICATION FOR THE J-318 FUGITIVE EMISSIONS FROM THE 318 BUILDING (RADIOLOGICAL CALIBRATIONS LABORATORY), REVISION 1, 300 AREA, HANFORD SITE

Enclosed is the NOC application for the 318 Building, emission unit J-318 (EU 1333), Revision 1, in the 300 Area of the Hanford Site in Richland, Washington (Enclosure 1). The application is to update the process descriptions, update the potential-to-emit and approved radioisotopes, and consolidate building emissions. This application is submitted pursuant to Washington Administrative Code 246-247, "Radiation Protection - Air Emissions."

This letter also transmits the associated Hanford Site Air Operating Permit, Off Permit Change Form (Enclosure 2). Enclosure 2 is provided to the State of Washington, Department of Ecology (Ecology), consistent with Ecology's role as lead for the Hanford Site Air Operating Permit.

If you have any questions, please contact me, or your staff may contact Jeffrey A. Frey, Acting Assistant Manager for Safety and Environment, on (509) 376-7727.

Sincerely,

Doug S. Shoop
 Acting Manager

ESQ:DEJ

Enclosures

cc: See page 2

Addressees
15-ESQ-0014

-2-

NOV 25 2014

cc w/encls:

J. M. Barnett, PNNL

G. Bohnee, NPT

G. M. Fritz, MSA

S. Harris, CTUIR

R. Jim, YN

R. A. Kaldor, MSA

K. M. McDonald, PNNL

E. R. McCormick, WDOH

D. Powaukee, NPT

J. W. Schmidt, WDOH

M. B. Skorska, Ecology

M. J. Stephenson, PNNL

D. Zhen, EPA

Administrative Record (file: 318 Building)

Environmental Portal, LMSI, A3-95

ENCLOSURE 1

NOTICE OF CONSTRUCTION APPLICATION FOR THE J-318 FUGITIVE EMISSIONS FROM THE
318 BUILDING (RADIOLOGICAL CALIBRATIONS LABORATORY), REVISION 1, 300 AREA,
HANFORD SITE

Pacific Northwest National Laboratory

**Radioactive Air Pollutants
Notice of Construction**

for Fugitive Emissions from the

**Radiological Calibrations Laboratory (318 Building), Revision 1
300 Area, Hanford Site
Richland, Washington**

November 2014

Contents

NOTE: The "Response to Item" subtitle under each of the following sections identifies the corresponding Notice of Construction application information item listed under Washington Administrative Code 246-247-110.

| | | |
|------|--|---|
| 1. | Introduction..... | 1 |
| 2. | Facility Location - (Response to Item 1)..... | 1 |
| 3. | Responsible Manager (Response to Item 2)..... | 1 |
| 4. | Type of Proposed Action - (Response to Item 3)..... | 4 |
| 5. | State Environmental Policy Act - (Response to Item 4)..... | 5 |
| 6. | Process Description - (Response to Item 5)..... | 5 |
| 7. | Annual Possession Quantity and Physical Form - (Response to Items 10, 11, and 12)..... | 6 |
| 8. | Emission Control System - (Response to Item 6 and 7)..... | 6 |
| 8.1 | HEPA Filters..... | 6 |
| 8.2 | Emission Unit Specifics..... | 6 |
| 9. | Monitoring System - (Response to Item 9)..... | 6 |
| 10. | Potential Radionuclide Emissions - (Response to Items 8 and 13)..... | 6 |
| 11. | Potential Off-site Impact - (Response to Items 14 and 15)..... | 7 |
| 12. | Cost Factors - (Response to Item 16)..... | 7 |
| 13. | Facility Lifetime - (Response to Item 17)..... | 7 |
| 14. | Technology Standards - (Response to Item 18)..... | 7 |
| 14.1 | ASME/ANSI AG-1..... | 8 |
| 14.2 | ASME/ANSI N509..... | 8 |
| 14.3 | ASME/ANSI N510..... | 8 |
| 14.4 | ANSI/ASME NQA-1..... | 8 |
| 14.5 | 40 CFR 60, Appendix A..... | 8 |
| 14.6 | ANSI N13.1..... | 8 |
| 15. | References..... | 8 |

1. Introduction

This Notice of Construction (NOC) application is a modification pursuant to the requirements of Washington Administrative Code (WAC) 246-247, "Radiation Protection – Air Emissions" (WAC 2014), and Title 40 Code of Federal Regulations (CFR) Part 61, "National Emission Standards for Hazardous Air Pollutants" (EPA 2002) for conducting research at the Radiological Calibrations Laboratory – (shown as the 318 Building on the map in Figure 1) that result in fugitive emissions.¹ The 318 Building is located on the Hanford Site and is part of Pacific Northwest National Laboratory (PNNL) operated by Battelle for the U.S. Department of Energy (DOE).

