ENGINEERING CHANGE NOTICE

1. Revise WHC-SD-NEL-HIE-001, Rev. 0 to new Hanford identification number HNF-SD-NEL-HIE-001, Rev. 1.
2. Replace all pages with new Rev. 1 pages dated 6/25/97 for main document and 6/19/97 for document attachments. NOTE: Specific text changes within document are highlighted by redline shading for easy recognition.
3. Change text and graphics as redlined in attached to reflect facility status.

NOTE: All design changes and physical work discussed in this basis document were accomplished by specific work control packages and other drawing ECNs.

Reason for Changes: Fire Protection Analysis WHC-SD-NEL-HIE-001 provided the basis for deactivation and removal of specific equipment to facilitate taking out of service the 309 Building Fire Sprinkler System. Original fire protection justification document resulted in open action items. This change documents completion of open actions and support of FFTF IEM Mockup Cell temporary test and training activities. In addition, this revision reflects new site and facility contractor.
ENGINEERING CHANGE NOTICE

16. Design Verification Required
   [ ] Yes  [X] No

17. Cost Impact
   ENGINEERING
   Additional Savings [ ] $ N/A
   CONSTRUCTION
   Additional Savings [ ] $ N/A

18. Schedule Impact (days)
   Improvement [ ] NONE
   Delay [ ]

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD
Functional Design Criteria
Operating Specification
Criticality Specification
Conceptual Design Report
Equipment Spec.
Cons. Spec.
Procurement Spec.
Vendor Information
OM Manual
FSAR/SAR
Safety Equipment List
Radiation Work Permit
Environmental Impact Statement
Environmental Report
Environmental Permit
Seismic/Earth Analysis
Stress/Design Report
Interface Control Drawing
Calibration Procedure
Installation Procedure
Engineering Procedure
Operating Instruction
Operating Procedure
Operational Safety Requirement
Operational Procedure
Fac. Proc. Sched. Schedule
Facility Procurement Schedule
Facility Plan
Facility Schedule
Seismic/Earth Analysis
Stress/Design Report
Interface Control Drawing
Calibration Procedure
Installation Procedure
Engineering Procedure
Operating Instruction
Operating Procedure
Operational Safety Requirement
Facility Procurement Schedule
Facility Plan
Facility Schedule

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

   Document Number/Revision
   Document Number/Revision

   Engineering
   Design Authority E.J. Bitten
   Cog. Eng. R.P. Conner
   Cog. Mgr. E.J. Bitten
   QA M.E. Riste
   Safety S.A. Korling
   Environ. D.E. Rasmussen
   IEM Cog Engr. J.R. Vincent
   Fire Protection J.S. Dale
   Release Analysis D.A. Himes
   PE
   QA
   Safety
   Design
   Environ.
   Other

21. Approvals

   Signature
   Date
   Design Agent
   Date

   ADDITIONAL

DEPARTMENT OF ENERGY
Signature or Control Number that tracks the Approval Signature

A-7900-013-3 (05/96) GEF096
309 Building Fire Protection Analysis and Justification for Deactivation of Sprinkler System

R. P. Conner
B&W Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: ECN 640663
Org Code: 19110
B&R Code: EX7002000
Total Pages: 57

Key Words: Fire, Analysis, 309 Bldg., Deactivation, Transition, PRTR, AFT, 300 Area, B&W

Abstract: Document summarizes evaluation and analysis performed for 309 Building to determine potential consequences of releasing radiological or hazardous materials by fire. Document provides basis for deactivation of 309 Building sprinkler system.

Document concludes:
1) All potential radiological and hazardous releases due to fire are well below DOE and regulatory guidelines (both onsite and offsite) for Effective Dose Equivalent exposures.
2) 309 Building stabilization and 300 Area cleanup cost is estimated to be $960,000 due to a fire.
3) Deactivation of sprinkler system is justified.
4) Infrequent utilization of the IEM Mockup Cell within the 309 Bldg. (including its associated hydraulic shear) for temporary training and testing activities is acceptable during the building transition phase.


TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: Document Control Services, P.O. Box 950, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420, Fax (509) 376-6989.

Approved for Public Release

A-6400-073 (01/97) GEF321
<table>
<thead>
<tr>
<th>Revision</th>
<th>Description of Change - Replace, Add, and Delete Pages</th>
<th>Authorized for Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>EDT-605212, 2/22/96</td>
<td></td>
</tr>
<tr>
<td>1 RS</td>
<td>Replace all Rev. 0 pages with Rev. 1 for both document and attachments. Per ECN-640663.</td>
<td>RP Conner, EJ Bitten</td>
</tr>
</tbody>
</table>

(2) Title
309 Building Fire Protection Analysis and Justification for Deactivation of Sprinkler System

(1) Document Number
HNF-SD-NEL-HIE-001, Rev. 1

Page 1
309 BUILDING

FIRE PROTECTION ANALYSIS AND JUSTIFICATION

FOR

DEACTIVATION OF SPRINKLER SYSTEM

HNF-SD-NEL-HIE-001

Prepared by: R.P. Conner

Advanced Fuel Facilities Transition (AFFT)

B & W Hanford Company

1st Release: Feb. 21, 1996 (Rev. 0)
2nd Release: June 25, 1997 (Rev. 1)

(Reference ECN 640663 for Rev. 1 changes)
NOTE: Document I.D. originally WHC-SD-NEL-HIE-001
See EDT 605212 for original Rev. 0 release approval signatures
See EDT 156461 for original release calculations

file: group drive AP003\PRTR\Directories\file FIRE\ANALYSIS\ANALYSIS.R-1
## TABLE OF CONTENT

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRONYMS</td>
<td>iii</td>
</tr>
<tr>
<td>EXECUTIVE SUMMARY &amp; CONCLUSIONS</td>
<td>iv</td>
</tr>
<tr>
<td>1.0 PURPOSE</td>
<td>1</td>
</tr>
<tr>
<td>2.0 SCOPE</td>
<td>1</td>
</tr>
<tr>
<td>3.0 BUILDING MISSION</td>
<td>2</td>
</tr>
<tr>
<td>4.0 SPRINKLER DEACTIVATION CRITERIA</td>
<td>2</td>
</tr>
<tr>
<td>5.0 BUILDING VALUE</td>
<td>3</td>
</tr>
<tr>
<td>5.1 FY 95 Building Value</td>
<td>3</td>
</tr>
<tr>
<td>5.2 FY 96 Building Value</td>
<td>3</td>
</tr>
<tr>
<td>6.0 MAXIMUM POSSIBLE FIRE LOSS</td>
<td>3</td>
</tr>
<tr>
<td>6.1 Case Evaluations &amp; Credibility of Releases</td>
<td>3</td>
</tr>
<tr>
<td>6.2 Cleanup Cost from Fire</td>
<td>6</td>
</tr>
<tr>
<td>6.2.1 Interior Building Cleanup</td>
<td>9</td>
</tr>
<tr>
<td>6.2.2 Interior Building Stabilization</td>
<td>9</td>
</tr>
<tr>
<td>6.2.3 Exterior Area Cleanup</td>
<td>10</td>
</tr>
<tr>
<td>6.2.4 Radiological Survey Cost</td>
<td>10</td>
</tr>
<tr>
<td>6.2.5 300 Area Critical Program Impact Cost</td>
<td>10</td>
</tr>
<tr>
<td>6.2.6 Total MPFL Cleanup Cost</td>
<td>10</td>
</tr>
<tr>
<td>7.0 FIRE PROTECTION, PROPAGATION, &amp; LOADING</td>
<td>11</td>
</tr>
<tr>
<td>7.1 Fire Protection Features</td>
<td>11</td>
</tr>
<tr>
<td>7.2 Fire Propagation Features</td>
<td>11</td>
</tr>
<tr>
<td>7.3 Fire Loading Summary</td>
<td>12</td>
</tr>
<tr>
<td>7.4 Fire Protection Alterations</td>
<td>12</td>
</tr>
<tr>
<td>8.0 DESCRIPTION OF FIRE HAZARDS, SOURCES, AND GENERAL CONSTRUCTION</td>
<td>15</td>
</tr>
<tr>
<td>9.0 RADIOLOGICAL RELEASE ANALYSIS</td>
<td>16</td>
</tr>
<tr>
<td>10.0 HAZARDOUS/TOXIC RELEASE ANALYSIS</td>
<td>17</td>
</tr>
</tbody>
</table>
11.0 LIFE SAFETY ................................................................. 19
  11.1 General Building ................................................... 19
  11.2 IEM Mockup Cell ................................................... 19
  11.3 PRTR Rupture Loop Annex (Room 20) .......................... 20
  11.4 Containment Dome ................................................ 21

12.0 HANFORD FIRE DEPARTMENT ........................................ 21

13.0 BUILDING SECURITY AND SAFEGUARDS .......................... 22

14.0 NATURAL HAZARDS IMPACT ON FIRE SAFETY .................. 22
  14.1 Floods ............................................................... 22
  14.2 Tornadoes ........................................................... 22
  14.3 Earthquake .......................................................... 23

15.0 REFERENCES ............................................................. 23

16.0 BIBLIOGRAPHY .......................................................... 24

Tables

Table 1 309 Building Locations of Removed Fire Detectors ............ 14
Table 2 309 Inventory Of Radiological Hazards ........................ 17
Table 3 309 Inventory Of Non-Radiological Hazards .................... 18

Figures

Figure 1 Worst Case Radiological Plume Contamination For Different Wind Directions - Soil & Hard Surfaces ................................. 8