2. Facility Location - (Response to Item 1)

U.S. Department of Energy, Richland Operations Office
Radiological Calibrations Laboratory (318 Building)
300 Area, Hanford Site
Richland, Washington 99352

Washington Geological Survey 84 Coordinates:
Latitude: 46 degrees 21 minutes 56.4 seconds
Longitude: 119 degrees 16 minutes 40.9 seconds

The 318 Building is in the 300 Area within DOE's Hanford Site, approximately 4 km (2.2 miles) north of Richland, Washington, and 0.5 km (0.3 miles) west of the Columbia River, as shown in Figure 1. The facility is located inside the controlled-area fence of the 300 Area. Figures 2 through 4 show the layout of the building at the time of the permit application.

3. Responsible Manager (Response to Item 2)

Doug S. Shoop, Acting Manager
Richland Operations Office
U.S. Department of Energy
P.O. Box 550, MSIN A7-50
Richland, Washington 99352
(509) 376-7395

¹ "Fugitive emissions" are radioactive air emissions which do not and could not reasonably pass through a stack, vent, or other functionally equivalent structure, and which are not feasible to directly measure and quantify (WAC 246-247-030 [WAC 2014]).

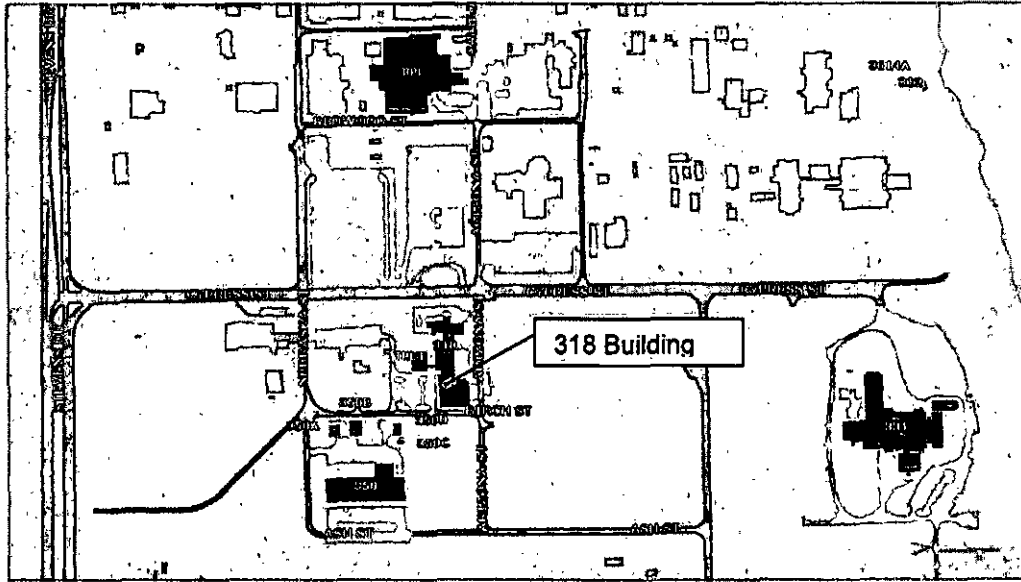


Figure 1 - Location of the Radiological Calibrations Laboratory (318 Building) - Hanford Site 300 Area

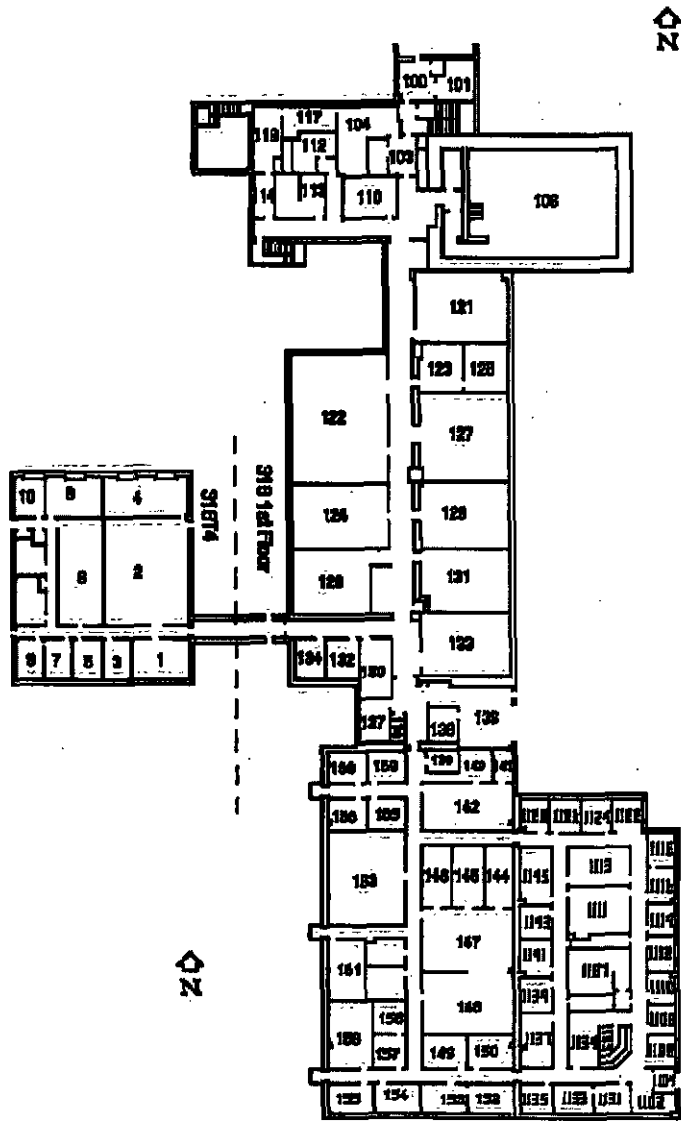


Figure 2 – 318 Building Floor 1 and Trailer 4

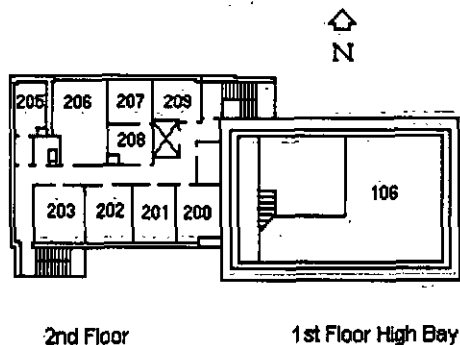


Figure 3 - 318 Building Second Floor

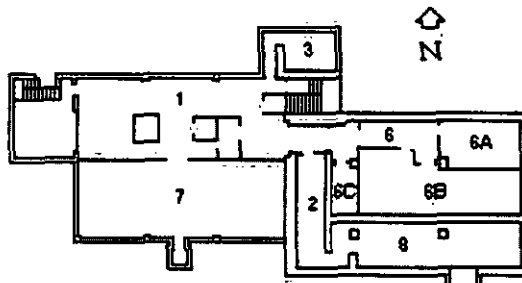


Figure 4 - 318 Building Basement

4. Type of Proposed Action - (Response to Item 3)

This NOC application revision is being submitted as a minor modification to the existing fugitive emission activity at the 318 Building. The purpose of this revision is to:

- Consolidate the existing permitted radiological air emissions from operations at the 318 Building under a single NOC, and
- Incorporate new research activities that will be relocated from the PNNL Campus into the 318 Building.

Laboratory spaces in the 318 Building may be used for research and development, as described under the process description, involving dispersible radioactive material. Included in the application are the estimated emissions and the potential-to-emit (PTE) total effective dose equivalent (TEDE) to the maximally exposed individual (MEI). This NOC application includes all 318 Building spaces and will obsolete the following WDOH approvals:

- WDOH NOC_ID 815, AIR 11-808, dated August 11, 2011 (J-318)
- WDOH NOC_ID 821, AIR 12-304, dated February 23, 2012 (EP-318-01-S)

5. State Environmental Policy Act - (Response to Item 4)

The proposed activities under this NOC are categorically exempt (WAC 197-11-845) from the State Environmental Policy Act (WAC 1998).