Attachments

Attachment (A) 309 Building Combustible Inventories ................ A-1
Attachment (B) Correspondence ........................................... B-1
Attachment (C) Floor Plan Figures ....................................... C-1
  Figure C-1 309 Building Ground Level Floor Plan .................. C-2
  Figure C-2 309 Building Basement Level Floor Plan ............... C-3
  Figure C-3 309 Building Dome Levels Floor Plan ................. C-4
  Figure C-4 309 Building Dome Cross Section ....................... C-5
# ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BWHC</td>
<td>B &amp; W Hanford Company</td>
</tr>
<tr>
<td>D&amp;D</td>
<td>Decommission and Demolition</td>
</tr>
<tr>
<td>D&amp;D</td>
<td>Decontamination and Decommissioning</td>
</tr>
<tr>
<td>DOE</td>
<td>U.S. Department of Energy</td>
</tr>
<tr>
<td>DOE-EM</td>
<td>DOE office of Environmental Restoration and Waste Management</td>
</tr>
<tr>
<td>DOE-NE</td>
<td>U.S. Department of Energy-Nuclear Energy</td>
</tr>
<tr>
<td>EDE</td>
<td>Effective Dose Equivalent</td>
</tr>
<tr>
<td>ERC</td>
<td>Environmental Restoration Contract</td>
</tr>
<tr>
<td>FFTF IEM</td>
<td>Fast Flux Test Facility Interim Examination and Maintenance Cell</td>
</tr>
<tr>
<td>FSB</td>
<td>Fuel Storage Basin</td>
</tr>
<tr>
<td>FWP</td>
<td>Field Work Proposal</td>
</tr>
<tr>
<td>HEPA</td>
<td>high-efficiency particulate air filtration</td>
</tr>
<tr>
<td>HIE</td>
<td>Hazard Identification Evaluation</td>
</tr>
<tr>
<td>HLAN</td>
<td>Hanford Local Area Network</td>
</tr>
<tr>
<td>ICF KH</td>
<td>ICF Kaiser Hanford Company</td>
</tr>
<tr>
<td>IEM</td>
<td>Interim Examination and Maintenance</td>
</tr>
<tr>
<td>NEL</td>
<td>Nuclear Energy Legacies</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>NRC</td>
<td>Nuclear Regulatory Commission</td>
</tr>
<tr>
<td>M&amp;M</td>
<td>Maintenance and Mockup</td>
</tr>
<tr>
<td>MPFL</td>
<td>Maximum Possible Fire Loss</td>
</tr>
<tr>
<td>PRCF</td>
<td>Plutonium Recycle Critical Facility</td>
</tr>
<tr>
<td>PRTR</td>
<td>Plutonium Recycle Test Reactor</td>
</tr>
<tr>
<td>RLA</td>
<td>Rupture Loop Annex</td>
</tr>
<tr>
<td>SP-100</td>
<td>Space Propulsion nuclear power program</td>
</tr>
<tr>
<td>WHC</td>
<td>Westinghouse Hanford Company</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY & CONCLUSIONS

This document provides the basis for deactivation of the 309 Building Fire Protection Sprinkler System. Physical facility changes were accomplished via independent work control packages. The following summarize conclusions, actions, issues, and basis:

a) All potential radiological and hazardous releases due to a fire are below risk acceptance guidelines (both onsite and offsite).

b) Worst case 300 Area cleanup cost due to a 309 fire is estimated at $960K which includes (after fire) building stabilization, surrounding soil and hard surfaces (see section 6.2.4).

NOTE: Worst case cleanup cost estimate is primarily due to burning building northwest wing which in turn results in a Reappraisal Loop Annex (RLA) (room 20) radiological release of 1994 inventory projection. Considerable cleanup and stabilization of the RLA was completed March 17, 1997 which determined the radiological inventory in this location of building was significantly less than anticipated. See Reappraisal Loop Annex (RLA) Room 20 Stabilization report HNF-SD-NEL-ER-003 (June 97) for characterization results and stabilization actions.

c) The four DOE RLID 5480.7, section 8.3, Decommission and Demolition, Fire Protection Criteria (see section 4.0) can be satisfied for sprinkler deactivation.

d) ACTION: Revise site accounting books to reflect 309 Building and content values at zero $ value. STATUS: Accounting records revised 4/2/96.

e) ACTION: Remove and dispose of switchgear battery bank. STATUS: Work accomplished 4/24/96 through 4/25/96 on work packages 38-96-0024, 25, and 37.

f) ACTION: Remove and dispose of 500 KVA transformer E5290P. STATUS: Work accomplished 3/23/96 through 3/27/96 on work packages 2G-96-00102/M and 6B-96-0071/M.

g) ACTION: Resolve 309 Interim Examination Maintenance Mockup Cell egress issue with "Equivalency Request" to DOE or other actions. STATUS: Egress pathways from bottom floor of IEM Mockup Cell were improved by cleaning of the cell and relocation of file and storage cabinets in the egress pathways. These improvements enhanced the egress visibility and slightly shortened the distance of "common path of travel". A walkdown with DOE and WHC representatives was conducted on 3/19/96. The review team concluded that an "Equivalency Request" was not required and justification for accepting existing "common path of travel" was adequate. The basis for this acceptance is provided in section 11.2 of this document.

Following factors summarize Fire Protection Analysis (FPA) conclusions and sprinkler deactivation basis:

1. Fire suppression system is no longer needed to support safe deactivation and transition activities for 309 Building. STATUS: System was taken out of service May 9, 1996 on work package 2G-96-00235/M. Smoke detectors were physically removed from building on 7/22/96 per work package 38-96-00021/M.
2. Administrative controls will be implemented to protect personnel from fire during training and testing activities within Interim Examination and Maintenance (IEM) Cell Mockup area.

3. 309 Building is no longer occupied by office personnel.

4. All nonessential utility systems have been shutdown or deactivated.

5. Fire loading in building has been minimized.

6. 309 Building is a safe distance from other nearby buildings and does not present a fire hazard to, nor from, nearby buildings.

7. Onsite and offsite radiological and hazardous material release risk and consequences are acceptable within risk acceptance guidelines.

8. Four cases were evaluated for credibility of radiological and toxicological releases due to a postulated fire. (#1) containment dome only, (#2) building only, (#3) dome + building, and #4 Rupture Loop Annex area.

9. Maximum Possible Fire Loss (MPFL) is limited to cleanup cost since building and content value is zero.

10. 309 Building 480 volt electrical service to nearby office building 3763 has been deactivated thus eliminating any program impact upon 3763 staff supporting other facilities such as 324 and 327 (Ref. 309 work package 3B-96-00026/M).
1.0 PURPOSE

1. Define risk and cleanup associated with a 309 Building fire

2. Provide a basis to shutdown steam heat to 309 Building to save approximately $280K annual operating, maintenance, and surveillance cost during transition of facility through decontamination and decommissioning (D&D) / decommissioning and demolition (D&D)

3. Provide justification to deactivate 309 Building fire suppression sprinkler system

4. Support programmatic zero dollar book value of 309 Building and all contents. [See Attachment (B), Correspondence DOE 95-FFTF-112, Dec. 20, 1995]

2.0 SCOPE

Provide a "graded approach" fire evaluation in preparation for turnover to Environmental Restoration Contractor for D&D. Scope includes revising 309 Building book value and evaluating fire hazards, radiological and toxicological releases, and life safety issues.

309 Building is classified as a "Radiological Facility". It does not require a "Fire Hazard Analysis" (FHA) as outlined in DOE 5480.7A.

NOTE: 309 Building was reclassified from a "Nuclear Facility" to a "Radiological Facility" in 1995. (Reference WHC-SD-SP-PHA-001)

Although a FHA is not required due to building classification, a safety basis is required. A fire is assessed as maximum credible building hazard. It is intended that throughout this "graded approach" analysis that basic objectives of DOE 5480.7A will be addressed. Objectives are summarized as:

1. Minimize potential for occurrence of a fire or related perils.

2. Ensure that fire does not cause an unacceptable onsite or offsite release of hazardous material that will threaten public health and safety, or environment.

3. Establish requirements consistent with National Fire Protection Association 101 Life Safety Code that will provide an acceptable degree of life safety to DOE and contractor personnel, and that there are no undue hazards to public from fire and its effects in DOE facilities.

4. Ensure that vital DOE programs will not suffer unacceptable delays (defined by program senior official) as a result of fire and related perils.

5. Ensure that property damage from fire and related perils does not exceed DOE established levels.

6. Ensure that utilities and safety systems necessary for transition to decontamination and decommissioning are not damaged by fire or related perils.
3.0 BUILDING MISSION

No future programmatic production nor reactor related missions are planned for 309 Building. Building is scheduled for additional characterization, decontamination, system deactivations, and turnover to Environmental Restoration Contractor in 1998 or 99. Until turnover occurs, primary activities within building will be:

1. Intermittent building access for FFTF training and testing in 309 IEM Mockup Cell located within 309 Building

2. Intermittent building access for 309 Building PRTR legacy characterization and cleanup actions necessary for building turnover to D&D.

4.0 SPRINKLER DEACTIVATION CRITERIA

Criteria for deactivating 309 Building sprinkler system are taken from RLID 5480.7, Fire Protection, Section 8.3, Decommission and Demolition Facilities. Criteria are summarized below and stated verbatim in italics:

a) Property book value of building and contents must be less than $1M

   NOTE: Potential cleanup costs from Maximum Possible Fire Loss (MPFL) must be included in this limit.

   "Property book value of facility or operation (includes building and building contents) must be devaluated below levels, which would require certain fire protection features. Even if property has no inherent value but property is shown to have record value, fire protection must be maintained until recorded value is lowered below protection requirements."

b) Potential radiological/hazardous material release must not exceed DOE and regulatory guidelines

   "An analysis must be performed to demonstrate that a radiological or hazardous material release, beyond DOE guidelines, is not possible. Analysis must be performed or reviewed by a qualified Fire Protection Engineer. If fire protection feature(s) are determined necessary to prevent a radiological or hazardous release, then fire protection feature(s) must remain in place until radiological or hazardous materials are removed."

c) NFPA 101 Life Safety Code requirements must be satisfied for conducting transition activities

   "For life safety purposes, fire protection features may only be deactivated after personnel are no longer occupying facility. For purposes of this section, a facility is considered to be occupied, as defined by NFPA 101, Life Safety Code."
d) Hanford Fire Department must be apprised of proposed building changes to ensure proper response to building emergencies.

"Decommission and demolition activities must be coordinated with Hanford Fire Department for fire and emergency medical response services."

5.0 BUILDING VALUE

5.1 FY 95 Building Value

In FY 1995 Westinghouse Hanford Company Property Management identified 309 Building replacement cost at $26,404,515 and book value at $5,102,519. These values were previously established based upon building square footage, contents of furniture and equipment, and assumption that it would be desirable to replace structure for programmatic reasons.