6. Process Description - (Response to Item 5)

The 318 Building provides technical services in internal dosimetry, external dosimetry, instrument calibration, repair, and materials testing for protecting the health of workers and the public, and providing liability protection for government and industrial customers. Additionally, workplace measurements are applied to research and development (R&D) activities to better understand and determine occupational exposures. Work activities may be performed "continuously" (i.e., year-round, normal-business, swing-shift, and night-shift hours).

In addition to the technical services, there is direct support for environment, health, safety and security systems. Product line R&D includes a strategic intent of assisting the government and individual customers to comply with exposure limits by providing accurate information about the level of exposure and dose to the workers from chemical and radioactive agents. The 318 Building also supports national nuclear security activities; it also stages and maintains equipment and performs team training for radiological assistance and response to radiological incidents.

The laboratory activities conducted in the 318 Building include:

- Basic and applied research in the areas of environmental health and sustainability.
- Developing methods for radioactive material sampling collection and analysis techniques.
- Developing methods to detect nuclear proliferation materials.
- Instrument testing with dispersible short-lived medical isotopes.
- Laboratory setup projects.
- Provide technical services in dosimetry and instrumentation (e.g., calibrations, and ANSI N42 equipment testing).
- Radiation testing on equipment and materials.
- Research activities involving the use and creation of mixed activation products (MAPs) mixed fission products (MFPs), and naturally-occurring radioactive materials, actinides and standards.
- Research and laboratory activities that may include processes where the temperature may be equal to or exceed 100°C.
- Research capabilities to support determining occupational and environmental doses and exposures.

- Research capabilities to support the development of radiation detection and measuring instruments.
- Support for national nuclear security and radiological assistance activities (e.g., equipment and sample management, and training).

7. Annual Possession Quantity and Physical Form - (Response to Items 10, 11, and 12)

Table 1 shows the gross alpha and gross beta/gamma annual possession quantity proposed for this emission unit. These values are developed based on historical and existing inventories at the 318 Building, as well as research that is planned for the 318 Building. The list of radioisotopes proposed for this emission unit is included in Table 2; this list is consistent with PNNL operations. However, many of these radioisotopes are not currently present in the emission unit. The actual release form is expected to be particulate solids and liquids, and in some cases a gas.

8. Emission Control System - (Response to Item 6 and 7)

The 318 Building has multiple emission points that may or may not be actively ventilated. Emissions from this non-point source are essentially fugitive in nature. There is currently no abatement technology credited for the 318 Building. No emission controls are proposed for this activity because of the low quantities of radioactive material that may be used or stored. Since no control devices are proposed, the abated emissions and doses are the same as the unabated emissions and doses.

8.1 HEPA Filters

N/A

8.2 Emission Unit Specifics

Height of Release Point: N/A (height of building is ~4.6 m)

Diameter of Release Point: N/A (fugitive emissions)

Volume of Release: N/A

Exhaust Velocity: N/A

Average Temperature: N/A

Effective Stack Height: N/A

9. Monitoring System - (Response to Item 9)

This emission unit is identified as PNNL Potential Impact Category 4 (PNNL 2012). Because the total unabated PTE for the emission unit is <0.1 mrem/yr TEDE to the MEI, the radionuclide emissions will be determined using 40 CFR 61, Appendix D calculations in lieu of monitoring (EPA 1989).

10. Potential Radionuclide Emissions - (Response to Items 8 and 13)

The total annual unabated and abated emissions for this activity as determined under WAC 246-247-030(21)(a) is approximately $2.2 \text{ E}+00 \text{ Ci/yr}$, resulting in $6.8 \text{ E}-04 \text{ mrem/yr}$ dose potential. These emissions are calculated based on conservative inventory estimates. The unabated PTE for this emission point is calculated annually and is used to verify compliance with the registration. There are no radioisotopes that could contribute $> 0.1 \text{ mrem/yr}$ to the MEI. Laboratory processes will be conducted "continuously" (i.e., year-round, during normal business, swing-shift, night-shift, and weekend hours).

Total reported emissions from the 318 Building for calendar year 2013 were $1.2\text{E}-08 \text{ mrem}$ effective dose equivalent to the MEI. Whereas, the cumulative reported fugitive emissions from the Hanford Site for calendar year 2013 were $5.5\text{E}-02 \text{ mrem}$ to the MEI (DOE 2014).