5.2 FY 96 Building Value

There is no programmatic reason to replace building nor its contents should they be destroyed or damaged since building is scheduled for D&D and future demolition. All transitory contents of value, such as office furniture, have been excessed and removed from building. Thus, Hanford property accounting books are being revised to reduce building book value and contents to ZERO dollars based upon WHC request and DOE approved directive. [See Attachment (B)]

6.0 MAXIMUM POSSIBLE FIRE LOSS

Since value of building and its contents are being revised to zero dollars, Maximum Possible Fire Loss (MPFL) will be limited to cost associated with cleanup, radiological surveys, and programmatic impacts which are estimated to total $960K. This value meets the DOE criteria of less than $1M for MPFL (buildings with no fire suppression). Release of all building inventories of radiological and hazardous inventories is non-credible (<10^-6/yr).

6.1 Case Evaluations & Credibility of Releases

The Preliminary Consequence Evaluation/Calculations

In late 1995 a preliminary (first effort) consequence evaluation was performed to assess release and cleanup consequences due to a fire. All building inventories (at time analysis began) of radiological and toxic hazards were evaluated for onsite and offsite release consequences without regard to credibility of release. Plume sizes and distribution were derived using the standard model area heat rate. Worst case wind direction and speed were applied to the preliminary evaluations.
During the preliminary evaluation phase, efforts began to reduce the probability of radiological and toxic releases (due to a fire) by general facility cleanup actions, hazard inventory reductions, combustible materials reductions, and deactivation actions.

**Preliminary Conclusion:** The preliminary evaluation indicated all dose consequences were below inhalation, submersion, and ingestion limits; however, cleanup costs were questionable. As a result, the inventory of toxic hazards (such as lead) are being further reduced. Also potential methods for fire propagation from one location to another are being reduced. As a result of the preliminary evaluation the credibility of the various case scenarios were evaluated to allow a final and better consequence analysis. Results of the credibility evaluations is as follows:

**Case Credibility:**

Four cases were evaluated for credibility of a fire releasing radiological or toxic products. As a result, only one area of building was considered credible to have a radiological release due to a fire.

- **Case #1 Non-credible:** *Dome structure* burns releasing radiological inventory from dome
- **Case #2 Non-credible:** *Complete building structure* burns releasing radiological and toxic (hazardous) inventories from building structure
- **Case #3 Non-credible:** *Dome structure + complete building structure* burns releasing radiological and hazardous inventories from structures
- **Case #4 Low Probability but Credible:** *Building Rupture Loop Annex (room 20)* burns releasing radiological inventory from room 20 surfaces, trenches, and decontamination waste.

The release and consequence analysis of Case #4 are documented in WHC-SD-NEL-HIE-002, Rev. 0 (D.A. Himes, 96).

**Final Consequence Evaluation/Calculations WHC-SD-NEL-HIE-002:**

A final consequence evaluation was completed after the preliminary efforts resolved release credibility issues. The final analysis refines the release consequences of a radiological release from the credible case (Rupture Loop Annex - room 20) [Radiological Consequences of a Postulated Fire In 309 Building, D.A. Himes, Feb. 1996]. The Rupture Loop Annex contains releasable forms of mostly fixed (but some smearable) contamination and future decontamination waste. To determine worst case dose exposure, a ground release was assumed. This assumes a very slow smoldering fire scenario. To evaluate ground contamination an averaging of wind speed and direction was utilized.
The Code:

Using "Generation II Model Code for Environmental Dose Calculations" (GENII), effective dose equivalent (EDE) was derived at 100 meters (Onsite), 430 meters (Site Boundary), and at 1.2 km for Ingestion Pathway Receptor (IPR). From an inventory of 0.88 g (0.054 Ci) of Pu-239, 2.86E-5 Ci is released over a conservative burn time of at least one hour. Since EDE is well below exposure criteria in all areas (no safety concerns), focus now becomes an issue of cleanup and its associated cost.

Cleanup Estimates:

Two cleanup areas were estimated: One for soil area cleanup and one for hard surface cleanup. Area #1 results from a soil cleanup criterion based on the 300 Area soil posting limit. Area #2 results from a hard surface cleanup criterion based on smearable minimum detectable activity. Worst case ground and surface contamination areas were determined by assuming a fast burning fire. This results in highest plume lofting and area distribution. The standard model area heat rate was applied and the northwest wing of 309 Building was burned.

WHC-SD-NEL-HIE-002 utilized a methodology involving wind direction frequency weighting to provide a more refined estimate of expected radiological cleanup areas within the 300 Area when the ground plume extends far outside the area boundary. The resulting cleanup areas are based on assumption that 50% of 300 Area is soil (dirt, gravel, etc.) and 50% hard surface (roof tops, streets, etc.). Figure 1 indicates the sizes of soil and hard surface cleanup zones relative to a map of 300 Area.

Credibility of Releases:

Building and design features which provide low probability of radiological releases and support non-credible conclusions are:

1. Calandria construction is noncombustible and entombs primary volume of radiological hazards within concrete and steel thus making an estimated 1.8 g of Pu-239 (primarily activated and contaminated structural materials) not subject to a release fraction

2. Quantities and form of releasable radiological and toxicological materials are very small and distributed in small areas throughout building making release of all inventories non-credible

3. 98% of all hazards are located below ground level under concrete floors which reduce probability of release to environment

4. Hazards are typically surrounded by noncombustible structure which impede propagation of fire to all areas of building

5. Potential release of Lead from electrical switch gear battery bank in south basement of building is being eliminated by removal from building and disposal
6. A 500 KVA exterior transformer containing 225 gallons of mineral oil contaminated with 81 ppm of PCB has been removed from service and disposed of.

7. Building has extremely low combustible loading and continuity of combustibles.

8. An hydraulically powered shear, located in the IEM Cell Mockup, contains approximately 11 m³ which is a 30 gallons mixture of Enerpac type HF hydraulic fluid and Conoco Super hydraulic oil. The shear will be operated only for purposes of demonstration and operator training and then removed.

6.2 Cleanup Cost from Fire

Since 309 Building reactor was shutdown many years ago and Space Program (SP-100) significantly cleaned up building removing major process and reactor systems along with control racks and wiring, 309 Building no longer has an "extraordinary" inventory of hazardous nor radiological materials. Hazardous toxic type materials remaining within building are contained within common items found in most Hanford and public buildings such as switches (<Mercury>, emergency light batteries (<Lead>), and fixed pipe insulation (<Asbestos>). These items are commonly accepted risk by DOE, private-commercial facilities, and public. For 309 Building they will be disposed of during D&D activities.

No historical fire event could be identified where an environmental cleanup was required for a building destroyed by fire which released burn products from emergency lights, switches, and insulation. Thus, 357 Kg of Lead (emergency light batteries), 26.762 Kg of Lead (part of dome internal structure), 56.7 g Mercury (dome switches), and less than 453.6 Kg of fixed Asbestos will not be considered in final cleanup cost estimates presented later in this section.

There was an estimated 371 Kg of Lead in south basement switch gear batteries which has been removed from building and disposed of prior to the sprinkler deactivation.

Therefore, cleanup cost estimates only address unlikely but credible radiological releases from a portion of building (room 20). This release assumes a credible burn mechanism for release and distribution of .88 grams (.045 Curie) of radiological products. Release of radiological hazards from other parts of building are considered "non-credible".

Worst case fire for radiological doses is a slow burning fire estimated to burn for more than one hour. Worst case for radiological ground contamination is a fast burning hot fire which drives plume to a higher elevation and larger distribution area. A fast burning fire would provide a maximum plume height and dispersion. The slow and fast burn times utilized for analysis calculations are those recommended in NRC guides and as applied to GXQ Code [Hey 1994].

Cleanup cost for hard-surfaces is estimated to be approximately seven times more than for soil. Due to number of hard surfaces in 300 area, determining plume size, shape, and wind direction are key elements in estimating cleanup cost.
Cleanup of Pu$^{239}$ contamination exterior to building (due to a fire) for soil is estimated at a rate of $5.49/m^2$ and for hard-surfaces at $38/m^2$. Since radiological dose is not of concern, cleanup cost is now bound by MPFL criteria of $1$ million. Cleanup cost are summarized in following subsections.
Figure 1

Worst Case Radiological Plume Contaminations
For Different Wind Directions - Soil & Hard Surfaces

NOTE: 1996/97 309 Bldg. inventory reductions should reduce size of actual plumes but worst case will continue to be shown in this report. The diagram below has been sized down from original Rev. 0 to fit page. Only select buildings are identified as reference points.
6.2.1 Interior Building Cleanup

Since building has no beneficial use and is destined for demolition, actual decon cleanup is not recommended for structure surfaces remaining after a fire. However, stabilization of building interior contamination areas is recommended for those areas exposed to a fire which contain radiological hazards.

It is assume for cost estimating that only Rupture Loop Annex (room 20) and associated surrounding interior areas require fixation of any contamination on interior surfaces due to a fire. It is further assumed that no cleanup will be performed in these areas. However, should cleanup be directed by contractor or monitoring agencies, cleanup rate is estimated as follows:

- Decon cleanup rate of 55 m²/day, at cost of $1400/day, with a contingency factor of 50%

NOTE: See figures in Attachment (C) for basic floor plans of 309 Building.

6.2.2 Interior Building Stabilization

The following stabilization approach would be implemented for building interior to fully stabilize and fix contamination on remaining hard-surfaces. A fixation process would be utilized on building interior areas at risk of radiological contamination by spraying with Polymeric Barrier System™ (PBS)

1. This product is specifically designed to control and fix radiological contamination. Worst case estimate is that floors along with remaining walls and ceilings of following area would be stabilized via PBS.

Rupture Loop Annex area along with adjacent areas = 11,370 ft² (1.056 m²). Estimated cost for this stabilization application is derived as follows:

a. 4-person crew to coat 3000 ft²/day (279 m²/day) at a cost of $2500/day with a 50% contingency. 11,370 ft² divided by 3000 ft²/day = ~4 days @ $2500/day x 1.5 contingency = $15,000

b. cost of PBS™ coating (11,370 ft² 1,056 m² x 9.29 m² x $30/gal x 1.5 = $5,115).