11. Potential Off-site Impact - (Response to Items 14 and 15)

For purposes of determining potential off-site impacts, the MEI is located approximately 1.4 km to the northeast on a farm near Sagemoor Road in Franklin County, Washington (DOE 2010). Dose conversion factors for the MEI were calculated using the EPA-approved dose-modeling program, CAP88-PC (EPA 2007). The CAP88-PC program-derived dose conversion factors from *Calculating Potential to Emit Radiological Releases and Doses, DOE/RL-2006-29, Rev. 1* were used in determining the potential off-site impact (DOE 2010). The additional following assumptions were made for determining unit dose factors:

- The maximally exposed individual is an off-site receptor.
- Based on Figure 4-1 of the referenced document, the 318 Building was determined to be in the emission zone of the 300 Area.
- The effective release height of the 318 Building fugitive emission locations is less than 40 meters.

The unabated PTE for the proposed activity as determined under WAC 246-247-030(21)(a) is $6.8 \text{ E}-04 \text{ mrem/yr}$. The abated PTE for this activity is the same since no emission controls are considered.

12. Cost Factors - (Response to Item 16)

No control technologies are proposed therefore cost factors are not discussed here.

13. Facility Lifetime - (Response to Item 17)

The estimated remaining lifetime of the 318 Building is 15 to 20 years.

14. Technology Standards - (Response to Item 18)

14.1 ASME/ANSI AG-1

N/A – Fugitive Emissions Source

14.2 ASME/ANSI N509

N/A – Fugitive Emissions Source

14.3 ASME/ANSI N510

N/A – Fugitive Emissions Source

14.4 ANSI/ASME NQA-1

The quality assurance requirements for tracking radiological material are outlined in EM-QA-01, *Effluent Management Quality Assurance Plan*. This QA plan is compatible with EPA QA/R-5, *EPA Requirements for Quality Assurance Project Plans*.

14.5 40 CFR 60, Appendix A

N/A – Fugitive Emissions Source

14.6 ANSI N13.1

N/A – Fugitive Emissions Source

15. References

Pacific Northwest National Laboratory (PNNL). 2012. *Pacific Northwest National Laboratory Potential Impact Categories for Radiological Air Emission Monitoring*, Revision 4. PNNL-19904. Richland, WA: Effluent Management.

U.S. Department of Energy (DOE). 2010. *Calculating Potential-to-Emit Radiological Releases and Doses, Revision 1*. DOE/RL-2006-29. Richland, WA: Richland Operations Office.

U.S. Department of Energy/Richland Operations (DOE). 2014. *Radionuclide Air Emissions Report for the Hanford Site, Calendar Year 2013*, Revision 0. DOE/RL-2014-14. Richland, WA: Richland Operations Office.

U.S. Environmental Protection Agency (EPA). 1989. *Methods for Estimating Radionuclide Emissions*. 40 CFR 61, Appendix D. Washington, DC: U.S. Government Printing Office.

U.S. Environmental Protection Agency (EPA). 2002. *National Emission Standards for Hazardous Air Pollutants for Radionuclides Other Than Radon from Department of Energy Facilities*. 40 CFR 61, Subpart H. Washington, DC: U.S. Government Printing Offices.

U.S. Environmental Protection Agency (EPA). 2007. *CAP88-PC Version 3.0 User Guide*. Washington, DC: Office of Radiation and Indoor Air.

Washington Administrative Code (WAC). 2003. "Department of Social and Health Services." WAC 197-11-845, Olympia, WA.

Washington Administrative Code (WAC). 2014. "Radiation Protection - Air Emissions." WAC 246-247, Olympia, WA.

Washington State Department of Health (WDOH). 2006. *NOC Approval for Calibration & Development Activities in the Radiological Calibrations Lab (318 BLDG)*. Letter from A. W. Conklin, WDOH, to P. Garcia, DOE, dated 10/5/2006. Letter number AIR 06-1037. Olympia, WA: Office of Radiation Protection, Radioactive Air Emissions.