INTERIOR STABILIZATION COST = $20,115

Fixing internal contamination (rather than deconning) should have no adverse impact on eventual D&D cost. Fixing contamination produced by a fire would also further fix previously existing contamination and result in increased margin of safety by controlling potential contamination spread.

1 Polymeric Barrier System™ (PBS), a product of Bartlett Services, Inc., Plymouth, MA 02360
6.2.3 Exterior Area Cleanup

Since cleanup of hard-surfaces is estimated to be significantly more than soil cleanup, worst case for cleanup will be a plume direction which deposits contamination upon largest number of hard-surfaces (ex. surrounding buildings). Worst case wind direction in this case would be from approximate south-east corner of 300 area to north-west corner of 300 area. It is estimated that approximately 50% of cleanup would be on 300 area hard-surfaces. Reference WHC-SD-NEL-HIE-002, Table 5, and 6, for radiological plume data and Table 7 for cost estimates for soil and hard-surface cleanup.

- Soil within 300 area requiring cleanup @ $5.49/m² x 3200 m² = $18,000
- Hard-surfaces within 300 area requiring cleanup @ $38/m² x 18,000 m² = $690,000
- Soil cleanup beyond 300 area perimeter with SE to NW wind = $none

**EXTERIOR CLEANUP COST ESTIMATE**

= $708,000

6.2.4 Radiological Survey Cost

It is assumed that "extraordinary" efforts will be required to confirm the contamination areas which result from the plume distribution of radiological products within the 300 Area. This would require a cost effective survey method of grid lining the 300 Area and survey spot checking to determine the hard surfaces above requiring radiological deconning. This cost is estimated as follows:

Plume survey area within 300 Area = 18,000 m² at 2,000 m² (21,529 ft²) per day for 9 days using 16 Health Physic personnel @ $368/day times 50% contingency = $79,488

6.2.5 300 Area Critical Program Impact Cost

No DOE "critical/vital" 300 Area programs nor support activities were identified which would be programmatically impacted by a 309 fire. However, a $150,000 contingency fund will be assumed for work interruption and temporary displacement of selected 300 Area personnel while radiological survey is conducted to allow occupants to return to their work locations.

6.2.6 Total MPFL Cleanup Cost

Overall cleanup cost becomes building stabilization, radiological survey efforts, program impact, and cleanup of soil and hard-surfaces outside building affected by plume direction and size.

**TOTAL MPFL CLEANUP COST** = interior stabilization + radiological survey + exterior cleanup + program impacts = $20,115 + $79,488 + $708,000 + $150,000 = $957,603.

*This number is rounded to $960K for estimating overall MPFL cleanup cost.*
7.0 FIRE PROTECTION, PROPAGATION, & LOADING

Following subsections describe physical and administrative fire protection features of building. Alterations to fire protection system are within acceptable risk for property loss, personnel protection, and environmental protection.

7.1 Fire Protection Features

1. All office personnel have moved out of building as of November 27, 1995

2. Majority of utility systems and equipment have been shutdown to minimize fire initiation due to faults

3. Fire extinguishers and audible and strobe light alarms will be maintained throughout building

4. Fire alarm pull boxes and signal feed to Fire Department will be maintained throughout building

8. Fire Department response time to 309 Building is typically less than 5 minutes

7.2 Fire Propagation Features

Probability of a fire propagating throughout building and into containment dome is non-credible due to following features:

1. 99% of all office furniture and transitory combustibles have been removed from building to reduce fire load

2. Building construction is primarily concrete and steel

3. Building roof design has a lightweight concrete layer which meets intent of a "Class 1" roof design which impedes propagation of a fire into building through roof

4. Containment dome interior is extremely low in combustibility and will not support fire propagation

5. Calandria construction (in Containment Dome) is noncombustible

6. Combustible materials and amount of operating equipment are very low throughout 309 Building which supports extremely low probability of fire propagation

7. Although not fire rated, all building doors throughout building will remain closed except during required entry/exit

8. Operating equipment within building have been minimized which could initiate a fire due to failure.
7.3 Fire Loading Summary

There are no fire rated barriers in building (due primarily to unsealed penetrations); however, construction throughout building in general is fire resistive or noncombustible concrete and steel. Combustible construction and loads which could support a slow fire burn rate and propagation are primarily limited to those items listed below. A complete list of fire loads room by room are shown in Attachment (A).

a. Approximately 33,000 sq. ft. (~3,066 sq. m.) of built up roof asphalt covering (dome + bldg.) over lightweight concrete, steel, and/or 24 gage galvanized corrugated steel

b. Approximately 3,400 sq. ft. (~316 sq. m.) of scattered individual rooms with fixed carpet

c. Approximately 8,000 sq. ft. (~743 sq. m.) of fixed tile floor coverings

d. Approximately 2,528 sq. ft. (~234.8 sq. m.) of fixed plywood and vinyl floor covering over metal grating above former fuel storage basin room 404B

e. Approximately 600 sq. ft. (~55.7 sq. m.) of fixed plywood perimeter wall on east side of IEM Cell Mockup. Also approximately 11 m (thirty gallons) of hydraulic oil contained within a hydraulic shear mounted approximately 14 feet from cell floor on physical north wall of cell. A pin hole or fitting failure and resultant spray leak of high pressure oil is possible which would provide an unprotected combustible fuel source. An unplanned ignition source such as an electrical spark would be required to ignite the oil.

f. Approximately 10,900 ft. (~3,322 m). 1,680 lbs. (~762 kg.) of exposed cable insulation distributed throughout building attached to open piping/conduit and in various sized cable raceways.

7.4 Fire Protection Alterations

Building’s internal automatic wet sprinkler system was deactivated in May 1996 by shutting off main water supply to system, isolating, and blanking water supply, and draining system. Building’s product of combustion fire detection heads throughout building will be deactivated. Strobe/audible alarms, pull boxes, and portable fire extinguishers will remain available and active in those areas of building equipped with such items. Purpose will be to maintain support for transition to ERC contract (D&D program). Areas of building currently candidate for continued support are listed below.

<table>
<thead>
<tr>
<th>AREA</th>
<th>ACTIVITY</th>
<th>(TEMPORARY)</th>
<th>PEOPLE OCCUPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IEM Mockup Cell</td>
<td>Training &amp; test</td>
<td>2 to 10</td>
<td></td>
</tr>
<tr>
<td>2. Containment Dome</td>
<td>Characterization &amp; Deactivation</td>
<td>2 to 10</td>
<td></td>
</tr>
<tr>
<td>3. Rooms 404, 404A, and 404B</td>
<td>Characterization &amp; Deactivation</td>
<td>2 to 10</td>
<td></td>
</tr>
<tr>
<td>4. South Basement area</td>
<td>Routine Maintenance</td>
<td>2 to 5</td>
<td></td>
</tr>
</tbody>
</table>

See PRTR Transition internal document 309-DES-95-001 for detail building description and figures to locate areas listed.
Since there are no resident personnel within the building all building product of combustion
fire detectors were deactivated in May 1996 and physically removed from building 7/22/96 per
309 Work Package 3B-96-00023/M. Table 1 provides a historical listing where detectors were
located.

The potential spread of smoke via building ventilation systems has been significantly reduced
by deactivation of almost all building heating and cooling systems except an independent
electric heat coil and outside air conditioner unit servicing rooms 101, 102, and 103, the
Containment Dome supply and exhaust fans, and an independent heat pump unit located on the
building roof which services the IEM Cell Mockup area.

The IEM Cell Mockup originally had no fire suppression system but did have smoke detectors.
The IEM Cell Mockup heat pump will typically be operated during limited use training/testing
activities. During extended non-use hours of IEM Cell Mockup it is planned that the
independent heat-pump system will be shutdown to save energy and cost.

The smoke detector units removed (Cerberus Pyrotronic model PEC-3T/DB-3S) were
photoelectric detectors which had a listed operating performance temperature from 32 degrees
Fahrenheit to 100 degrees Fahrenheit. With no heating in the main parts of the building
considerable false alarms were expected during extreme winter conditions. This fact supports
the basis and justification for smoke detector removal.

All detectors listed in Table 1 have been bypassed to maintain pull box response capability at
recommendations of Hanford Fire Protection and Hanford Fire Department.
<table>
<thead>
<tr>
<th>FIRE DETECTOR I.D.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD10-1</td>
<td>Switch Gear cage (south), South Basement, Elevation approximately -2 ft.</td>
</tr>
<tr>
<td>PD10-2</td>
<td>Switch Gear cage (north), South Basement, Elevation approximately -2 ft.</td>
</tr>
<tr>
<td>PD10-3</td>
<td>Battery room in south basement, Elevation approximately -2 ft.</td>
</tr>
<tr>
<td>PD12-1</td>
<td>IEM Mockup Cell Operating Gallery, Elevation approximately +60 ft.</td>
</tr>
<tr>
<td>PD12-2</td>
<td>IEM Mockup Cell Operating Gallery, Elevation approximately +12 ft.</td>
</tr>
<tr>
<td>PD12-3</td>
<td>IEM Mockup Cell Operating Gallery, Elevation approximately 0 ft.</td>
</tr>
<tr>
<td>PD12-4</td>
<td>IEM Mockup Cell office ceiling, Elevation approximately -20 ft.</td>
</tr>
<tr>
<td>PD14-1</td>
<td>Containment Airlock, Elevation approximately +5 ft.</td>
</tr>
<tr>
<td>PD18-1</td>
<td>West side of Room 304 (SP-100 drawing/file room), Elevation approximately +12 ft.</td>
</tr>
<tr>
<td>PD18-2</td>
<td>East side of Room 304 (SP-100 drawing/file room), Elevation approximately +12 ft.</td>
</tr>
</tbody>
</table>

**Table 1**

**309 BUILDING LOCATIONS OF REMOVED FIRE DETECTORS**

- TOTAL DETECTORS REMOVED = 10
- NOTE: There are no active fire detection heads located in building.
8.0 DESCRIPTION OF FIRE HAZARDS, SOURCES, AND GENERAL CONSTRUCTION

Building activities and systems in place through 1998 that could have potential for initiation of a fire are listed below.

1. Failure of active building electrical utilities and equipment
2. Cutting and welding within IEM Mockup Cell, Containment Dome, room 404B or other parts of building
3. Failure of Heat-Pump unit which supports IEM Mockup Cell
4. Failure of electrical support equipment utilized for training, testing, and characterization/cleanup.

There is minimum risk of fire spreading from other nearby buildings to 309 Building. There are only two very small office facilities approximately 30 yards from 309. Larger nearby buildings are 308 (65 yards north), 324 (100 yards NE), and 325 (100 yards NW).

Office - Support Areas

The 309 structure consist primarily of steel beams, concrete, corrugated metal sheeting, sheetrock, very limited wood, tile flooring, acoustical tiles, electrical cable insulating materials, and roofing asphalt.

Fire loading to building has been reduced by removal of ninety nine percent of transitory flammable items such as office furniture, non-fixed carpets, drapes, paper, 225 gal. transformer mineral oil, etc. See Attachment (A) for additional information regarding fire loads.

Rupture Loop Annex Room 20

Construction of this area is primarily concrete with one wall gypsum board. Amount of combustible materials and fire load is very low in this area. The area has undergone considerable cleanup and stabilization which was completed in March 1997. RLA roof area is below ground and covered by soil and overhead asphalt drive. Special equipment access hatches are covered by concrete blocks with metal rain cover topping.

Containment Dome

Construction of this building section is primarily concrete and carbon steel shell (~0.6 inches at bottom below grade to 0.25 inches at very top above grade). The area has extremely low amount of combustibles except for roofing material which is combustible.
Building areas containing small areas of detectable radiological contamination are listed below.

1. Room 100
2. Contaminated Room 20
3. Rooms 404A and 404B
4. Fuel Storage Basins
5. South basement east concrete well

deemed reactor calutron, building frames, etc.

Radiochemically contaminated materials and surfaces within the building are very small and

9.0 RADIOLOGICAL RELEASE ANALYSIS

The building was modified several years ago to create the TEF Cell Mockup.
The original radiological inventory estimates within building are shown in Table 2. Credible onsite and offsite release consequences are outlined in WHC-SD-NEL-HIE-002, Rev. 0. Risk and consequences are judged acceptable and within release limits and cleanup cost limits.

Note 9.1: Table 2 worst case inventories were utilized in calculating radiological releases and their associated cleanup cost. These inventory estimates were extracted from portions of PRTR Transition document PRTR/309 Building Nuclear Facility Preliminary Hazards Assessment, WHC-SD-SP-PHA-001, Appendix (A), Table A-1, B. C. Corowell, 11/21/94, Westinghouse Hanford Company.

Note 9.2: Characterization work conducted in 1996 and 1997 determined that the original estimates shown below were less than the 1994 projections. In some cases trace amounts of elements other than Pu-239 were identified during characterization. The early 1996 estimated cleanup cost will be reduced by recent radiological changes, stabilization, and inventory reductions; however, for the purpose of this analysis the worst case inventory numbers will continue to be utilized for cost estimating.

### Table 2

**309 Inventory Of Radiological Hazards**

(Estimates as of 8/11/95)

<table>
<thead>
<tr>
<th>Location</th>
<th>Isotope</th>
<th>Quantity</th>
<th>Category 3 Threshold Quantity</th>
<th>Category 3 Threshold Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactor Cavity (Non-credible release)</td>
<td>Pu-239</td>
<td>1.8 g (.11 Ci)</td>
<td>8.4 g .515 Ci</td>
<td>0.214</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(See Notes 9.1 &amp; 9.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total Calculated</td>
<td>0.214</td>
</tr>
<tr>
<td>Rupture Loop Annex (Room 20) (Credible release)</td>
<td>Pu-239</td>
<td>0.88 g (.054 Ci)</td>
<td>8.4 g .515 Ci</td>
<td>0.105</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(See Notes 9.1 &amp; 9.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total Calculated</td>
<td>0.105</td>
</tr>
</tbody>
</table>

#### 10.0 HAZARDOUS/TOXIC RELEASE ANALYSIS

Hazardous materials within 309 Building are typically self-contained in small quantities in select parts of building. Given a significant fire some portion of these materials could become airborne and be released to environment. Onsite and offsite release consequences were evaluated (D.A. Himes Memo # 8M400-DAH-95018, Nov. 22, 1995). Risk and consequences are judged acceptable and within release limits and cleanup cost limits.
Table 3

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>QUANTITY</th>
<th>Building LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB’s</td>
<td>Exact quantity has not been estimated but facility inspection indicates well below 40 CFR 302.4 release criteria of 453.6 Kg (1000 lb.)</td>
<td>Ballasts in fluorescent lighting throughout facility. (Changed and/or disposed of as fail).</td>
</tr>
<tr>
<td></td>
<td>315 gal. of mineral oil. PCB contaminated at 81 ppm.</td>
<td>900 KVA power transformer (Removed March 96)</td>
</tr>
<tr>
<td>Mercury</td>
<td>Estimated at 31.3 g (.069 lb.). Well below 40 CFR 302.4 release criteria of 45.36 Kg (100 lb.)</td>
<td>Pressure switches and thermostats throughout facility. (Remove during D&amp;D)</td>
</tr>
<tr>
<td>Asbestos</td>
<td>Exact quantity has not been estimated but inspection indicates well below 40 CFR 302.4 release criteria of 453.6 Kg (1000 lb.)</td>
<td>Steam pipe insulation and floor tiles throughout building. (Remove during D&amp;D)</td>
</tr>
<tr>
<td>Lead</td>
<td>a. Estimated at 284 Kg (626 lbs.)</td>
<td>Ref. shielding at B/L/area 30. (Removed during cleanup March 97 - Non-releasable form)</td>
</tr>
<tr>
<td></td>
<td>b. Estimated at 271 Kg (617 lbs.)</td>
<td>Switch gear batteries in south basement. (Removed April 96)</td>
</tr>
<tr>
<td></td>
<td>c. Estimated at 357 Kg (787 lbs.)</td>
<td>Emergency Lighting batteries throughout facility. (Remove during D&amp;D)</td>
</tr>
<tr>
<td></td>
<td>d. Estimated at 1,860 Kg (4,100 lbs.)</td>
<td>Counterweights and bricks in IEM Cell. (Remove during cleanup 96-98 - Non-releasable form)</td>
</tr>
<tr>
<td></td>
<td>e. Estimated at 26,762 Kg (59,000 lbs.)</td>
<td>Within Containment Dome internal structure as shielding. (Considered non-releasable). Ref. HNF-SD-HEL-ER-008, Appendix B, Table B-1.</td>
</tr>
<tr>
<td>Sulfuric Acid</td>
<td>Estimated at 63 Kg (139 lbs.). Well below 40 CFR 302.4 release criteria of 453.6 Kg (1000 lb.)</td>
<td>Lead acid batteries in emergency lighting throughout building. (Remove during D&amp;D).</td>
</tr>
<tr>
<td></td>
<td>Switch gear batteries located in south basement. (Removed April 96)</td>
<td></td>
</tr>
<tr>
<td>Hydrazine Oil</td>
<td>Estimated .11 m3 (30 gal.)</td>
<td>IEM Mockup Cell Lower Level (temporary use and then removal)</td>
</tr>
</tbody>
</table>
11.0 LIFE SAFETY

11.1 General Building

Fire load is very low in general building structure. Office occupancy within building is no longer allowed. Building access during prime work hours for performing specific work task will occur. Personnel safety is maintained by emergency preparedness training and administrative procedures.

Over next two to three calendar years, authorized personnel will be within 309 Building conducting task packages involving either IEM Cell training/testing, system shutdowns, building characterization/deactivation, and/or other related transition activities. Typically such activities will be in one to five day increments with two to ten persons involved.

D&D activities involving 10 or less persons are exempt from full compliance to NFPA Life Safety Code 101 requirements as allowed by code exemptions.

Access to 309 Building is controlled. It will be maintained locked with only authorized personnel related to specific task allowed into building. Emergency exit from building is possible through a large number of exit doors in building without any keys or codes.

Most building areas have multiple egress and exit points which meet criteria of NFPA Life Safety Code. Areas which are more restrictive for egress are room 20, lower levels of containment dome, and specific confined spaces such as exhaust fan pit. These require exit through single path ways and some require travel of 70 feet or more to reach a dual direction egress point. Emergency instructions and training are provided to all persons required to conduct work within the building.

Where necessary, telephone services are provided within building, and/or portable communication devices will be utilized to support request for emergency assistance while work task are being conducted.

Audible and strobe light fire alarms, fire pull boxes, and portable fire extinguishers will be active throughout building during transition phase until turnover of building to ERC and D&D program.

11.2 IEM Mockup Cell

Limited FFTF test and training activities will be conducted within IEM Mockup Cell. Personnel safety is maintained by emergency preparedness training and administrative procedures.
A hydraulic sheaf will be located in the northeast corner of the lower level. The shear operating station will be located one mezzanine level up from the bottom level. At this location, the path to egress for all personnel will be direct and unimpeded should a spill of hydraulic oil and subsequent ignition occur. Additionally, the shear will only be located in the Mockup during demonstration and training and will be removed permanently by the end of CY 1998. If access to the phone in the lower level is blocked by fire, fire notification will be by building alarm system.

All "product of combustion" detectors located at three different levels of the work space have been deactivated. Many years ago sprinklers were eliminated from what was originally referred to as B-Cell Mockup area when building modifications by FFTF engineering added upper levels and renamed building area as IEM Cell Mockup.

Currently there is a phone installed at all levels of the cell to support emergency communications. The overall cell area was modified to provide independent HVAC system via a heat-pump located on the main building roof near the mockup cell.

There are four working levels in the mockup cell. Three upper levels have a "common path of travel" which does not exceed 50 feet in distance. Thus, these areas meet Life Safety Code egress requirements. Fourth (or bottom) floor of IEM at -27 feet has a worst case "common path of travel" to a point of exit choice approximately 70 feet from most distant point within cell floor. This distance exceeds Life Safety Code egress requirement. Life Safety Code NFPA 101, SECTION 28-2-5 requires that such distance shall not exceed 50 ft. (15 m). Work task in this building space is not categorized as D&D; the Life Safety Code still applies.