Table 1. Summarized Radionuclide Inventory, Form, and Potential Unabated and Abated Emissions

| Nuclide | Form ^a | Composite Inventory (Ci/yr) | Release Fraction | Potential Unabated Emissions (Ci/yr) | Composite Unit Dose Factor (mrem/Ci) | Potential Unabated Dose (mrem/yr) | Control Technology Efficiency (1.0-Eff) | Potential Abated Emissions (Ci/yr) | Potential Abated Dose (mrem/yr) |
|-------------------------------|-------------------|-----------------------------|------------------|--------------------------------------|--------------------------------------|-----------------------------------|---|------------------------------------|---------------------------------|
| Gross Alpha ^b | G | 2.0E-01 | 1.0E+00 | 2.0E-01 | 1.9E-03 | 3.9E-04 | 1.0E+00 | 2.0E-01 | 3.9E-04 |
| Gross Beta/Gamma ^b | G | 2.0E+00 | 1.0E+00 | 2.0E+00 | 1.5E-04 | 2.9E-04 | 1.0E+00 | 2.0E+00 | 2.9E-04 |
| Totals | | 2.2E+00 | | 2.2E+00 | | 6.8E-04 | | 2.2E+00 | 6.8E-04 |

^a The form is conservatively listed as "G" for gases.

^b See Table 2 for summary of radionuclides included in the gross alpha and gross beta/gamma determination and authorized for use.

Table 2. Radionuclides Authorized for Use at PNNL

| | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|
| Ac-225 | Au-194 | Br-82 | Cf-251 | Cs-139 | Gd-148 | I-130 |
| Ac-227 | Au-195 | Br-82m | Cf-252 | Cs-140 | Gd-149 | I-130m |
| Ac-228 | Au-196 | Br-83 | Cl-36 | Cs-141 | Gd-151 | I-131 |
| Ag-108 | Au-198 | Br-84 | Cm-241 | Cu-64 | Gd-152 | I-132 |
| Ag-108m | Au-198m | Br-84m | Cm-242 | Cu-66 | Gd-153 | I-132m |
| Ag-109m | Au-199 | Br-85 | Cm-243 | Cu-67 | Gd-159 | I-133 |
| Ag-110 | Ba-131 | C-11 | Cm-244 | Dy-159 | Ge-68 | I-133m |
| Ag-110m | Ba-133 | C-14 | Cm-245 | Dy-165 | Ge-71 | I-134 |
| Ag-111 | Ba-133m | C-15 | Cm-246 | Dy-169 | Ge-71m | I-134m |
| Ag-112 | Ba-137m | Ca-41 | Cm-247 | Er-169 | Ge-75 | I-135 |
| Al-26 | Ba-139 | Ca-45 | Cm-248 | Er-171 | Ge-77 | In-106 |
| Al-28 | Ba-140 | Ca-47 | Cm-250 | Es-254 | Ge-77m | In-111 |
| Am-240 | Ba-141 | Cd-107 | Co-56 | Eu-150 | H-3 | In-113m |
| Am-241 | Ba-142 | Cd-109 | Co-57 | Eu-152 | Hf-175 | In-114 |
| Am-242 | Ba-143 | Cd-111m | Co-58 | Eu-152m | Hf-178m | In-114m |
| Am-242m | Be-7 | Cd-113 | Co-60 | Eu-154 | Hf-179m | In-115 |
| Am-243 | Be-10 | Cd-113m | Co-60m | Eu-155 | Hf-181 | In-115m |
| Am-245 | Bi-207 | Cd-115 | Cr-49 | Eu-156 | Hf-182 | In-116 |
| Am-246 | Bi-208 | Cd-115m | Cr-51 | Eu-157 | Hg-203 | In-116m |
| Ar-37 | Bi-210 | Cd-117 | Cr-55 | F-18 | Ho-163 | In-117 |
| Ar-39 | Bi-210m | Cd-117m | Cs-131 | Fe-55 | Ho-166 | In-117m |
| Ar-41 | Bi-211 | Ce-139 | Cs-132 | Fe-59 | Ho-166m | Ir-189 |
| Ar-42 | Bi-212 | Ce-141 | Cs-134 | Fr-221 | I-122 | Ir-190 |
| As-74 | Bi-213 | Ce-142 | Cs-134m | Fr-223 | I-123 | Ir-192 |
| As-76 | Bi-214 | Ce-143 | Cs-135 | Ga-67 | I-125 | Ir-194 |
| As-77 | Bk-247 | Ce-144 | Cs-136 | Ga-68 | I-126 | K-40 |
| At-217 | Bk-249 | Cf-249 | Cs-137 | Ga-70 | I-128 | K-42 |
| Au-193 | Bk-250 | Cf-250 | Cs-138 | Ga-72 | I-129 | Kr-81 |

| | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|
| Kr-81m | Na-24m | O-15 | Po-209 | Pu-242 | Rh-106 | Sm-148 |
| Kr-83m | Nb-91 | O-19 | Po-210 | Pu-243 | Rn-219 | Sm-151 |
| Kr-85 | Nb-91m | Os-191 | Po-211 | Pu-244 | Rn-220 | Sm-153 |
| Kr-85m | Nb-92 | P-32 | Po-212 | Pu-246 | Rn-222 | Sm-157 |
| Kr-87 | Nb-93m | P-33 | Po-213 | Ra-223 | Rn-224 | Sn-113 |
| Kr-88 | Nb-94 | Pa-231 | Po-214 | Ra-224 | Ru-97 | Sn-117m |
| Kr-89 | Nb-95 | Pa-233 | Po-215 | Ra-225 | Ru-103 | Sn-119m |
| Kr-90 | Nb-95m | Pa-234 | Po-216 | Ra-226 | Ru-105 | Sn-121 |
| La-137 | Nb-96 | Pa-234m | Po-218 | Ra-228 | Ru-106 | Sn-121m |
| La-138 | Nb-97 | Pb-203 | Pr-143 | Rb-81 | S-35 | Sn-123 |
| La-140 | Nb-97m | Pb-209 | Pr-144 | Rb-82 | Sb-122 | Sn-125 |
| La-141 | Nb-98 | Pb-210 | Pr-144m | Rb-83 | Sb-124 | Sn-126 |
| La-142 | Nb-100 | Pb-211 | Pt-191 | Rb-84 | Sb-125 | Sr-82 |
| La-144 | Nb-101 | Pb-212 | Pt-192 | Rb-86 | Sb-126 | Sr-85 |
| Lu-177 | Nb-103 | Pb-214 | Pt-193 | Rb-87 | Sb-126m | Sr-87m |
| Lu-177m | Nd-144 | Pd-103 | Pt-193m | Rb-88 | Sb-127 | Sr-89 |
| Mg-27 | Nd-147 | Pd-107 | Pt-195m | Rb-89 | Sb-129 | Sr-90 |
| Mg-28 | Ni-56 | Pd-109 | Pt-197 | Rb-90 | Sc-44 | Sr-91 |
| Mn-52 | Ni-57 | Pd-112 | Pt-197m | Rb-90m | Sc-46 | Sr-92 |
| Mn-54 | Ni-59 | Pm-143 | Pt-198 | Re-186 | Sc-47 | Ta-179 |
| Mn-56 | Ni-63 | Pm-144 | Pt-199 | Re-187 | Sc-48 | Ta-180 |
| Mo-93 | Ni-65 | Pm-145 | Pt-199m | Re-188 | Se-75 | Ta-182 |
| Mo-99 | Np-235 | Pm-146 | Pu-234 | Rh-101 | Se-79 | Ta-182m |
| Mo-103 | Np-236 | Pm-147 | Pu-236 | Rh-102 | Se-79m | Ta-183 |
| Mo-104 | Np-237 | Pm-148 | Pu-237 | Rh-102m | Si-31 | Tb-157 |
| Mo-105 | Np-238 | Pm-148m | Pu-238 | Rh-103m | Si-32 | Tb-158 |
| N-13 | Np-239 | Pm-149 | Pu-239 | Rh-104 | Sm-145 | Tb-160 |
| Na-22 | Np-240 | Pm-151 | Pu-240 | Rh-105 | Sm-146 | Tb-161 |
| Na-24 | Np-240m | Po-208 | Pu-241 | Rh-105m | Sm-147 | Tc-95 |