**BASIS FOR ACCEPTANCE OF EGRESS CONDITION:** The occasional usage and temporary occupancy of the lowest level of the IEM Cell Mockup will occur only a few times per year till 1998. Typically, a small number of persons (less than 10) will be present at this level for short durations during a given week of activity. Most cell activities occur on the upper mezzanines which DO MEET Life Safety Code "common path of travel" egress requirements. A review committee comprised of DOE Fire Protection and WHC Fire Protection, Safety, Engineering, and Operations conducted a facility walk-down of the cell to review the egress path for acceptability. The committee judged the area hazards to be low to moderate and concluded the "common path of travel" distance of ~ 70 ft. was acceptable without facility modifications. The committee also concluded there was minimum risk to personnel. Yellow directional arrows have been applied to the associated facility pathways to enhance recognition of fastest way out.

11.3 PRTR Rupture Loop Annex (Room 20)

PRTR Transition characterization and stabilization of room 20 was completed during 1997 (Ref. 309 Work Package 3B-97-0006, 08, and 17). Life Safety was and will continue to be maintained by emergency preparedness training and administrative procedures during any access or followup work in this area.
Future activities within this work space will be considered D&D and exempt from full compliance with Life Safety Code as allowed by DOE RLID 5480.7. Personnel access will be limited to 10 or less persons in accordance with D&D Life Safety criteria. When necessary, a fire watch will be established to protect personnel if cutting or welding is required.

An audible and strobe light alarm activated by pull boxes is in this building area. A phone for emergency communications exist at the entry point of this building area. The small HEPA exhaust system (~ 500 cfm) servicing this location was deactivated upon completion of the RLA stabilization in March 1997.

During future working task one of two overhead access hatches may be opened but would require ladder or other methods of egress out hatch. When hatches are closed there is only one egress path from room 20 which routes through room 19. Distance from most distant point within room exceeds Life Safety Code egress requirement. It is estimated that distance is greater than 70 feet to room 19 and beyond 100 feet to nearest point of opposite egress paths. Special administrative precautions will be implemented when working in back portion of room to assure emergency egress.

11.4 Containment Dome

PRTR Transition characterization and cleanup activities will be conducted within containment dome during selected times within next three years. Life Safety will be maintained by emergency preparedness training and administrative procedures.

Activities within this work space will be considered D&D and exempt from full compliance with Life Safety Code as allowed by DOE RLID 5480.7. Personnel access will be limited to 10 or less persons in accordance with D&D Life Safety criteria. When necessary, a fire watch will be established to protect personnel if cutting or welding is required.

Audible and strobe light fire alarms and pull boxes will be maintained in this area. A phone will be maintained at zero (ground) level for emergency communications. Emergency communications below ground level will be via two way radio.

There are two major egress doors out of containment dome at zero foot level. One leads directly outside of building through slide-up equipment door and other is through airlock into hallway 404 and main building. Egress from lowest level of dome (minus 32 feet A-cell) requires egress up three levels of stairs to zero foot (ground) level.

12.0 HANFORD FIRE DEPARTMENT

A Hanford Fire Department station is located within 300 area within a quarter of a mile. Their demonstrated emergency response time to 309 Building is approximately five (5) minutes or less. Fire alarm notification capabilities will be maintained within 309 Building until IEM Mockup Cell and PRTR Transition activities have been completed. 309 Building pre-fire plan will be modified to reflect deactivation of wet sprinkler system and special emergency responses. Communication capability to the Fire Department will be maintained during work task activities.
14.2 Forme taxes

14.1 Floods

14.0 Natural hazards impact on fire safety

13.0 Building security and safeguards

309 Building Fire Protection Analysis

Date: 6/25/97

Page 22 of 25

Re: 1

HNP-SD-REL-HIE-001
14.3 Earthquake

Eastern Washington is a region of low-to-moderate seismic activity. Based on history of area since 1840, U. S. Coast and Geodetic Survey has designated Eastern Washington as Zone 2 seismic probability, implying a potential for moderate damage and thus a low probability of fire initiation.

In event of an earthquake, areas of interest would be a rupture of containment dome and/or opening to atmosphere of room 20. Since contamination in both areas is mostly fixed, a minimal spread to atmosphere would be expected unless a fire was initiated in room 20 due to an earthquake.

SP-100 program performed seismic analysis on building and concluded .25g earthquake would not result in radiological releases. Reference Seismic Analysis of Control and Service Building SP-100 GES Test Site, V787ER CR0435, Kaiser Engineers Hanford Company, Richland, WA August 6, 1990.

15.0 REFERENCES


KEH 1990, Seismic Analysis of Control and Service Building SP-100 GES Test Site, V787ER CR0435, Kaiser Engineers Hanford Company, Richland, WA August 6, 1990.


WHC 1994, PRTR/309 Building Nuclear Facility Preliminary Hazards Assessment, WHC-SD-SP-PHA-001, Rev. 0, Nov. 21, 94, Westinghouse Hanford Company, Richland, WA
16.0 BIBLIOGRAPHY

D.A. Himes 1995, *Fire Hazards Analysis for Building 308/308A*, WHC-SD-FF-FHA-002.. Reference 308 document’s *Appendix (C)*, Estimate of Ground contamination Area Due To A Postulated Fire At The 308A Facility, 6/7/95, Westinghouse Hanford Company, Richland, WA

Drawing, 1985, *300 Area Layout*, H-3-52422, Rev. 7


Drawing, 1968, *Fire Protection Sprinkler System Overhead Piping Ground Floor*, H-3-28333


E.J. Bitten, 1994 Memo, *DOE 5480.7A Implementation Plan*, Westinghouse Hanford Company, Richland, WA

*Electrical Engineers Handbook*, Electrical Power-Pender, Harold, Published by John Wiley and Sons, New York, NY


*Lincoln’s Industrial-Commercial Electrical Reference*, Second Edition


MSDS 16370, *R-Temp Fluid*

MSDS 018217, *Polychlorinated Biphenyls (PCBs)*

MSDS 18048, *Polychlorinated Biphenyls (PCBs)*

MSDS 038726, *Mineral Oil*

MSDS 048560, *Mineral Oil*
MSDS # none - See Mfg. Enerpac Type HF Hydraulic Fluid

MSDS # none - See Mfg. Conoco Super Hydraulic Oil #32


WHC 1994, Meteorology, WHC-SP-0379, Rev. 1, Westinghouse Hanford Company, Richland, WA

WHC 1994, 309 Building Transition Plan, WHC-SD-SP-SSP-001, Westinghouse Hanford Company, Richland, WA 99352

HNF 1997, PRTR Characterization - Activities & Results, HNF-SD-NEL-ER-008, Rev. 0, (June 97) B.C. Cornwell & N.S. Hale, B & W Hanford Co.

ATTACHMENT (A)

309 BUILDING

COMBUSTIBLE INVENTORIES

R.P. Conner

Rev. 1 June 19, 1997

NOTE 1: Electrical cabling in conduit is not considered in the fire loading.

NOTE 2: All plywood is assumed to be 3/4" thick, non-treated

NOTE 3: All values are estimations rounded to whole numbers. They are based upon field inspection of the areas addressed.

NOTE 4: All weights are approximations. Wire Insulation ~ .25 lbs./ft., Rubber backed carpet ~ 1.5 lbs./sq. ft., Acoustic tiles ~ 1.25 lbs./sq. ft., Vinyl tiles ~ 1 lb./sq. ft., Plastic ceiling grids ~ .75 lbs./sq. ft., Asphalt ~ 2 lbs./sq. ft., Plywood ~ 4 lbs./sq. ft., Gypsum ~ 1.6 lbs./sq. ft., Paint ~ 10 lbs./gal.

NOTE 5: REFERENCES -


• Electrical Engineers Handbook

• Electrical Power-Pender

• Lincoln,s Industrial Electrical reference, 2nd edition
## Containment Dome

*Fire Source - Electrical Equipment, MCC, & Lights*

<table>
<thead>
<tr>
<th>AREA</th>
<th>INVENTORY DESCRIPTION</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Level</td>
<td>• Exposed cabling insulation 100 ft. = 25 lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Plywood 288 sq. ft. = 1152 lbs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Paint on walls &amp; floor 75 gal. = 750 lbs</td>
<td></td>
</tr>
<tr>
<td>-11 Ft. Level</td>
<td>• Exposed cabling insulation 100 ft. = 25 lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Paint on walls &amp; floor 50 gal. = 500 lbs</td>
<td></td>
</tr>
<tr>
<td>-22 Ft. Level</td>
<td>• Exposed cabling insulation 100 ft. = 25 lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Paint on walls &amp; floor 50 gal. = 500 lbs</td>
<td></td>
</tr>
<tr>
<td>-32 Ft. Level</td>
<td>• Exposed cabling insulation 100 ft. = 25 lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 3 Plywood storage boxes wrapped in plastic 240 sq. ft. = 790 lbs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Paint on walls &amp; floor 70 gal. = 700 lbs</td>
<td></td>
</tr>
<tr>
<td>Airlock</td>
<td>• Hydraulic fluid 2 gal. = 20 lbs</td>
<td></td>
</tr>
<tr>
<td>Dome Structure</td>
<td>• Exterior Insulating material 18,000 sq. ft. = 36,000 lbs.</td>
<td></td>
</tr>
<tr>
<td>AREA</td>
<td>INVENTORY DESCRIPTION</td>
<td>COMMENT</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>South Basement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Fire Source - Electrical Equipment, Switch Gear, MCC, Batteries, &amp; Lights)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Single room</td>
<td>• Exposed cabling insulation (3000 ft. = 750 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Transformers Insulating Material (50 lbs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Paint on walls (75 gal. = 750 lbs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pipe insulating material VRC-10 (3000 ft. = 750 lbs.)</td>
<td></td>
</tr>
<tr>
<td><strong>South Wing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Fire Source - Electrical Equipment &amp; Lights)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Rooms 200/201</td>
<td>• Exposed cabling insulation</td>
<td>(none)</td>
</tr>
<tr>
<td></td>
<td>• Rubber backed Floor carpet - glued (700 sq. ft. = 1050 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gypsum board (640 sq. ft. = 1024 lbs.)</td>
<td>(-) BTU</td>
</tr>
<tr>
<td>2. Room 212/220</td>
<td>• Exposed cabling insulation (1000 ft. = 50 lbs.)</td>
<td>(-) BTU</td>
</tr>
<tr>
<td></td>
<td>• Gypsum board (1600 sq. ft. = 2560 lbs.)</td>
<td></td>
</tr>
<tr>
<td>AREA</td>
<td>INVENTORY DESCRIPTION</td>
<td>COMMENT</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| 3. Room 213           | • Exposed cabling insulation \(100 \text{ ft.} = 5 \text{ lbs.}\)  
                        | • Rubber backed carpet Floor panels \(400 \text{ sq. ft.} = 600 \text{ lbs.}\)  
                        | • Gypsum board \(260 \text{ sq. ft.} = 416 \text{ lbs.}\) \(-\) BTU |
|                       | • Acoustic panels on walls \(432 \text{ sq. ft.} = 540 \text{ lbs.}\)  |
| 4. Room 214           | • Exposed cabling insulation \(100 \text{ ft.} = 5 \text{ lbs.}\)  
                        | • Rubber back carpeted Floor panels \(1350 \text{ sq. ft.} = 2025 \text{ lbs.}\)  
                        | • Gypsum board \(400 \text{ sq. ft.} = 640 \text{ lbs.}\) \(-\) BTU |
|                       | • Acoustical tiles on wall \(800 \text{ sq. ft.} = 1000 \text{ lbs.}\)  
                        | • Ceiling grid - plastic \(1350 \text{ sq. ft.} = 1012 \text{ lbs.}\) \(\text{removed}\) |
| 5. Halls & Misc. Offices | • Exposed cabling insulation \(200 \text{ ft.} = 10 \text{ lbs.}\)  
                            | • Mixed Floor tiles - Asbestos/Vinyl \(1200 \text{ sq. ft.} = 1200 \text{ lbs.}\)  
                            | • Gypsum board \(4,400 \text{ sq. ft.} = 7040 \text{ lbs.}\) \(-\) BTU |
### AREA

**North-East Wing**

*(Fire Source - Electrical Equipment, MCC, & Lights)*

<table>
<thead>
<tr>
<th>Room</th>
<th>Description</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 400</td>
<td>• Exposed cabling insulation (100 ft. = 5 lbs.)</td>
<td>(-) BTU</td>
</tr>
<tr>
<td></td>
<td>• Mixed Floor tiles - Asbestos/Vinyl (800 sq. ft. = 800 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gypsum board (960 sq. ft. = 1536 lbs.)</td>
<td></td>
</tr>
<tr>
<td>Room 404</td>
<td>• Exposed cabling insulation (100 ft. = 5 lbs.)</td>
<td>(-) BTU</td>
</tr>
<tr>
<td></td>
<td>• Gypsum board (200 sq. ft. = 320 lbs.)</td>
<td></td>
</tr>
<tr>
<td>Room 404-A</td>
<td>• Exposed cabling insulation (100 ft. = 5 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mixed Floor tiles - Asbestos/Vinyl (400 sq. ft. = 400 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gypsum board (220 sq. ft. = 352 lbs.)</td>
<td>(-) BTU</td>
</tr>
<tr>
<td>Room 404-B</td>
<td>• Exposed cabling insulation (300 ft. = 20 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Plywood floor (800 sq. ft. = 2633 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mixed Floor Tiles - Asbestos/Vinyl (800 sq. ft. = 800 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Floor Carpet (200 sq. ft. = 300 lbs)</td>
<td>(removed)</td>
</tr>
</tbody>
</table>
### AREA INVENTORY DESCRIPTION

<table>
<thead>
<tr>
<th>AREA</th>
<th>INVENTORY DESCRIPTION</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulated wood-grain room panels</td>
<td>(600 sq. ft. = 1200 lbs.)</td>
<td>(removed)</td>
</tr>
<tr>
<td>Gypsum board</td>
<td>(200 sq. ft. = 320 lbs.)</td>
<td>(-) BTU</td>
</tr>
</tbody>
</table>

### North-West Wing

*(Fire Source - Electrical Equipment, MCC, & Lights)*

1. Hall ways & Offices  
   - Exposed cabling insulation  
     (200 sq. ft. = 10 lbs.)
     - Rubber backed Carpet glued to floor  
       (1640 sq. ft. = 2460 lbs.)
     - Gypsum board  
       (3600 sq. ft. = 5760 lbs.)
     - Mixed Floor tiles - Asbestos/Vinyl  
       (1100 sq. ft. = 1100 lbs.)
   
2. Room 122  
   - Acoustical ceiling tiles  
     (135 sq. ft. = 168 lbs.)

### North-West Basement

*(Fire Source - Electrical Equipment, MCC, & Lights)*

1. Room 19  
   - Exposed cabling insulation  
     (100 sq. ft. = 5 lbs.)
   - Mixed Floor tiles - Asbestos/Vinyl  
     (400 sq. ft. = 400 lbs.)
   - Gypsum board  
     (240 sq. ft. = 384 lbs.)
   
   (-) BTU
### AREA

<table>
<thead>
<tr>
<th>AREA</th>
<th>INVENTORY DESCRIPTION</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. RLA Room 20</td>
<td>• Exposed cabling insulation (TBD ft. = TBD lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SWP laundry (25 lbs.)</td>
<td></td>
</tr>
<tr>
<td>3. M&amp;M Equipment Room</td>
<td>• Exposed cabling insulation (50 ft. = 12.5 lbs.)</td>
<td></td>
</tr>
<tr>
<td>4. Hall Ways &amp; Offices</td>
<td>• Exposed cabling insulation (200 ft. = 10 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mixed Floor tiles - Asbestos/Vinyl (2520 sq. ft. = 2520 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gypsum board (6000 sq. ft. = 9600 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-) BTU</td>
<td></td>
</tr>
<tr>
<td>5. Rooms 21, 22, 23</td>
<td>• Acoustical ceiling tiles (360 sq. ft. = 450 lbs.)</td>
<td></td>
</tr>
</tbody>
</table>

### IEM Mockup Cell

*(Fire Source - Electrical Equipment, Lights, Cutting & Welding)*

<table>
<thead>
<tr>
<th>AREA</th>
<th>INVENTORY DESCRIPTION</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bottom Basement Level</td>
<td>• Exposed cabling insulation (2000 ft. = 200 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fire retardant plywood (576 sq. ft. = 1872 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Painted plywood wall (800 sq. ft. = 3200 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Grease (est. 1 qt.)</td>
<td></td>
</tr>
<tr>
<td>AREA</td>
<td>INVENTORY DESCRIPTION</td>
<td>COMMENT</td>
</tr>
<tr>
<td>------</td>
<td>------------------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>• Paper (drawings, misc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(200 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Plastic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(75 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gypsum board</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(200 sq. ft. = 320 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Hydraulic oil in pump reservoir, supply hoses, and hydraulic cylinder (1.1 m² - approximately 30 gallons) Enerpac Type HP Hydraulic Fluid Conoco Super Hydraulic Oil #32)</td>
<td>(-) BTU</td>
</tr>
<tr>
<td>2. All other levels</td>
<td>• Exposed cabling insulation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3000 ft. = 300 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Paper (drawings, misc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(75 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Plastic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(200 lbs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gypsum board</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(300 sq. ft. = 480 lbs.)</td>
<td>(-) BTU</td>
</tr>
</tbody>
</table>

**Building Exterior Structure**

- • Roofing material - Asphalt
  (15,000 sq. ft. = 30,000 lbs.)

- • Other misc. flammable materials
  (1000 lbs.)

**Building Exterior**

- • 500 KVA Electrical Transformer C6614P
  (~ 200 gal. R-Temp)
ATTACHMENT (B)

CORRESPONDENCE
President
Westinghouse Hanford Company
Richland, Washington

Dear Sir:

DEVALUATION OF BUILDING 309 TO REDUCE FIRE PROTECTION

WHC letter, E. J. Bitten to J. E. Mecca, "Memo Of Understanding - Request To Reassess 309 Building Book Value," dated October 20, 1995, requested the Richland Operations Office (RL) to reassess the book value of Building 309 with the objective to reduce building heating, surveillance, and maintenance costs. Reassessment to a zero value would allow shut down of the steam heat and elimination of water services, including the facility fire suppression system.

RL has reviewed the supporting information and justification provided by WHC. RL concurs with the justification and authorizes building devaluation to zero.

Before the fire suppression system can be deactivated, the requirements of DOE Order 5480.7A and RLID 5480.7 (Fire Protection) shall be met. Fire systems may be deactivated only after a facility analysis has determined fire protection systems are not required to mitigate effects of fire involving potential release of hazardous and radioactive materials. In cases where a building has been devalued, but the building's contents are still considered as a recordable value. A fire protection system may still be required as specified in DOE Order 5480.7A and RLID 5480.7. The Order also requires maintenance of life safety systems when personnel are assigned a permanent work location inside a devalued facility.

WHC shall take the necessary actions to devalue Building 309 to zero and devalue the building's contents as appropriate.

Please direct any questions to Mr. W. A. Ruhlman, of my staff, on 373-5749.

Sincerely,

[Signature]

J. E. Mecca, Director
Transition Program Division

CC:
E. J. Bitten, WHC
R. P. Conner, WHC
B. C. Cornwell, WHC
J. M. Steffen, WHC
Subject: MEMO OF UNDERSTANDING - REQUEST TO REASSESS 309 BUILDING BOOK VALUE

<table>
<thead>
<tr>
<th>Approval Date</th>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correspondence Control</td>
<td>A3-01</td>
</tr>
<tr>
<td></td>
<td>E. J. Bitten (2)</td>
<td>L5-70</td>
</tr>
<tr>
<td></td>
<td>R. J. Bliss</td>
<td>B3-04</td>
</tr>
<tr>
<td></td>
<td>K. L. Casey</td>
<td>G1-19</td>
</tr>
<tr>
<td></td>
<td>R. P. Conner</td>
<td>L5-70</td>
</tr>
<tr>
<td></td>
<td>B. C. Cornwell</td>
<td>L5-70</td>
</tr>
<tr>
<td></td>
<td>J. S. Dale</td>
<td>N2-10</td>
</tr>
<tr>
<td></td>
<td>R. E. Jordan</td>
<td>S3-97</td>
</tr>
<tr>
<td></td>
<td>J. E. Parker</td>
<td>N2-11</td>
</tr>
<tr>
<td></td>
<td>W. C. Phillips</td>
<td>L5-70</td>
</tr>
<tr>
<td></td>
<td>J. M. Steffen</td>
<td>N1-47</td>
</tr>
<tr>
<td></td>
<td>C. W. Stolle</td>
<td>G3-05</td>
</tr>
<tr>
<td></td>
<td>R. O. Zimmerman</td>
<td>N2-10</td>
</tr>
</tbody>
</table>
October 20, 1995

Mr. J. E. Mecca, Director
Operations and Transition Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Mr. Mecca:

MEMO OF UNDERSTANDING - REQUEST TO REASSESS 309 BUILDING BOOK VALUE

REQUEST:

It is requested that the current 309 Building and contents book value and replacement cost be revised to zero value.

BUILDING VALUE

FY-95 Building Value

The RL Property System as of this date identified the 309 Building (Property Number F025230) as follows:

- Building replacement cost at $26,404,515, book value at $5,102,519

These values were established based upon the building square footage, previous contents of furniture and equipment, and assumption that it would be desirable to replace the structure and contents for programmatic reasons.

FY-96 Building Value

There is no longer a programmatic reason to replace the building nor its contents should they be destroyed or damaged. The following actions are planned to support zero value of building:

1. All office personnel will be moved out of the building by December 31, 1995.
2. The majority of transient combustibles will be removed from the building to reduce the fire load.
3. All utility systems will be shutdown with only limited electrical support to select parts of the building.
OBJECTIVE:

The objective is to reduce building heating, surveillance, and maintenance costs. To accomplish this objective, the facility value should be revised to ZERO to allow shut down of the steam heat and elimination of the water systems including facility fire suppression system.

BASIS:

To accelerate a reduction in 309 facility maintenance and operating cost, activities are in progress to shut down much of the major utility systems in late 1995 and early 1996. Completion of deactivation and turnover to decontamination and decommissioning (D&D) is scheduled for 1999.

No office personnel will reside within the building after December 31, 1995. Approximately $280,000 per year can be saved by termination of the steam heat and reduction of other surveillance and maintenance services.

Elimination of the steam requires the wet sprinkler system be deactivated based upon a zero (0) value of the facility and no office personnel resident within the building. Intermittent occupancy will be limited to ten or less people. The occasionally task related occupancy through early 1998 will be for the purpose of conducting IEM Cell Mockup activities and characterization of radiological areas in preparation for turnover to D&D. Life Safety Code requirements will be addressed prior to any action to disable the present fire suppression system.

An analysis will be completed before sprinklers are deactivated to demonstrate that a radiological or hazardous material release beyond DOE guidelines is not possible.

All office equipment and nonpermanent residual facility equipment is excess and will be disconnected and/or removed.

The Fast Flux Test Facility (FFTF) IEM Cell Mockup facility within the 309 building has already zero valued its contents and equipment as part of the FFTF cost reduction program.

No future mission has been identified nor currently exist for the 309 Building.

To support our efforts to accelerate cost reductions/savings, we request your expedited review to avoid unnecessary heat, surveillance, and maintenance expenses in the future. If you have any questions, please call Bob Conner (376-4089) of my staff.
Mr. J. E. Mecca
Page 3
October 20, 1995

Very truly yours,

E. J. Bitten, Manager
PRTR Transition
Transition Project

rpc

RL - C. P. Christenson
O. A. Farabee
W. E. Grandrath
W. A. Ruhlman
A. H. Wirkkala
CORRESPONDENCE DISTRIBUTION COVERSHEET

**Author**
R. P. Connor, 376-4089
February 20, 1996

**Addressee**
J. K. Absher, RL

**Subject:** REQUEST TO DEVALUE 309 BUILDING

**Correspondence No.**
9650807

### INTERNAL DISTRIBUTION

<table>
<thead>
<tr>
<th>Approval Date</th>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correspondence Control</td>
<td>A3-01</td>
</tr>
<tr>
<td></td>
<td>E. J. Bitten (2)</td>
<td>L5-70</td>
</tr>
<tr>
<td></td>
<td>R. J. Bliss</td>
<td>B3-04</td>
</tr>
<tr>
<td></td>
<td>C. E. Cartwright</td>
<td>G2-06</td>
</tr>
<tr>
<td></td>
<td>K. L. Casey</td>
<td>G2-06</td>
</tr>
<tr>
<td></td>
<td>R. P. Conner</td>
<td>L5-70</td>
</tr>
<tr>
<td></td>
<td>B. C. Cornwell</td>
<td>L5-70</td>
</tr>
<tr>
<td></td>
<td>E. C. Dahlin</td>
<td>G2-06</td>
</tr>
<tr>
<td></td>
<td>L. M. Dawes</td>
<td>G3-05</td>
</tr>
<tr>
<td></td>
<td>S. W. Hiller</td>
<td>N2-02</td>
</tr>
<tr>
<td></td>
<td>R. E. Jordan</td>
<td>S3-97</td>
</tr>
<tr>
<td></td>
<td>M. A. Norman</td>
<td>G1-75</td>
</tr>
<tr>
<td></td>
<td>J. E. Parker</td>
<td>N2-11</td>
</tr>
<tr>
<td></td>
<td>P. R. Prevo</td>
<td>N2-10</td>
</tr>
<tr>
<td></td>
<td>J. M. Steffen</td>
<td>N1-47</td>
</tr>
<tr>
<td></td>
<td>C. W. Stolle</td>
<td>G3-05</td>
</tr>
<tr>
<td></td>
<td>J. R. Vincent</td>
<td>N2-02</td>
</tr>
<tr>
<td></td>
<td>R. O. Zimmerman</td>
<td>N2-10</td>
</tr>
</tbody>
</table>
Ms. J. K. Absher, Director
Financial Management Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Ms. Absher:

REQUEST TO DEVALUE 309 BUILDING


BACKGROUND:

Attached are two letters regarding the value of the Westinghouse Hanford Company-managed 309 Building located in the 300 Area.

Reference 1 is the response and concurrence on December 20, 1995, of the U.S. Department of Energy (DOE) to Westinghouse Hanford's request to devalue the 309 Building and its contents to ZERO $ value. The DOE program office has approved our request for zero value.

Reference 2 provides historical information and was a request from Westinghouse Hanford to DOE for the value change. This letter contained the value of the building and its contents as shown on the property accounting records as of October 20, 1995.

All office personnel completed moving out of the building in late November 1995, taking with them all their personal computers along with other such accountable items. All 309 office supplies/equipment, furniture, and other usable items of value were identified as excess and removed from the building by L. M. Dawes (ICF Kaiser Hanford Company) to the Hanford excess yard during the month of January 1996. All nonfixed combustible items such as carpets, drapes, plastic ceiling tiles, etc., have been removed from the building and disposed of as scrap.

Additional actions are in progress by Westinghouse Hanford PRTR Transition organization and various support groups to deactivate the building's fire suppression sprinkler system, drain all water supplies in the building, and
turn off the steam heat. These actions are scheduled for completion in calendar year 1996 and are necessary to reduce building maintenance cost during the transition of the building to the decontamination and decommissioning program in 1998.

REQUESTED PROPERTY ACCOUNTING ACTIONS:

Please concur with the DOE program office and provide authorization to Westinghouse Hanford (M. A. Norman and K. L. Casey) to proceed with revision of the official Hanford property and capital accounting data bases and records to reflect a ZERO value for the 309 Building and its contents.

If you have any questions please contact R. P. Conner of my staff on 376-4089.

Very truly yours,

E. J. Bitten, Manager
PRTR Transition
Transition Project

dc

Attachments

RL - C. P. Christenson
O. A. Farabee
W. E. Grandrath
W. A. Ruhlman
A. H. Wirkkala (w/o attachments)
MAY 05 1997

Flour Daniel Hanford, Inc.
L. J. Olguin, Director
Facility Stabilization
P. O. Box 1000, N1-26
Richland, Washington 99352

Subject: 309 BUILDING ASBESTOS INSPECTION AND ASSESSMENT


Dear Mr. Olguin:

The 309 Building was inspected for asbestos containing material (ACM) on April 14 and 15, 1997. The asbestos inspection was performed by Bechtel Hanford, Inc. as requested by your letter of instruction dated March 20, 1997.

The attached inspection report details each area of the 309 Building containing asbestos materials or potentially ACM, damaged area findings, and a repair checklist for each area. Additional information is included in the report such as asbestos types, quantities and accessibility to building occupants.

Each asbestos inspection sheet includes a convenient sign-off section for both B&W Hanford Company and the Environmental Restoration Contractor asbestos representatives to sign after repairs are completed. Please contact Mr. B. S. Mewes of my staff at 373-5496 for final verification of repairs and corresponding sign-off.

RECEIVED
MAY 06 1997
Should you have additional questions regarding this inspection, please contact Mr. Nolan Draper of my staff on 373-7310.

Sincerely,

J. J. McGuire
Project Manager, D&D Projects

Attachment: Inspection Report for the 309 Building

cc: E. J. Bitten (BWHC) N1-91, w/a
    B. C. Cornwell (BWHC) L5-70, w/a
    W. C. Phillips (BWHC) L5-70, w/a
ATTACHMENT (C)

FLOOR PLAN FIGURES

The following simplified building floor plans show ventilation pathways and ducts throughout building.
Figure C-1
Ground Level Floor Plan

NORTH

309 1st FLOOR HVAC

- TO OTHER LEVEL
- AIR HANDLER
- VENTILATION OUTLET
- VENTILATION INTAKE
- THERMOSTAT
- ROOF MOUNT
Figure C-2
Basement Level Floor Plan

North Basement

Figure C-2
Basement Level Floor Plan

309 Building Basement Level HVAC

- TO OTHER LEVEL
- AIR HANDLER
- VENTILATION OUTLET
- VENTILATION INTAKE
- THERMOSTAT
- ROOF MOUNT
Figure C-4
Dome Levels Floor Plan
Figure C-3
Dome Cross Section

CONTAINMENT CROSS SECTION
NORTH SOUTH