| | | | | | | |
|---------|---------|--------|--------|---------|---------|--------|
| Tc-95m | Te-127 | Th-231 | Tm-170 | W-181 | Xe-135m | Yb-177 |
| Tc-97 | Te-127m | Th-232 | Tm-171 | W-185 | Xe-137 | Zn-65 |
| Tc-97m | Te-129 | Th-233 | U-232 | W-187 | Xe-138 | Zn-69 |
| Tc-98 | Te-129m | Th-234 | U-233 | W-188 | Xe-139 | Zn-69m |
| Tc-99 | Te-131 | Ti-44 | U-234 | Xe-122 | Y-88 | Zr-88 |
| Tc-99m | Te-131m | Ti-45 | U-235 | Xe-123 | Y-90 | Zr-89 |
| Tc-101 | Te-132 | Ti-51 | U-235m | Xe-125 | Y-90m | Zr-93 |
| Tc-103 | Te-133 | Tl-201 | U-236 | Xe-127 | Y-91 | Zr-95 |
| Tc-106 | Te-133m | Tl-204 | U-237 | Xe-127m | Y-91m | Zr-97 |
| Te-121 | Te-134 | Tl-206 | U-238 | Xe-129m | Y-92 | Zr-98 |
| Te-121m | Th-227 | Tl-207 | U-239 | Xe-131m | Y-93 | Zr-99 |
| Te-123 | Th-228 | Tl-208 | U-240 | Xe-133 | Yb-164 | Zr-100 |
| Te-123m | Th-229 | Tl-209 | V-48 | Xe-133m | Yb-169 | |
| Te-125m | Th-230 | Tm-168 | V-49 | Xe-135 | Yb-175 | |

ENCLOSURE 2

**HANFORD SITE AIR OPERATING PERMIT
NOTIFICATION OF OFF-PERMIT CHANGE
FOR FUGITIVE EMISSIONS FROM THE 318 BUILDING (RADIOLOGICAL
CALIBRATIONS LABORATORY), REVISION 1, HANFORD SITE, RICHLAND,
WASHINGTON
Permit Number: 00-05-006 Renewal 2**

HANFORD SITE AIR OPERATING PERMIT

NOTIFICATION OF OFF-PERMIT CHANGE

Permit Number: 00-05-006 Renewal 2

for the 318 Building

Fugitive Emissions J-318, Revision 1

This notification is provided to Washington State Department of Ecology, Washington State Department of Health, and the U.S. Environmental Protection Agency as a notice of an off-permit change described as follows.

This change is allowed pursuant to WAC 173-401-724(1), WAC 173-401-724(2), and WAC 173-401-724(6):

1. Change is not specifically addressed or prohibited by the permit terms and conditions,
2. Change does not weaken the enforceability of the existing permit conditions,
3. Change is not a Title I modification or a change subject to the acid rain requirements under Title IV of the FCAA,
4. Change meets all applicable requirements and does not violate an existing permit term or condition,
5. Change has complied with applicable preconstruction review requirements established pursuant to RCW 70.94.152.

Provide the following information pursuant to WAC-173-401-724(3):

Description of the change:

The 318 Building has previously been permitted to conduct research and development activities with dispersible materials:

- internal and external dosimetry
- instrument calibration, repair, and testing for protecting the health of workers and the public
- liability protection for government and industrial customers
- environment, health, safety and security systems
- occupational and environmental exposure/dose assessment from chemical and radioactive agents
- instrument testing with dispersible short-lived medical isotopes
- laboratory setup projects
- use and creation of mixed activation products (MAPs) and mixed fission products (MFPs).
- development of radiation detection and measuring instruments
- national nuclear security and radiological assistance activities (e.g., equipment and sample management, and training)

Research that is currently housed in the RTL-520 facility is slated to be moved to the 318 Building in CY2015. The research scope to be relocated is consistent with the current scope in the 318 Building, with the exception of the following capabilities that are to be added to the 318 Building permit:

- Basic and applied research in the areas of environmental health and sustainability.
- Developing methods to detect nuclear proliferation materials.
- Developing methods for radioactive material sampling collection and analysis techniques.

This revision of the J-318 fugitive emission permit will incorporate all emissions (point source and fugitive) under a single non-point fugitive emissions permit for the 318 Building. Once approved, the EP-318-01-S will no longer exist and will be deregistered at a later time (Emission Unit ID: 175, under approval # AIR-06-1037).

Date of Change: (To be provided in the agency approval order.)

NOTIFICATION OF OFF-PERMIT CHANGE

Permit Number: 00-05-006 Renewal 2

for the 318 Building

Fugitive Emissions J-318, Revision 1

TBD

Describe the emissions resulting from the change:

The annual unabated and abated maximum emissions proposed for this change are 2.2 Ci/yr. These emissions are calculated based on conservative inventory estimates. The total annual unabated and abated total effective dose equivalent to the maximally exposed individual as proposed for this activity and determined under WAC 246-247-030(21)(a) is 6.8 E-04 mrem/yr.

**Describe the new applicable requirements that will apply as a result of the change:
(To be provided in the agency approval order.)**

TBD

For Hanford Use Only:

AOP Change Control Number:

Date Submitted: