

Five-Year Surveillance Report for the 105-DR Safe Storage Enclosure

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

Contractor for the U.S. Department of Energy
under Contract DE-AC06-09RL14728



P.O. Box 650
Richland, Washington 99352

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Mission Support Alliance

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Five-Year Surveillance Report for the 105-DR Safe Storage Enclosure



EXECUTIVE SUMMARY

On June 27, 2016, Mission Support Alliance, LLC, conducted surveillance activities at the 105-DR safe storage enclosure (SSE). This document provides an overview of that activity and includes findings and recommendations based on the surveillance. The 105-DR reactor was placed in SSE configuration in 2002. The SSE configuration was designed to ensure that the reactor core would be maintained in a safe, environmentally secure, and cost-effective manner until final closure could be accomplished (for up to 75 years). The surveillance and maintenance plan, DOE/RL-2002-028, *Surveillance and Maintenance Plan For The 105-Dr Reactor Safe Storage Enclosure*¹, requires a 5-year surveillance or inspection of the SSE and allows for a change in inspection frequency based on the surveillance results.

In 2013, three *Hanford Federal Facility Agreement and Consent Order*² (Tri-Party Agreement) change notices were prepared to line up the inspection schedules so they would occur in a single fiscal year, 2015. This was done to increase the surveillance process's safety and efficiency. The 5-year surveillance of the 105-F SSE was conducted in October 2014. This served as a test case for the overall SSE surveillance project; lessons learned from the 105-F surveillance were incorporated into the surveillance activities for the remaining four SSEs. Surveillances at 105-C, 105-D, 105-H, and 105-N/109-N were conducted in April 2015.

The previous surveillance at 105-DR SSE was conducted in 2012. The Tri-Parties signed TPA-CN-0716 (TCN) on 04/19/2016. The TCN directed the U.S. Department of Energy (DOE) to conduct 105-DR surveillance in 2016 or 2017 and the subsequent surveillance in 2025, which will align the 105-DR surveillance with other reactor surveillances. The TCN also eliminated internal temperature and flood sensor monitoring.

The surveillance process involves upfront planning and mobilization of support resources followed by interior air/radiological sampling. All air sampling results were within the expected limits. An initial safety team consisting of Industrial Hygiene, Industrial Safety, and Radiological Control professionals and biologists, entered the SSE to observe current conditions and establish any additional safety controls for the inspection teams. After the initial safety team completed their inspection, the radiological, structural, and instrumentation (temperature and flooding sensors) teams performed the required surveillances.

The surveillances found that 105-DR is structurally sound. The new steel and siding were found to be in very good condition. The concrete and flashings were found to be in stable condition with no significant defects. The radiological and safety conditions within the SSE have not changed since the last surveillance. Limited biological intrusions, including bats (alive and dead), insects, and spiders, were observed. Access for the intrusions appear to be small gaps or openings in the outer metal siding.

¹DOE/RL-2002-028, 2004, *Surveillance and Maintenance Plan for the 105-DR Reactor Safe Storage Enclosure*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

²Ecology, EPA, and DOE 1989, *Hanford Federal Facility Agreement and Consent Order*, as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

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TERMS

ALARA	as low as reasonably achievable
BFA	beryllium facility assessment
CBDPP	<i>Hanford Site Chronic Beryllium Disease Prevention Program</i>
CFR	<i>Code of Federal Regulations</i>
DOE	U.S. Department of Energy
ERDF	Environmental Restoration Disposal Facility
IH	industrial hygienist
MSA	Mission Support Alliance, LLC
PSRP	Public Safety and Resources Protection
RCT	radiological control technician
S&M	surveillance and maintenance
SSE	safe storage enclosure
TPA-CN	Tri-Party Agreement change notice
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>

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1.0 INTRODUCTION

DOE/RL-2002-028, *Surveillance and Maintenance Plan for the 105-DR Reactor Safe Storage Enclosure*, Rev. 1, requires that the surveillance be conducted every 5 years. This report describes surveillance activities conducted at the 105-DR safe storage enclosures (SSE) on June 27, 2016.

From 1985 through 2002, the Interim Safe Storage Project work at the 105-DR Reactor building was completed with the installation and sealing of the SSEs. The design intent of this project was to ensure that the reactor would be maintained in a safe, environmentally secure, and cost-effective manner until final closure could be accomplished through decommissioning. In the interim, ongoing surveillance and maintenance (S&M) activities (external areas every year; internal areas every 5 years) are conducted that meet the following objectives:

- Verify safety and radiological conditions around and inside the SSE
- Verify the structural integrity of the SSE and identify potential hazards
- Verify functionality of thermal and flood-level sensors in the SSE
- Verify the condition of the weather protection system (e.g., sealants, roofing, siding, and flashing).

Lessons learned from surveillances of other SSEs were incorporated into the planning and execution of this surveillance.

The previous surveillance at 105-DR SSE was conducted in 2012. The Tri-Parties signed the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) change notice, TPA-CN-0716 (TCN) on 04/19/2016. The TCN directed the U.S. Department of Energy (DOE) to conduct 105-DR surveillance in 2016 or 2017 and the subsequent surveillance in 2025, which will align the 105-DR surveillance with other reactor surveillances. The TCN also eliminated internal temperature and flood sensor monitoring. Mission Support Alliance, LLC (MSA), conducted 105-DR surveillance (for DOE) in 2016.

2.0 THE SURVEILLANCE PROCESS

MSA prepared Work Package 2M-84324/C to complete the surveillance activities. The surveillance process consisted of pre-surveillance activities and surveillance activities. These activities are described in this section.

2.1 THE PRE-SURVEILLANCE ACTIVITIES

Before beginning the surveillance activities, several prerequisite activities had to be conducted. These are discussed in the following paragraphs.

The 105-DR SSE has been categorized as less than Hazard Category 3. The hazard category classification is based on offsite and onsite consequences. Category 1 has the highest consequences. The impact of S&M activity on the hazard category of 105-DR is evaluated by using the change management process. A change management form for the 105-DR SSE was completed as required by the applicable programs and procedures. The S&M activity has no impact on the 105-DR hazard category.

Scientists from MSA's Public Safety and Resources Protection (PSRP) organization conducted ecological and cultural survey around the SSEs. The protection and preservation of cultural resources at the Hanford Site is governed by number of federal laws including the *National Historic Preservation Act of 1966*, Sections 106, and 110, Title 36 *Code of Federal Regulations* (CFR), Part 800, "Protection of Historic Properties," and the *Archaeological Resources Protection Act of 1979*. No impacts to cultural resources were anticipated from the S&M activities. More information about the ecological and cultural survey is provided in Appendix A.

A beryllium facility assessment (BFA) was conducted by an MSA industrial hygienist. DOE-0342, *Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)*, Section 6.6.1, "Facility Characterization Process," requires an initial assessment of all facilities to determine the beryllium status of the facility. During the assessment, if an area of concern is identified, characterization sampling must be conducted to clear the building. If characterization sampling is not conducted (as in the case of the SSEs), the areas of concern remain beryllium suspect areas, and the building is a beryllium controlled facility (DOE-0342-002, *Hanford Site Assessment & Characterization/Verification of Buildings Procedure*, Section 4.2).

A BFA was conducted in the vestibule, a small exterior room that provides access to the interior of the SSE through a door that is welded shut between surveillance periods. The vestibule was assessed because of the planned intrusive activities, such as grinding the door weld. The assessment included collecting dust samples in the vestibule. The dust samples were negative for beryllium. The vestibule was cleared for S&M activities. The BFAs were not conducted inside the SSE because no intrusive activities were planned. Environmental screening, which is required to ensure compliance with the environmental laws, was also completed for the surveillance activities. More information on BFA for 105-DR SSE is provided in Appendix A.

The change management forms and environmental screening forms are included in the work packages associated with the surveillance activities.

2.2 THE SURVEILLANCE ACTIVITIES

The 105-DR SSE has a vestibule leading to the main interior door. The exterior door leading to the vestibule is locked with key access controlled by the MSA facility manager for 105-DR. The door leading to the SSE interior is welded shut between surveillances.

The initial step in the surveillance activity involved assessing the area around the interior door for safe working conditions. A team of safety professionals and craft workers took interim measures, such as setting up the work area, setting barriers and isolating potential hazards, energizing the electrical panel for lighting, and conducted external radiological surveys. The safety team checked the vestibules and the open areas for radiological contamination, biological hazards, and safety issues.

The interior door was opened by grinding off the welded plate securing the door, as shown in Figure 1. The SSE was then allowed to “breathe” for 7 days, using natural ventilation to reduce the potential for radon buildup. No forced-air ventilation was required. This is consistent with previous surveillances. The outer door of the vestibule was kept locked during this period.

The safety team members were allowed inside the SSE when the air was deemed safe by an industrial hygienist (IH) and radiological control technicians (RCT). The safety team, which consisted of a RCT, an industrial safety professional, an IH, and a biologist, entered the building to verify that the surveillance routes were safe for the surveillance teams. The safety team surveys are described in Section 2.2. The surveillance routes are addressed in Section 2.2.1. The surveillance teams, which consisted of a RCT, an instrument technician, and structural engineers entered the SSEs to conduct the surveillance. A brief description of the results of the surveillance team’s safety inspections, structural assessment, and radiological assessment are presented in Section 2.4 and described in detail in Appendix B.



Figure 1. The Carpenter Grinding the Welded Plate.

2.2.1 Surveillance Routes

DOE/RL-2002-28 identified the surveillance routes on each level of the SSE. The surveillance routes were field modified depending on the current radiological and safety conditions established by the initial safety team to maintain radiological exposure as low as reasonably achievable (ALARA). The modification designated routes 4 and 5 as optional routes (shown in green). These routes were not taken because of the ALARA consideration, inaccessibility and safety conditions. The surveillance routes taken are shown in Figures 2 through 8.

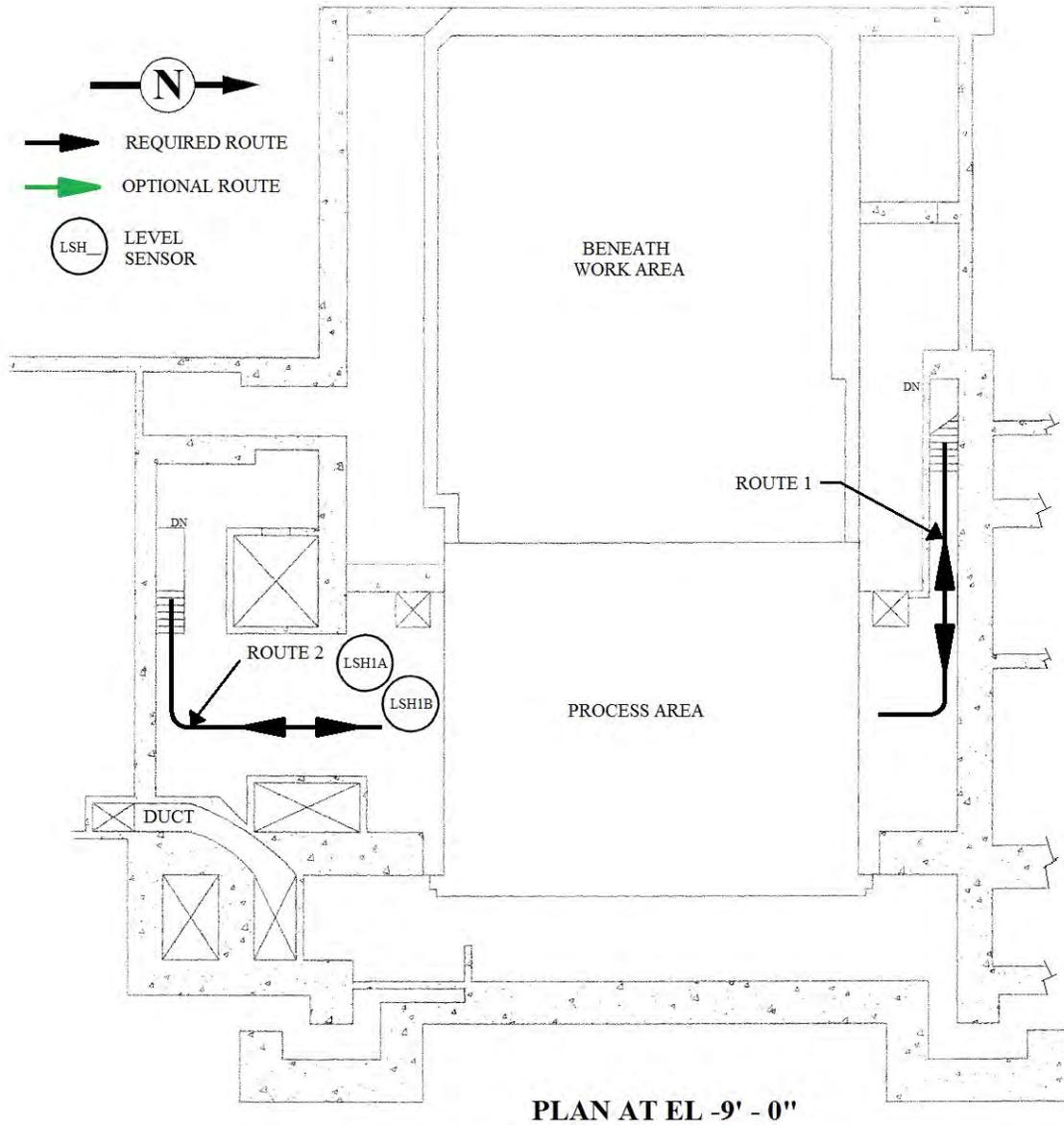


Figure 2. 105-DR Safe Storage Enclosure Floor Plan Elevation -9 ft - 0 in.

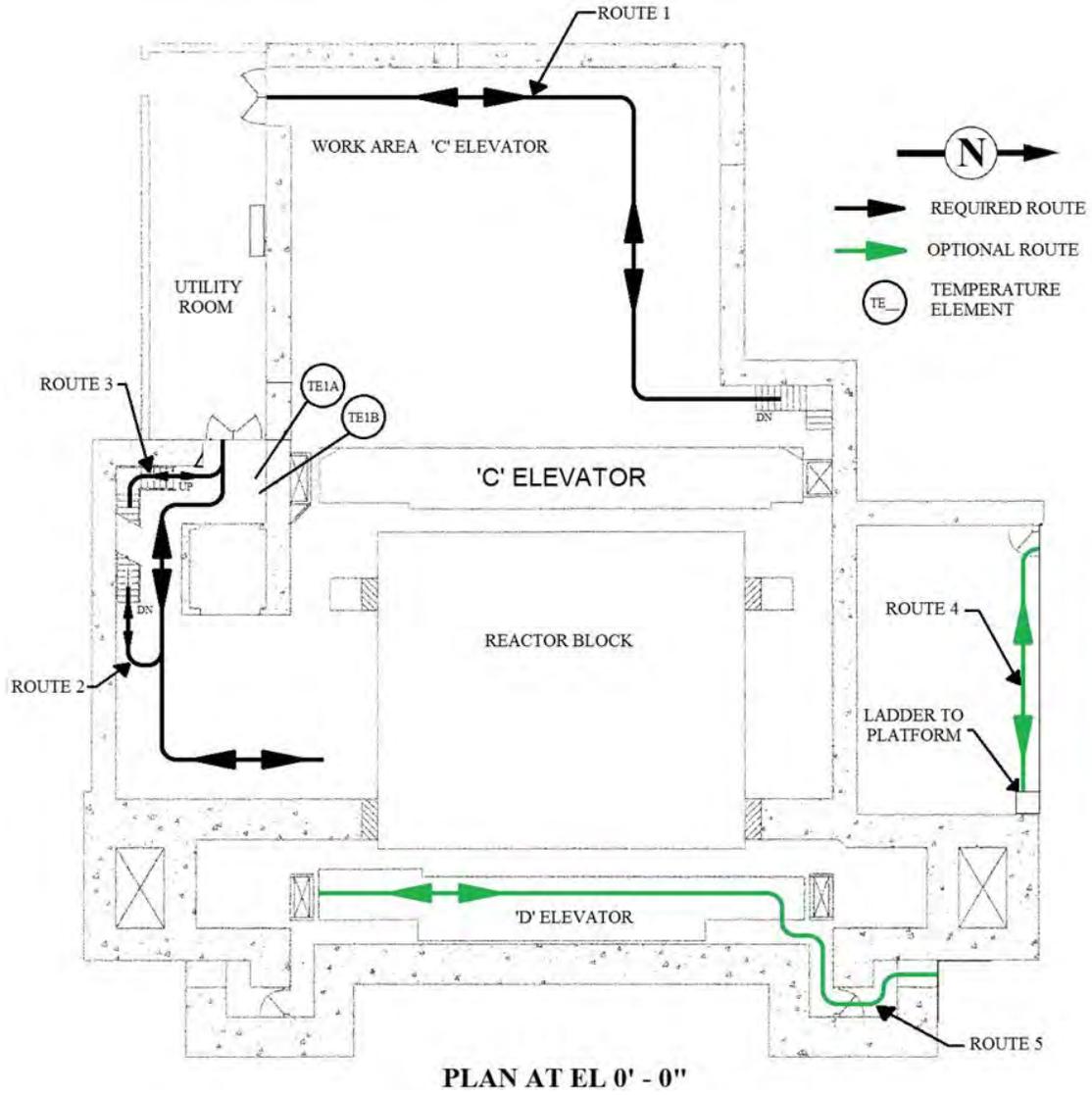


Figure 3. 105-DR Safe Storage Enclosure Floor Plan Elevation 0 ft - 0 in.

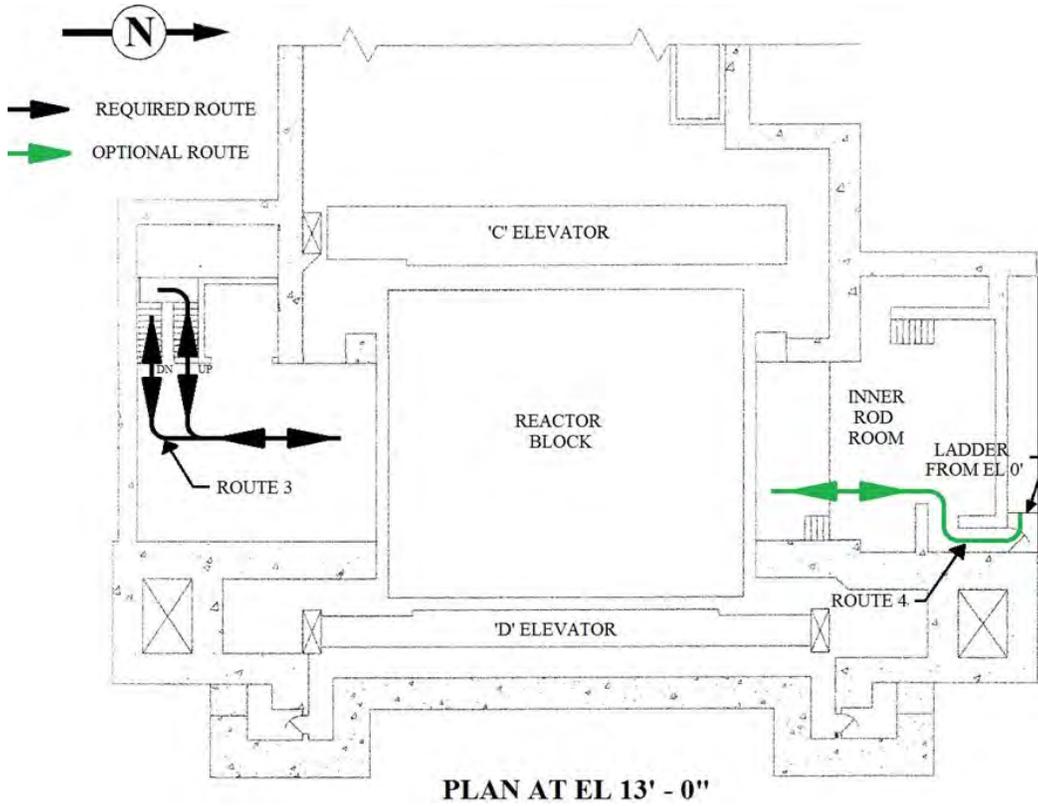


Figure 4. 105-DR Safe Storage Enclosure Floor Plan Elevation 13 ft - 0 in.

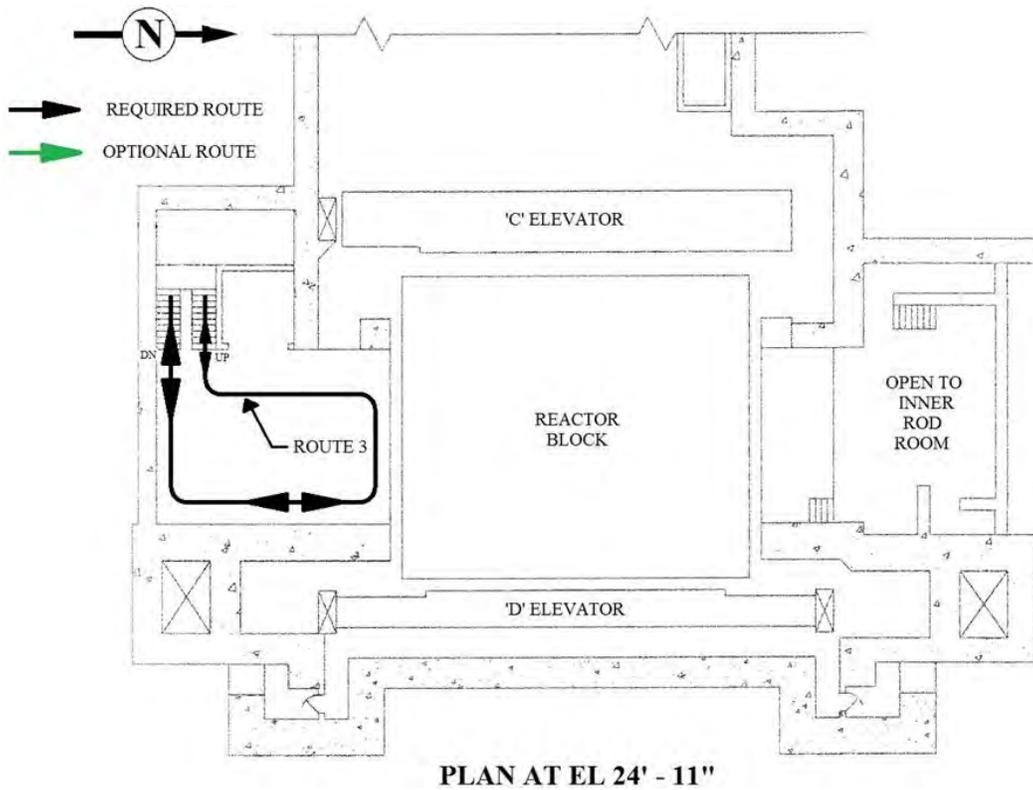


Figure 5. 105-DR Safe Storage Enclosure Floor Plan Elevation 24 ft - 11 in.

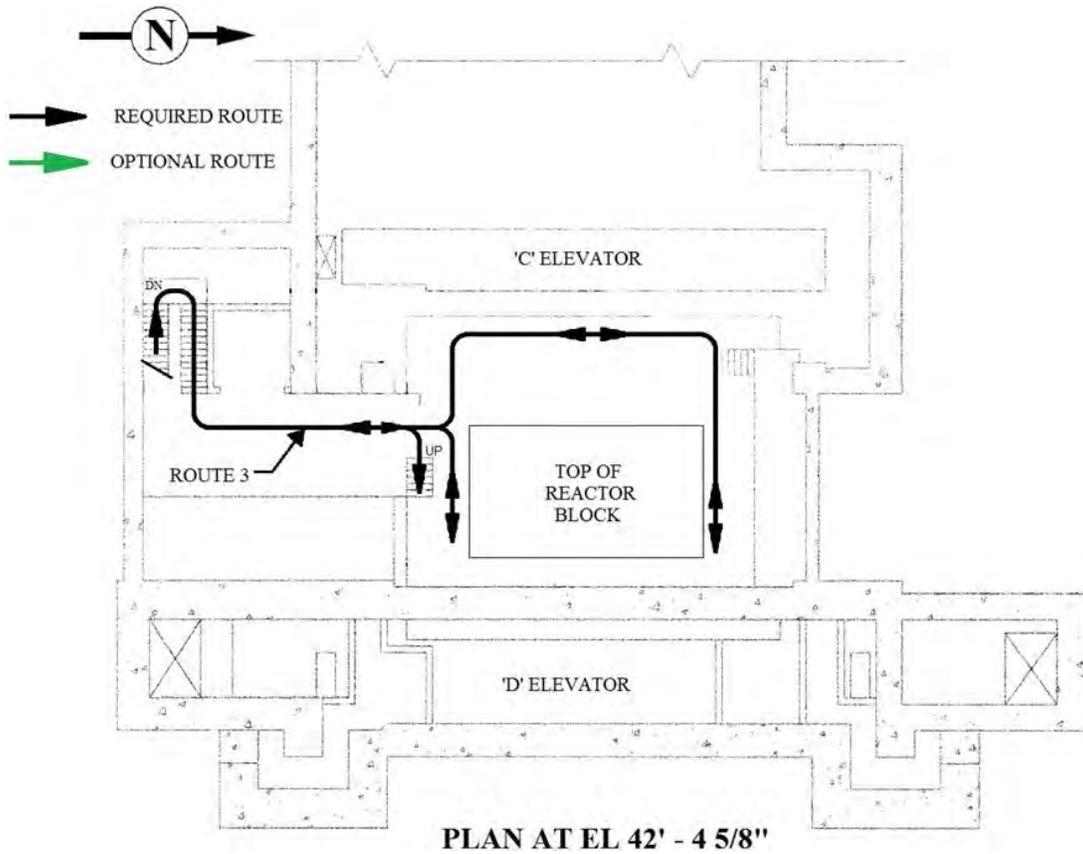


Figure 6. 105-DR Safe Storage Enclosure Floor Plan Elevation 42 ft - 45/8 in.

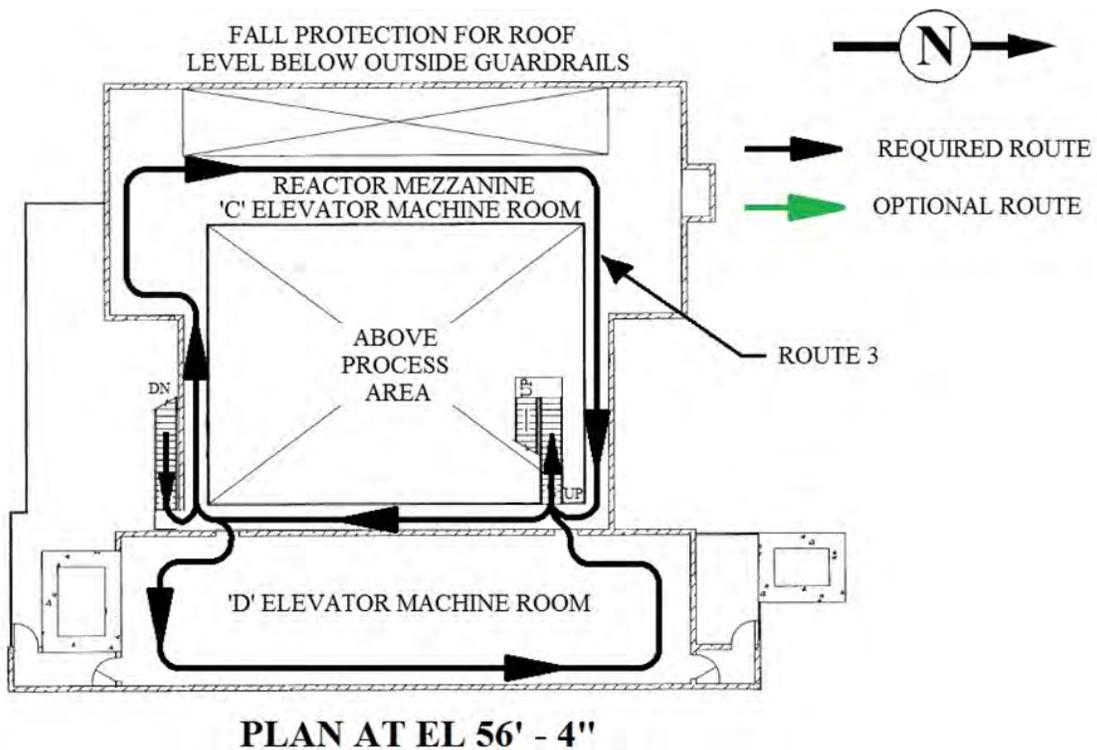
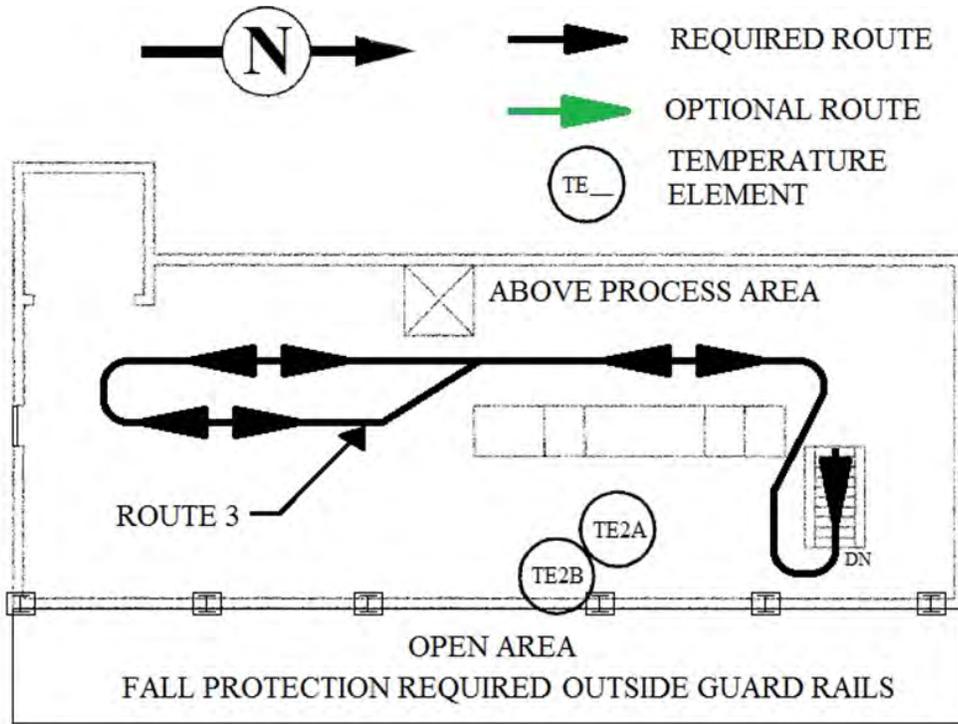


Figure 7. 105-DR Safe Storage Enclosure Floor Plan Elevation 56 ft - 4 in.



PLAN AT EL 80' - 5 1/4"

Figure 8. 105-DR Safe Storage Enclosure Floor Plan Elevation 80 ft - 5 1/4 in.

2.3 SAFETY TEAM

The surveys conducted by the safety team are described in this section.

2.3.1 Radiological Safety

The RCTs surveyed the routes for radiological contamination; they found no contamination along the routes. The routes were radiologically released for walking. The survey results are presented in Appendix B.

2.3.2 Physical Hazards

This section addresses physical safety hazards associated with stairs, areas with a potential for falls, barriers, and posting.

2.3.2.1 Stairs

The stairs were found to be in generally good condition. The potential hazards associated with the stairs (e. g., spalling and slight rocking back and forth) were clearly marked with orange paint. The MSA Industrial Safety personnel inspected these stairs before allowing access. The Industrial Safety professional also identified other safety hazards, such as tripping hazards, head bangers (low ductwork or bracing) and sharp and protruding equipment in the surveillance path. The identified hazards were addressed in the safety prebriefings held each

morning before surveillance activities began and documented in the work package for future entries.

2.3.2.2 Fall Protection

Locations where fall protection was needed were clearly identified by previous contractors. The surveillance routes were designed to avoid these areas. During the inspection process, no fall protection was required for the inspection teams.

2.3.2.3 Barriers and Postings

Barriers and postings are used to prevent unwarranted access to hazardous areas in the facility and to inform personnel of potentially hazardous conditions that exist in the SSE.

2.3.3 Industrial Hygiene

The IH conducted general area, direct-reading instrument monitoring of the surveillance routes before additional personnel entered to complete surveillance activities. The monitoring was for carbon monoxide, flammable gas, oxygen, and volatile organic compounds. The IH surveys are described in Appendix B.

2.3.4 Biological Hazards

Biologists surveyed the routes for dead or live animals, such as snakes, spiders, or other biological hazards. The live bats observed in the SSEs were not on the routes. The routes were cleared for walking.

2.4 SURVEILLANCE TEAM

The surveys conducted by the surveillance team are briefly discussed in this section. Appendix B provides detailed information.

2.4.1 Radiological Survey

Radiological surveys of internal and external conditions were conducted at 105-DR SSE in accordance with applicable program and procedures. Figure 4 shows an internal radiological survey being conducted. The survey data and results are provided in Appendix B.

The radiological survey results for each SSE are consistent with the results from previous surveys. No unexpected radiological conditions were encountered.

Radiologic postings observed in the SSEs are appropriate for the conditions observed.

Exterior radiological surveys will continue to be performed annually, in accordance with applicable program and procedures or its successor documents.

2.4.2 Structural Survey

Polestar Technical Services of Richland, Washington, conducted the structural assessment.

The structural assessment included observing the SSE exterior and interior (such as foundations, walls, roof, steel decking, handrails, penetrations, covers – anything else that might be considered “structural”) to identify areas of potential deterioration and any obvious hazards that

might compromise the integrity of the SSE structure or allow the release of potentially hazardous substances. The structural survey report for 105-DR SSE is provided in Appendix B.

2.4.2.1 Exterior Structure

During exterior inspections of the SSEs, Polestar Technical Services personnel did not identify any conditions requiring immediate corrective action. The steel structures are in very good condition and the original concrete portions are in fair and stable condition.

2.4.2.2 Interior Structure

Interior visual inspections revealed that the original concrete structure is aging as expected and appears structurally sound. The steel SSE also shows very little if any structural deterioration. The gaps or openings in the seams of the steel siding are obvious from the inside and reveal themselves as “light leaks.”

Bat guano and/or spider webs were present. Live and dead bats were observed in 105-DR SSE and evaluated by the IH for health and safety purposes. The inside condition was dry; little or no evidence of water intrusion was noted. No evidence of groundwater intrusion was noted in the basement floors.

Two dry transformers were observed in 105-DR SSE. Figure 9 shows one of the transformers. Both transformers were in good conditions and were not leaking. No action regarding the transformers is planned.



Figure 9. Dry Transformer in 105-DR.

3.0 WASTE MANAGEMENT

The surveillance activities generated minimal amounts of personnel protective equipment which was considered waste after the SSE entry. The waste was classified as potential low-level radioactive waste because the waste was generated inside a contamination area. The waste generated at 105-DR SSE was managed by following MSC-PRO-EIS-60820, *Reactor Facility Waste Management Instruction*.

The low-level radioactive waste generated by MSA during the SSE entry was collected in plastic bags and stored in drums. After the surveillance routines were completed, the drums were moved to 105-N SSE. The drums were shipped from 105-N SSE to the Environmental Restoration Disposal Facility (ERDF) under the appropriate waste management procedures.

4.0 CONCLUSION AND RECOMMENDATIONS

The 105-DR SSE is aging as expected, with only minor nonstructural issues noted. No changes to radiological conditions from previous inspections were noted during the surveillances. Structural and radiological findings (Appendix B) provide evidence that the SSE structures are functioning as designed and are protective of the public and environment.

Recommended Actions and Resolutions

The surveillance identified three actions for consideration. The actions and their resolutions are as follows.

1. Weld bolts on the rear face plates (Figure 10).

Actions Taken/Actions Proposed

Two bolts on two rear face plates were welded. The purpose of welding was to make removal of the face plates difficult.



Figure 10. Rear Face Plate Showing Bolt.

2. Inserts between metal roof and metal wall are missing which can allow biological intrusion. There are several instances of the missing inserts (see Figure 11).

Actions Taken/Actions Proposed

A screening project has been initiated to place screens over the openings and install foam inserts where needed. 105-DR houses a maternal colony of bats; they are anticipated to move out in September or October. The work to install the screens will be performed once LTS receives clearance from MSA Environmental Monitoring and Environmental Surveillance.



Figure 11. Missing Inserts between Metal Roof and Walls.

3. Bird droppings are accumulating on the steel roof, as shown in Figure 12. There is a potential for roof corrosion.

Actions Taken/Actions Proposed

Roof areas where droppings are present will be observed during the annual exterior inspection of 105-DR. If further concerns are identified, the necessary actions will be taken following the annual inspection.



Figure 12. Photo of Roof Showing Accumulated Bird Droppings.

4. Optional routes 4 and 5 have not been inspected since 2002 when 105-DR was placed in the SSE configuration.

Actions Taken/Actions Proposed

The need to take these routes will be evaluated during the next round of surveillance.

5.0 REFERENCES

36 CFR 800, “Protection of Historic Properties,” *Code of Federal Regulations*, as amended.

Archaeological Resources Protection Act of 1979, 16 USC §470aa – 470mm, et seq., as amended.

DOE-0342, 2014, *Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)*, Rev. 2A, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE-0342-002, 2015, *Hanford Site Assessment & Characterization/Verification of Buildings Procedure*, Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2002-028, 2004, *Surveillance and Maintenance Plan for the 105-DR Reactor Safe Storage Enclosure*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, EPA, and DOE 1989, *Hanford Federal Facility Agreement and Consent Order*, as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

MSC-PRO-EIS-60820, 2014, *Reactor Facility Waste Management Instruction*, Rev. 0, Mission Support Alliance, LLC, Richland, Washington.

National Historic Preservation Act of 1966, 16 USC §470 et seq., as amended.

TPA-CN-0716, 2016, *TPA Change Notice Form DOE/RL-2002-28 Surveillance and Maintenance Plan for the 105DR Reactor Safe Storage Enclosure*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

APPENDIX A
PRE-SURVEILLANCE ACTIVITIES

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Ecological and Cultural Clearance

Ecological and cultural clearance was obtained from MSA Ecological and Monitoring Group. A copy of the ecological and clearance follows.

Mission Support Alliance
Post Office Box 650
Richland, Washington 99352



April 12, 2016

MSA-1601801

Raja G. Ranade
Mission Support Alliance
P. O. Box 650
Richland, WA 99352

Dear Mr. Ranade:

ECOLOGICAL AND CULTURAL CLEARANCE FOR REACTOR ENTRY TO PERFORM 5 YEAR SURVEILLANCE AND MAINTENANCE IN THE 105-DR REACTOR IN THE 100 D AREA, HANFORD SITE, BENTON COUNTY, WASHINGTON (HCRC# 2016-100-010, ECR-2016-115)

Reference: MSA Service Catalog Request#KSR00000229599, R. G. Ranade, MSA, dated March 14, 2016.

PROJECT DESCRIPTION

The project as planned will consist of opening the existing 105-DR Reactor door that is currently welded closed in the 100-D Area. Entry into the reactor is necessary to conduct the 5-year surveillance and monitoring entry for the purposes of verifying atmospheric and radiological conditions within the building. Once the building is deemed safe for entry, additional entries will be made over the course of a 2 to 3 week period to examine structural integrity, verify instrumentation, inspect radiological control, conduct biological clean-up, and assess any needs for general maintenance. Regulator and management walk downs may also occur prior to re-welding the door closed. Two portable toilets will be located within the 15-m (50-ft) defensible space surrounding the reactor building. In addition, a portable support trailer may also be placed in this 15-m (50-ft) zone if needed. The portable trailer will not require staking or other ground-disturbing anchorage. Upon completion of all entry activities the door will be welded closed and port-potties and the support trailer (if used) will be removed from the site.

No ground disturbing activities will occur during the reactor entry. Access to the reactor building will be on existing roads and parking will be limited to designated

parking areas. No activities will occur in the recently revegetated area beyond the 15-m (50-ft) defensible space surrounding the reactor.

ECOLOGICAL RESOURCES (ECR-2016-115)

Mission Support Alliance (MSA) Environmental Compliance staff performed a pedestrian survey of project area on April 8, 2016. The 105-DR Reactor building is surrounded by a cleared area that extends approximately 15 m (50 ft) from the reactor building. The only vegetation present in this area is a few clumps of sand dropseed (*Sporobolus cryptandrus*). Outside of cleared area, the land has been recently planted native grass seeds and big sagebrush (*Artemisia tridentata*) seedlings and mulched with straw. During the site visit, numerous cliff swallows (*Petrochelidon pyrrhonota*) were actively building and entering nests located on all but the west side of the reactor building.

No plant or animal species protected under the Endangered Species Act, candidates for such protection, or species listed by the Washington State government as threatened or endangered were observed in the vicinity of the proposed project site.

There is always the potential for birds to nest within the project area on the ground, on buildings, or equipment. The nesting season in our area is typically from mid-March to mid-July. The active nests (containing eggs or young) of migratory birds are protected by the Migratory Bird Treaty Act (MBTA) of 1918. The MBTA makes it illegal for people to "take" migratory birds, their eggs, feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof.

Personnel working on this project must be instructed to watch for nesting birds.

If any nesting birds (if not a nest, a pair of birds of the same species or a single bird that will not leave the area when disturbed) are encountered or suspected, or bird defensive behaviors (flying at workers, refusal to leave area, strident vocalizations) are observed within the project area, contact 376-BIRD or the author of this section to evaluate the situation.

Since numerous cliff swallow nests are located on the reactor side walls and the birds are currently nesting, any outdoor work that requires access to the nesting

areas must be scheduled when nesting season is over. For help determining when nesting has been completed, please call 376-BIRD or the author of this section.

No adverse impacts are anticipated from the proposed projects if these recommendations are followed. If there are any changes in the scope of these activities that could result in disturbances outside of the description of this review please complete a Service Catalog Request for an additional ecological review and reference the ecological review number above to determine if a follow-up Ecological Resources clearance should be conducted.

This review is valid for two years from the letter date listed above.

Technical questions should be directed to J. A. Pottmeyer at 376-0521.

CULTURAL RESOURCES (HCRC-2016-100-010)

A Cultural Resources assessment of the proposed project was conducted by S. J. Sexton of the MSA Cultural and Historic Resources Program on March 29, 2016. This assessment determined that all Section 106 requirements for this undertaking have been previously met as documented by the *Programmatic Agreement Among the US Department of Energy, Richland Operations Office, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, WA*.

According to the *Hanford Site Manhattan Project and Cold War Era Historic Treatment Plan*, the 105-DR Reactor Building is considered a contributing property to the Hanford Site Manhattan Project and Cold War Era Historic District (Marceau 1998: A.7) with individual documentation required. This undertaking is exempt from Section 106 Review under "Routine Maintenance" and "Security and Personal Safety Systems" per the *Programmatic Agreement Among the US Department of Energy, Richland Operations Office, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, WA* (DOE/RL 1996: III (B)(3) and III (B)(7)). The entry of the building to assess the conditions,

instrumentation, biological clean-up, and general maintenance is exempt from review under stipulations “Routine Maintenance” and “Security and Personal Safety Systems” (DOE/RL 1996:III(B)(3) and III(B)(7) of the Programmatic Agreement.

Routine Maintenance is defined in the Programmatic Agreement as “All routine maintenance work such as normal custodial services, electrical and plumbing installation/repair, repair of fire protection sprinkler systems, moving and assembling of furniture, resurfacing road, sidewalk and parking areas, and landscape maintenance” (DOE/RL 1996:III(B)(3)) and would apply to biological clean-up and assessing general maintenance needs. Security and Personal Safety Systems is defined as “Installation, maintenance and repair of security systems, including computer security, detection, monitoring, surveillance and alarm systems. Also, the installation or modification of personnel safety systems and devices including, but not limited to, emergency exit lighting systems, protective additions to electrical equipment, improvements to walking and working services, and installation of railings, shields and guards” (DOE/RL 1996:III(B)(7)) and would apply to verifying or replacing monitoring equipment or instrumentation to measure atmospheric and radiological control conditions within the building.

Any maintenance activity not included above, especially one that changes the appearance of the structure – even if replacements are made “in-kind”, would require an additional cultural resources review prior to conducting the repair.

If there are changes in the scope of activities that could result in disturbances outside of the description of this project or outside the boundary of the Area of Potential Effect (APE) boundary identified on the attached maps, contact S. J. Sexton at 376-5587 and submit a new Request for Cultural Resources Review through the MSA Service Catalog for a follow-up Cultural Resources Review and referencing the HCRC number listed above to determine if a follow-up Cultural Resources review should be conducted.

Although no cultural resources are expected, all workers must be directed to watch for cultural materials (e.g., bones, stone tools, mussel shell, cans, bottles) during all work activities. If any cultural materials are encountered, work in the vicinity of the discovery must stop until a Cultural Resources Specialist has been notified, the significance of the find assessed, appropriate Tribes notified, and if necessary, arrangements made for mitigation of the find. In the event of any discoveries, please contact S. J. Sexton at office phone 376-5587 or cell phone 713-6806.

Guidelines for the Discovery of Cultural Materials during Project Actions

Information on recognizing cultural resources, as well as the steps to be taken in the event of a cultural resource discovery, is provided in the following sections.

Recognizing Cultural Resources

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic. Some examples include:

- An accumulation of mussel shell (i.e., a shell midden) alone or in association with bone, stone artifacts, burned rocks, or charcoal;
- Bones that appear to be human or animal bones associated with a shell-midden, a cooking feature, or with other artifacts;
- An area of charcoal or very dark stained soil with or without associated artifacts;
- Artifacts made of chipped or ground stone (e.g., an arrowhead) or an accumulation (more than one) of stone flakes (i.e., lithic debitage),
- Clusters of tin cans or bottles, or agricultural equipment that appears to be older than 50 years.

Reporting Steps and Responsibilities

The sequence of actions to be performed in the event cultural materials are encountered during project activities is provided below.

STEP 1: STOP WORK IMMEDIATELY. If any employee, contractor, or subcontractor believes that he or she has uncovered any cultural resource during project-related activities, all work adjacent to the discovery must stop. The discovery location should not be left unsecured at any time.

STEP 2: NOTIFY ARCHAEOLOGICAL MONITOR OR MSA CULTURAL AND HISTORIC RESOURCES PROGRAM. If there is an archaeological monitor for the project, notify that person. If there is a monitoring plan in place, the monitor will follow its provisions. If an archaeological monitor is not available, contact S.J. Sexton at 376-5587 office or 713-6806 cell.

STEP 3: MSA CULTURAL AND HISTORIC RESOURCES PROGRAM STAFF WILL CONTACT THE DOE-RL CULTURAL RESOURCES PROGRAM MANAGER. The MSA Cultural and Historic Resources Program staff will contact M. K. Wright, RL Archaeologist at 376-4069 Office or 521-0628 to inform them of the discovery.

R. G. Ranade
April 12, 2016
Page 6

MSA-1601801
HCRC# 2016-100-010
ECR-2016-115

This Cultural Resources Review was written by S.J. Sexton, who meets the Secretary of the Interior's Professional Qualification Standards for Archaeology.

Technical questions should be directed to S. J. Sexton at 376-5587.

Sincerely,

April L. Johnson, Manager
Ecological Monitoring and Compliance

jap:sjs

Attachment(s) 1

Cc: ^MSA Correspondence Distribution
^MSA Cultural Resources Program Admin Record
A. P. Fergusson, MSA
A. L. Johnson, MSA
K. M. Mendez, MSA
J. A. Pottmeyer, MSA
S. J. Sexton, MSA

MSA-1601801

ATTACHMENT

April 12, 2016

PROJECT LOCATION FOR THE REACTOR ENTRY TO PERFORM 5 YEAR
SURVEILLANCE AND MAINTENANCE IN THE 105-DR REACTOR IN THE 100 D
AREA, HANFORD SITE, BENTON COUNTY, WASHINGTON
(HCRC 2016-100-010, ECR-2016-115)

Consisting of 2 pages,
Including this cover page

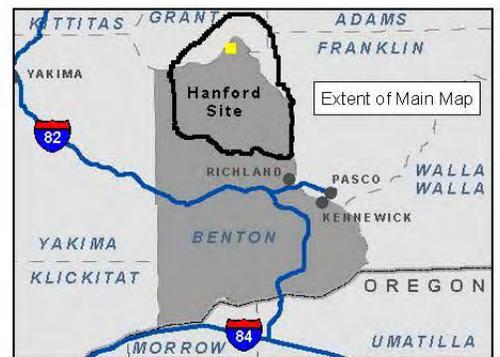


Legend

- Area of Potential Effect (APE)
- Hanford Site Areas

NOTES: Aerial Imagery, 2015, NAIP.

Coyote Rapids, WA 7.5' USGS Quad
Township 14 N Range 26 E
Section 23



Detail of Area of Potential Effect (APE)

HCRC#2016-100-010 | ECR-2016-115
Hanford Site, Benton County, WA

APPENDIX B
SURVEILLANCE AND MAINTENANCE ACTIVITIES

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APPENDIX B
SURVEILLANCE AND MAINTENANCE ACTIVITIES

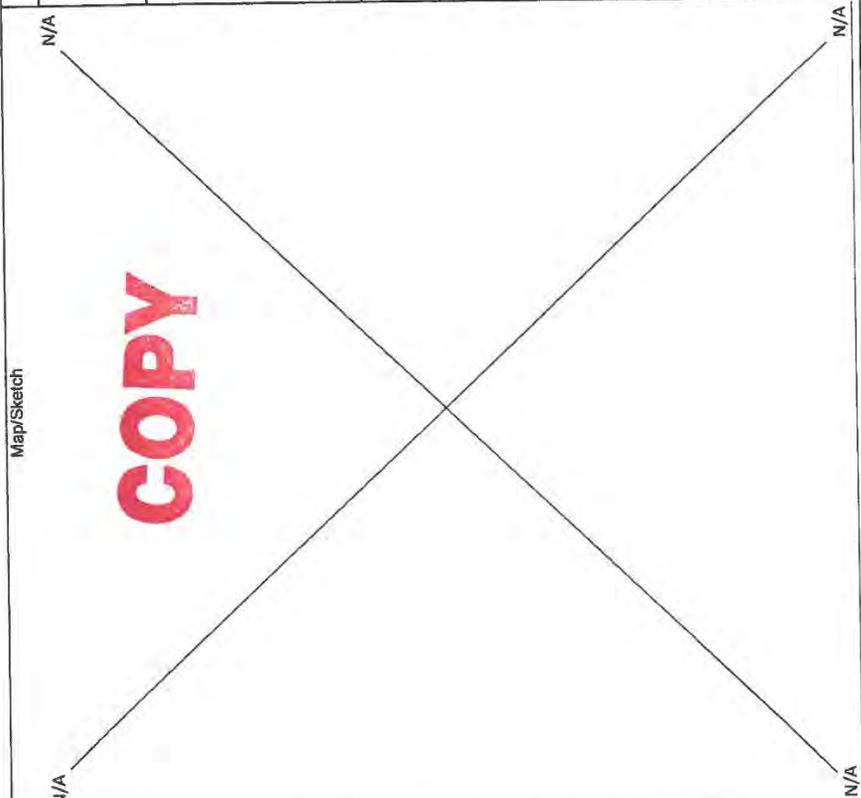
The activities inside the 105-DR Safe Storage Enclosure were conducted mostly along the structural routes identified in DOE/RL-2002-028, *Surveillance and Maintenance Plan for the 105-DR Reactor Safe Storage Enclosure*. These surveillance routes also are included in Work Package 2M-84324/C.

B1.0 Radiological Survey

Radiological control technicians performed surveys along the surveillance routes. A copy of the MSA Radiological Survey Report follows.

MSA RADIOLOGICAL SURVEY REPORT

Job Description
Survey of the 105DR-reactor surveillance route and radiological support for engineering inspection. JW

Map/Sketch
 N/A

 N/A

Purpose of Survey
 Job Coverage
 Verification
 Work/Job Control Pkg./JSA# 2M-RA324/C
 Required Task # N/A
 RAM Shipment # N/A
 Material Release Released to: N/A

Item(s) # N/A
Static Survey
 • Number of static measurements N/A / N/A / N/A
 • Distance from the item (inches) N/A / N/A / N/A
 • Count time (seconds) N/A / N/A / N/A
 • Percentage of the item surveyed N/A / N/A / N/A
 No observable/audible counts above background (i.e., <D)

Item(s) # N/A
Large area wipe (LAW) survey
 • Count time (seconds) N/A / N/A / N/A
 • Survey speed (inches/second) N/A / N/A / N/A
 • Distance from the LAW (inches) N/A / N/A / N/A
 • Percentage of item wiped N/A / N/A / N/A
 • Area wiped for each LAW N/A / N/A / N/A
 No observable/audible counts above background (i.e., <D/LAW) or Observed activity above background (i.e., <D)

Item(s) # N/A
Scanning Survey
 • Survey speed (in./sec) N/A / N/A / N/A
 • Distance from the item (inches) N/A / N/A / N/A
 • Percentage of the item surveyed N/A / N/A / N/A
 No observable/audible counts above background (i.e., <D)

Sample Analysis Reference
 Sample Counter Log Number: N/A

Contamination Incident
 Skin Clothing Spill
 Alarm Response CAM ARM APM
 Exposure Incident HRAV/HRA Work
 IIF No. N/A
 Other N/A
 Air sample taken - see attached log
 Emergency Response - see attached forms
 Check appropriate Box(es) above

Map Legend
 Smear LAW * Contact Reading
 Air Sample Neutron
 --- (designation inside) --- Radiological Area Boundary
 Dose Rates in mrem/h unless otherwise noted

RCT Name(s) (Print) Joe Wiley
 Signature(s) Joe Wiley
 Supervisor or Designee (Print) R.A. Schiffer
 Signature R.A. Schiffer

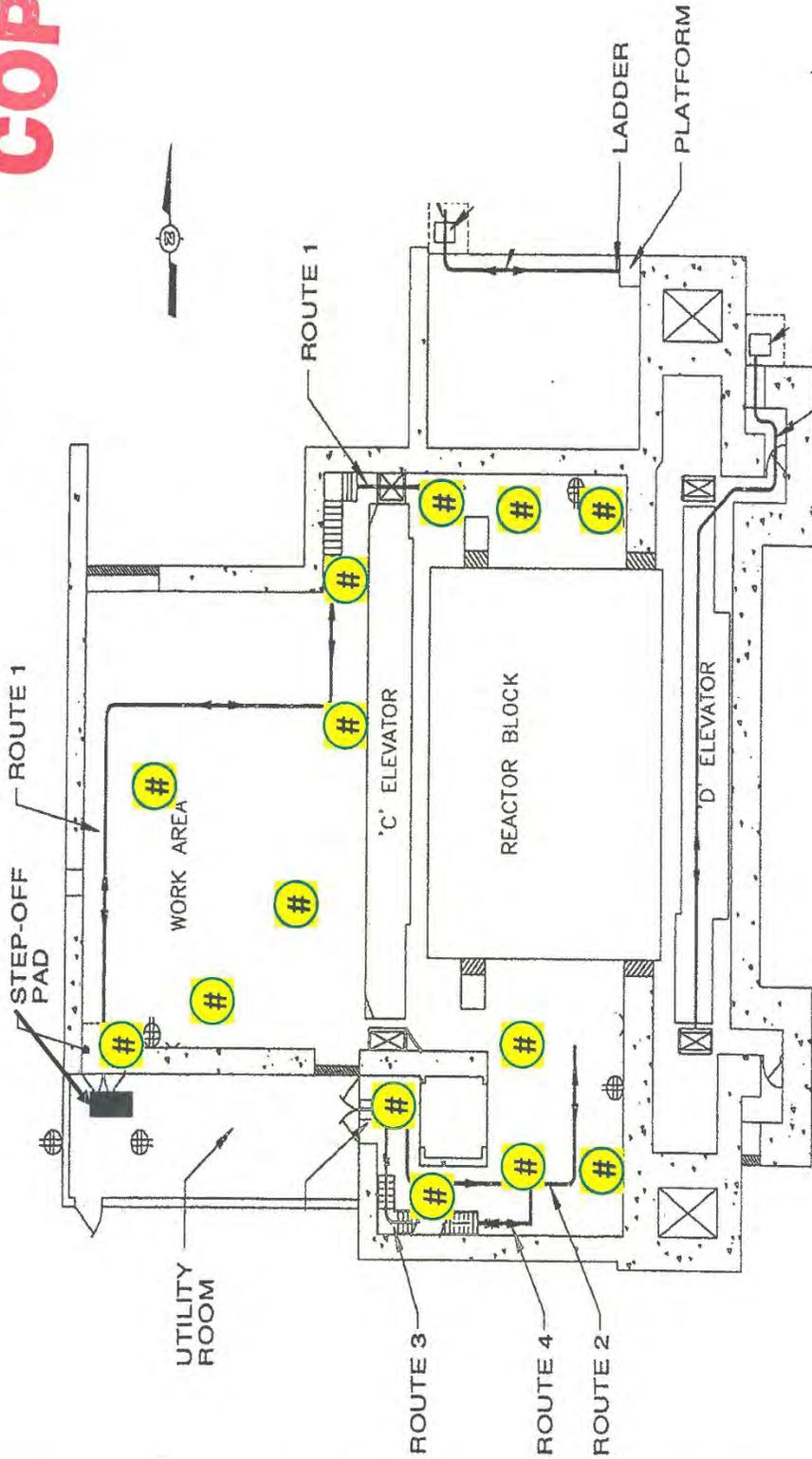
Instrument	RO-3B	GM Model	PAM	N/A	N/A	N/A
Serial No.	ICEB3-0449	Probe	Probe	N/A	N/A	N/A
Efficiency	N/A	CMEB5-0005	ACBC1-0132	N/A	N/A	N/A
	N/A	DTEB9-0514	DTHN3-1008	N/A	N/A	N/A
	N/A	10%	16%	N/A	N/A	N/A

Page 1 of 8 Survey Report No. N-16-0409 Survey Report No. 6/29/16
 A-6002-896 (REV 9)

NOTE: If personal information is added to this survey that might cause distress, embarrassment, or risk identify theft, e.g., exposure data, medical data, payroll, or SSN, the RCT must add the words "OFFICIAL USE ONLY" on the bottom of each page and/or attachments. Ref: MSC-PRO-54603.

COPY

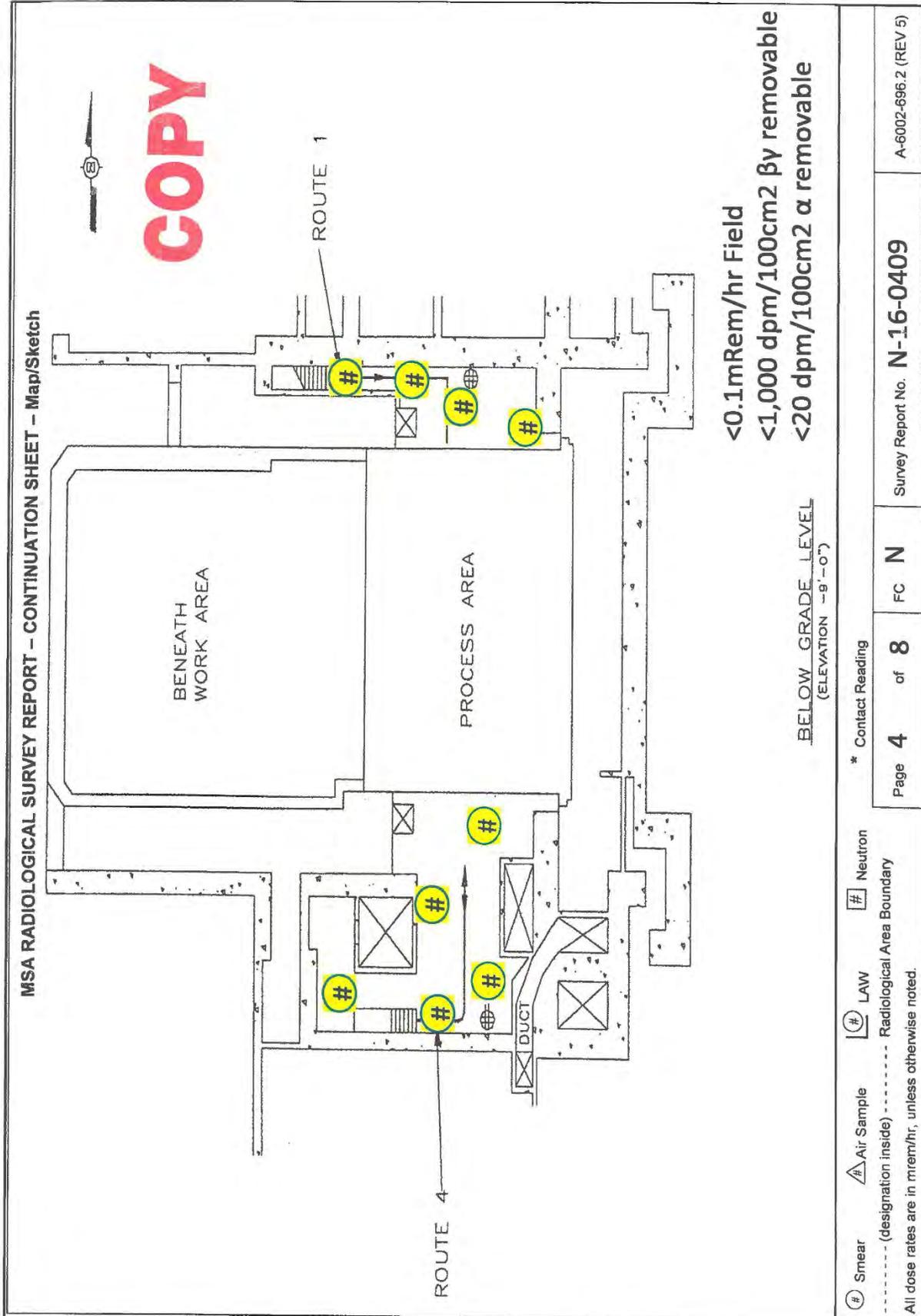
MSA RADIOLOGICAL SURVEY REPORT - CONTINUATION SHEET - Map/Sketch

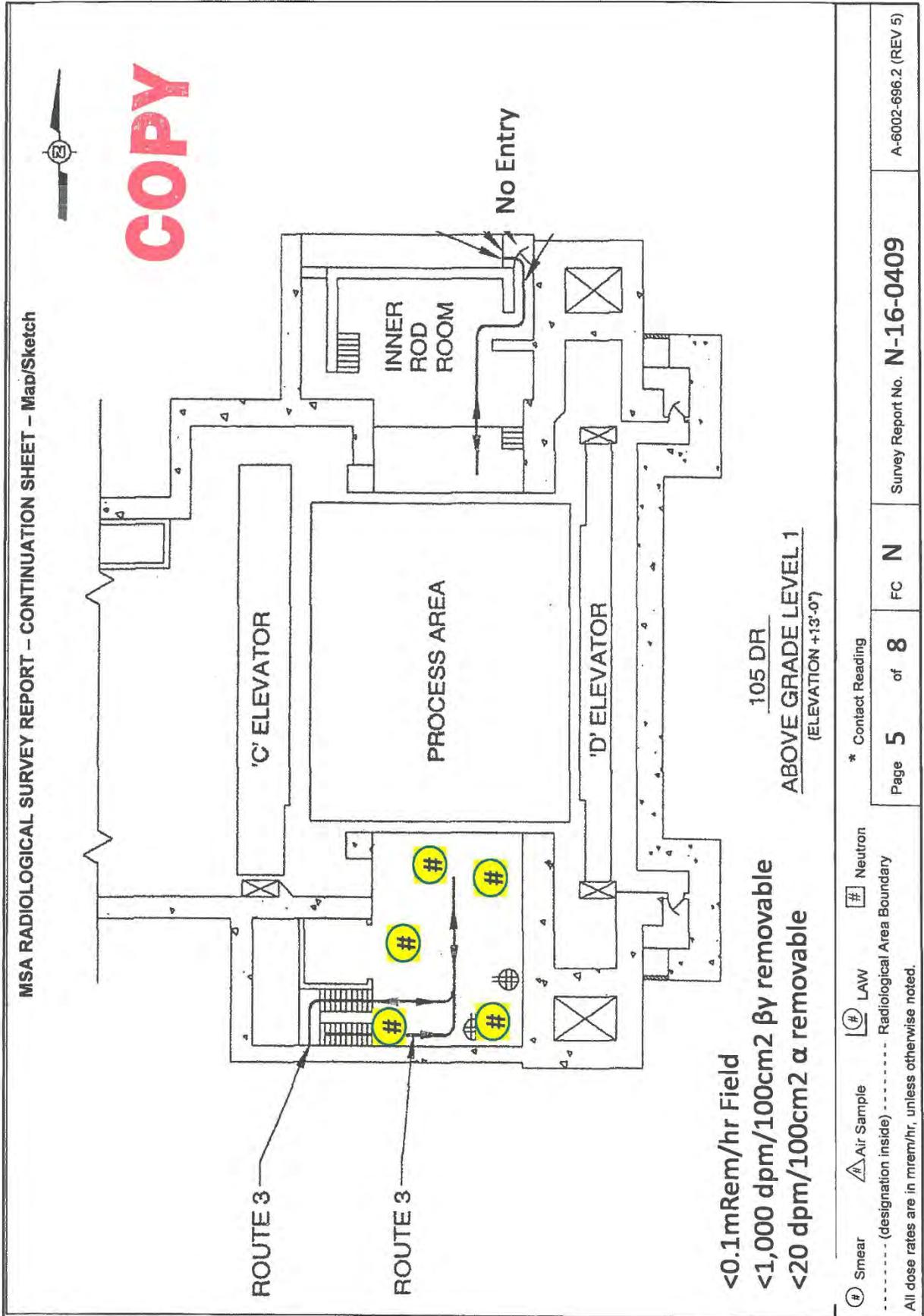


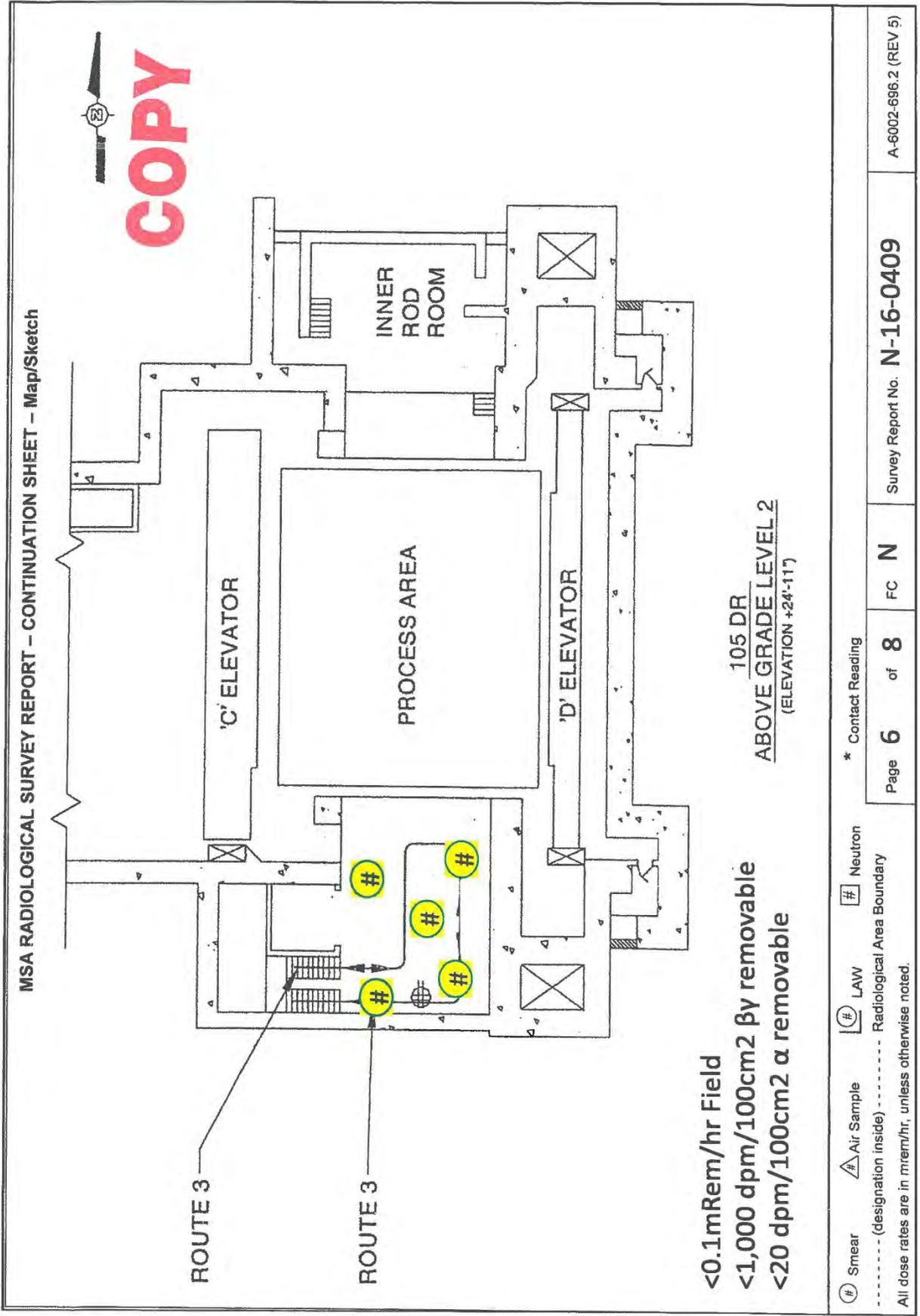
<0.1mRem/hr Field
 <1,000 dpm/100cm² βy removable
 <20 dpm/100cm² α removable

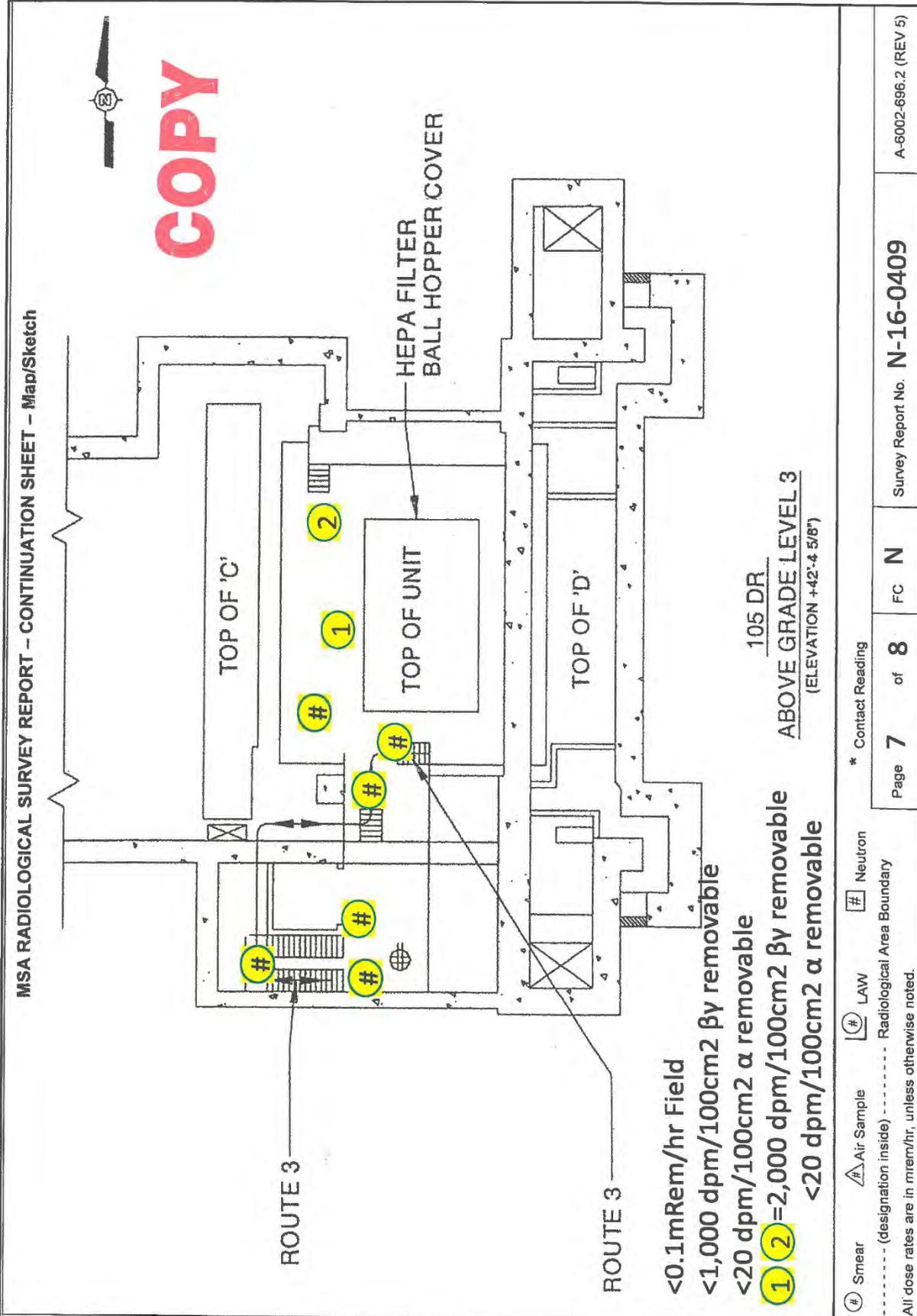
105 DR
 GRADE LEVEL

(⊙) Smear (⊙) Air Sample (---) (designation inside) All dose rates are in mrem/hr, unless otherwise noted.	(⊙) LAW (---) Radiological Area Boundary	(⊙) Neutron (⊙) Contact Reading	Page 3 of 8	FC N	Survey Report No. N-16-0409	A-6002-696.2 (REV 5)
---	---	------------------------------------	-------------	------	-----------------------------	----------------------





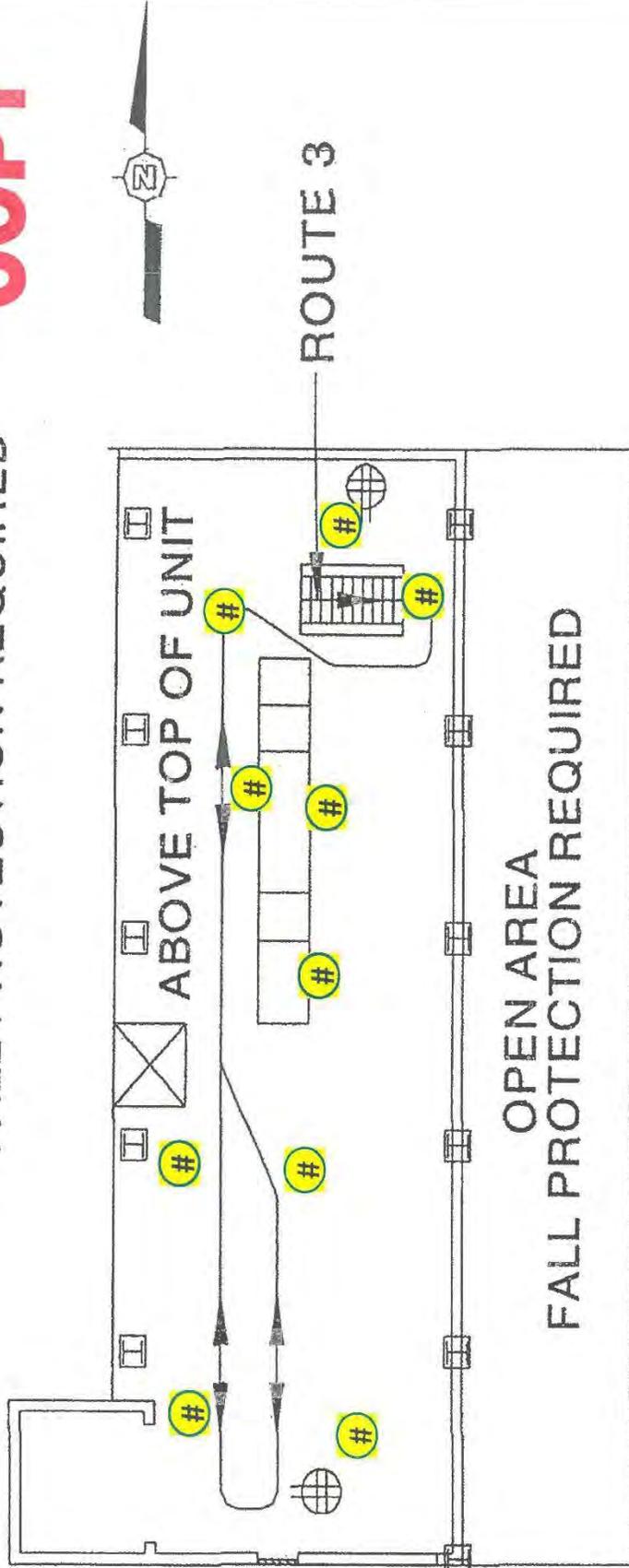




MSA RADIOLOGICAL SURVEY REPORT - CONTINUATION SHEET - Map/Sketch

**OPEN AREA
FALL PROTECTION REQUIRED**

COPY



<0.1mRem/hr Field
<1,000 dpm/100cm² βy removable
<20 dpm/100cm² α removable

ABOVE GRADE LEVEL 4
(ELEVATION +80'-5 1/4")

(#) Smear (Δ #) Air Sample (□ #) LAW (□ #) Neutron (- - - - -) Radiological Area Boundary (———) Contact Reading	Page 8 of 8	FC N	Survey Report No. N-16-0409	A-6002-696.2 (REV 5)
--	---------------------------	-------------	------------------------------------	----------------------

B2.0 Industrial Hygiene Report

The industrial hygienist conducted general-area, direct-reading instrument monitoring of the surveillance routes before additional personnel entered to complete the surveillance activities. The monitoring was for carbon monoxide, flammable gas, oxygen, and volatile organic compounds. A copy of the Industrial Hygiene report follows.

**Mission Support Alliance, LLC
IH DRI Monitoring Survey**

Date: 06/29/2016, 03:38 PM

Survey ID: 16-60341 - 105 DR 5 Year Surveillance

Survey Date: 06/27/2016

Survey ID: 16-60341	Survey Date: 06/27/2016	Survey Status: Complete
Survey Title:	105 DR 5 Year Surveillance	
Sample Plan:	IHSP-14-00179 - DRI (VOC, Multigas)	
WO/Procedure:	na	
BHA:		
Requestor:	Land & Facilities Management	Project IH: Hokanson, Eric J
Surveyor:	Hokanson, Eric J	
Job Contact:	Moren, Rick	
Contact Phone:	(509)376-0852	Contact Cell Phone: (509)713-0098
Engineering Cntls: None		Administrative Cntls: Boundary

Meteorology Data			
Standard Conditions:	Yes	Weather Date:	Time:
Pressure:		Humidity:	Wind Speed:
Wind Direction:		Temperature:	

Mission Support Alliance, LLC

Date: 06/29/2016, 03:38 PM

Survey ID: 16-60341 - 105 DR 5 Year Surveillance

Survey Date: 06/27/2016

Calibration

Instrument		Pre Use Function Test	Post Use Function Test
ID:	4169	Date: 06/27/2016	Date: 06/28/2016
Type:	ITX ISC	Time: 0745	Time: 1635
Serial Number:	10051F0001	Flow/Fault Check: Yes	By: Hokanson, Eric J
Last Cal Date:	06/14/2016	Battery Check: Yes	Location: Office
Next Due Cal Date:	07/14/2016	By: Hokanson, Eric J	
Lamp:	N/A	Location: Office	
Sensor(s)		Pre Use Function Test	Post Use Function Test
Sensor:	ITX ISC CO	As Found: 67	As Left: 67
Calibration Source:	Tri-Gas (CO)	Adjusted To: N/A	
Lot Number:	5-042-65		
Manufacture Date:	02/16/2015		
Expiration Date:	02/28/2018		
Cal Source Value:	70.0 ppm		
Sensor:	ITX ISC H2S NA		
Sensor:	ITX ISC LEL	As Found: 22	As Left: 22
Calibration Source:	Tri-Gas (Isopentane)	Adjusted To: N/A	
Lot Number:	5-042-65		
Manufacture Date:	02/16/2015		
Expiration Date:	02/28/2018		
Cal Source Value:	25% LEL		
Sensor:	ITX ISC O2	As Found: 18.9	As Left: 18.7
Calibration Source:	Tri-Gas (O2)	Adjusted To: N/A	
Lot Number:	5-042-65		
Manufacture Date:	02/16/2015		
Expiration Date:	02/28/2018		
Cal Source Value:	19.0%		

Mission Support Alliance, LLC

Date: 06/29/2016, 03:38 PM

Survey ID: 16-60341 - 105 DR 5 Year Surveillance

Survey Date: 06/27/2016

Calibration

Instrument		Pre Use Function Test	Post Use Function Test
ID:	4384	Date: 06/27/2016	Date: 06/28/2016
Type:	MiniRAE 3000 RAE	Time: 0740	Time: 1640
Serial Number:	592-903939	Flow/Fault Check: Yes	By: Hokanson, Eric J
Last Cal Date:	06/22/2016	Battery Check: Yes	Location: Office
Next Due Cal Date:	07/22/2016	By: Hokanson, Eric J	
Lamp:	11.7 ev	Location: Office	
Sensor(s)		Pre Use Function Test	Post Use Function Test
Sensor:	MiniRAE 3000 RAE 11.7	As Found: 11.8	As Left: 12.1
Calibration Source:	Isobutylene	Adjusted To: N/A	
Lot Number:	5-026-87		
Manufacture Date:	02/16/2015		
Expiration Date:	02/28/2018		
Cal Source Value:	10 ppm		

Mission Support Alliance, LLC

Date: 06/29/2016, 03:38 PM

Survey ID: 16-60341 - 105 DR 5 Year Surveillance

Survey Date: 06/27/2016

Readings

Type:	Area			
Zone - Location:	100DR BLDG - 105DR cocooned reactor building			
Specific Location:	105DR Surveillance Routes			
Status:	N/A			
Activity:	Safety inspection of surveillance Routes			
Date/Time:	06/27/2016 0930			
Device	Agent	Range	Result	Action Limit
Inst-4169 - CO	Carbon Monoxide	<	0.000 PPM	12 ppm
Inst-4169 - LEL	Flammable Gas	<	0.000 %	25 %
Inst-4169 - O2	Oxygen		20.900 %	23.5 %
Inst-4384 - 11.7	Volatile Organic Compound	<	0.000 ppm	2 ppm
Reading Details:	General area monitoring of the 105DR Reactor surveillance routes was conducted to verify conditions prior to additional personnel entering to complete work. Safety inspection and routes reviewed were per work document 2M-84324/C, 105DR Reactor - Perform 5 Year Surveillance & Maintenance. No abnormal readings were observed along the surveillance routes. Results noted below are for the entire work evolution.			

Field Information Verified By: Hokanson, Eric J

Date: June 29, 2016

Approved By: Hokanson, Eric J

Date: June 29, 2016

(The electronic approval indicated above acts as the authentication of this record on the above date)

B3.0 Industrial Safety Report

The industrial safety professional conducted a safety inspection of the surveillance routes before additional personnel entered to complete surveillance activities. A copy of the resulting safety report follows.

Entry into the 105 DR for assessment of walk paths was performed on 27 June. This assessment was made to verify the safety of the routes for engineering and craft to perform their 5 year surveillance of the reactor. Initial entry was performed with (2) RCT, (1) Industrial Hygienist, (1) Safety Professional, (1) Environmental Scientist and (1) Safety Intern. This report contains only the observations noted by the Safety Professional and his findings of physical hazards in the building.

This reactor was left in a very similar condition to the other reactors, with very minimal findings as far as major physical hazards are concerned. There were several steps within the route stair cases that were loose, or wobbly, mostly between the 42' and 56', as well as the 56' to 80' elevations. They all seemed to be marked very well by the previous contractor so they are easy to spot, caution should be used while using these steps (Pic 1). On the 13' elevation along the west wall area, the top rail of the installed guard rail was missing posing a potential fall hazard to the level below. This area was caution taped on the next area to warn of the hazard (Pic 2). On the 56' elevation, there were two areas of concern that went out onto the "old roof" which were not delineated. These areas were caution taped in the next entry to warn of the hazard of stepping onto an uninspected roof. Lastly, upon reaching the mezzanine of the 80' elevation, there is a low hanging support for the new roof. This support is well marked (Pic 3).

This reactor, like the others, was left in good shape as far as not having major physical hazards upon entry. It is a "cold and dark" industrial building so caution should still be given anytime this building is entered.



Pic 1



Pic 2



Pic 3

B4.0 Structural Inspection Report

A team of engineers performed internal and external inspections to determine the SSE conditions and structural adequacy. A copy of the structural inspection report follows:

105-DR Safe Storage Enclosure Engineering Inspection Report - 2016

Document #	Title:	
G0214T-DEL-005 Rev. 0	105-DR Safe Storage Engineering Inspection Report	
Original Draft	Originator: Earl Wright Mark Morton	Date Prepared: 7/13/2016
Draft Review	Reviewer: Tom Rodovsky	Date Reviewed: 7/14/2016
Managing Director Approved	Approver: Kathy Miller <i>Kathleen M. Miller</i>	Date Approved: 7/25/2016



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1 INTRODUCTION

This report is provided as Deliverable 5 of the Mission Support Alliance, LLC, Subcontract 55534, modification 7, as part of the 105-DR Interim Safe Storage (ISS) Building surveillance/inspection that was performed on June 27, 2016. An exterior and interior visual inspection of the Safe Storage Enclosure (SSE) was performed. The surveillance routes used were as noted in DOE-RL-2002-28 Rev 1, *Surveillance and Maintenance Plan for the 105-DR Reactor Safe Storage Enclosure* (S&M Plan) with some limitations as explained herein. MSA provided Work Package 2M-84324/C, "105DR Reactor Inspection" to control the work activity in the field and incorporate the expectations listed in the S&M Plan. In addition, the Washington Closure Hanford (WCH) interoffice memorandum "105-DR Building Structural Inspection" dated February 23, 2013 was utilized for defining specific items for follow up during this inspection.

2 REQUIREMENTS FOR INSPECTION

The 105-DR inspection was completed in accordance with, and to meet the requirements of, the DOE/RL S&M Plan. The surveillance was conducted to evaluate:

- adequate confinement of hazardous substances are maintained within the SSE,
- physical safety and security controls for the SSE,
- the structural integrity of the facility

3 PREVIOUS INSPECTION INFORMATION

The 105-DR Reactor SSE was last inspected on October 4, 2012. The inspection included an outside and inside visual structural inspection of the building, as well as an evaluation of fall protection of the inspection routes. Results of this inspection were documented in the WCH interoffice memorandum.

4 INSPECTION PROCESS

Polestar Technical Services, Inc. (Polestar) conducted the assessment and evaluation of the 105-DR Reactor ISS structure to support the Long Term Stewardship (LTS) Program at the Hanford Site. In addition to complying with the requirements of the S&M Plan, the surveillance also evaluated conditions identified during the previous inspection for follow-up monitoring. The inspections, assessment and any evaluations were performed by a team consisting of: Tom Rodovsky, P.E. and Mark Morton, P.E. representing Polestar. In addition, a Radiological Control Technician, Rick Moren (MSA Legacy Management Director), and two Washington State Department of Ecology representative accompanied the inspection team at the 105-DR SSE inspection.



The assessment involved a visual inspection of the exterior of the structure and portions of the interior identified by the S&M plan. Participants reviewed the results of the previous inspection, prepared an inspection checklist and, during the course of the assessment, documented the condition of the structure with photographs of areas identified during the previous inspection as well as other conditions that merited future observations.

The 105-DR SSE was opened the week before the inspections conducted on June 27th, 2016 in preparation of these inspections. Polestar staff attended an MSA led pre-work briefing early on June 27th, 2016 to review the content of the work package and associated permits and requirements regarding radiological controls, fire, health, safety, and waste management. Following this briefing, the entire team re-assembled at the 105-DR site.

The first entry was by MSA radiological controls, health and safety, and biological controls staff to monitor and establish the baseline safety of the surveillance routes. During this time, engineering team performed the exterior inspection of the structure and immediate surroundings. Once the safety team completed their task, the engineering inspection team was briefed for entry and made entry in the late morning.

The weather was bright and sunny, with morning lows in the 60 – 65 degree range and afternoon highs in the 90's. Due to the bright sun and high temperatures noted and increasing inside the upper levels of the SSE, the engineering inspection team went directly to the 80 foot elevation and worked downward. This slight change to the expected sequence was made to get into and out of the higher (hotter) areas earlier and while the team was still relatively un-impacted by personal protective equipment use on a hot day.

The inspection team checklist highlighted any findings or concerns from past inspections noted in the WCH interoffice memo and these items were specifically reviewed as part of the inspection at every level. No significant changes were noted, and in many cases a follow up picture was taken to show the area four years later.

The inspection team worked through the SSE top to bottom, taking notes and pictures to support the evaluation and this report. Special care was taken, based on lessons learned from the 2015 efforts, to capture the elevation at the start of every digital photo series in order to ensure that each picture and description in this report matched the elevation in the field.

4.1 Inspection Data Analysis

In general, the team found the steel and siding to be in very good condition, and the concrete and flashings to be in good and stable condition with no significant defects.

There is a longer term concern regarding the buildup of swallow droppings on the exterior of the building in few places on the new steel roofing material. This may generate a very concentrated and localized corrosion issue over time. The northeast corner of the vestibule is a good test bed to this potential issue (see photos DSC04113 and DSC04114 in Section 5.2). The vestibule has easy access to the underside of the steel roof and there is a buildup of droppings in this area.



Bats are entering and leaving the SSE somewhere. Flashing and trim repair may minimize this, but the large number of bats would indicate that this is a roosting area that will be hard to eliminate. Other than the unpleasant smell and or potential health issues, the bats don't present an issue from an engineering perspective.

5 INSPECTION DATA

This discussion of the 2016 105-DR SSE Structural Inspection results is divided into three categories that are described and summarized below.

- Repair suggestions (detailed in Section 5.1)
- Watch of possible change (detailed in Section 5.2) and
- Historic data for future information (discussed in Section 5.3 with details in Appendix 1).

Section 5.1 covers a few specific items noted that are recommended for near term MSA action. These deal mostly with tightness of the siding and trim to eliminate bat access points and, in one case, a recommendation to weld bolts on two rear face closure plates for security purposes (see photo DSC04123 in Table 5.1A).

Section 5.2 includes a number of items that, although not an issue today, are suggested for future inspections to monitor change or degradation. This section also captures Polestar's suggestion that S&M routes 5 and 6 be accessed prior to fully committing to a 10 year inspection cycle to establish the baseline conditions for extending the periods between inspections.

As noted in Section 5.3, Appendix 1 is provided as the SSE historic backdrop for future inspection to demonstrate the continued stability of the SSE.

5.1 Repair Suggestions

The two tables that follow with two repair suggestions documented in a number of photos. The rear face plate shown in photo DSC04121 is a very specific item. In addition, there are a number of pictures of loose flashing – this is a generic suggestion and these pictures are examples of the problem, not every occurrence is shown. Note that all photos in Section 5.1 are on the exterior of the building and therefore no elevations callouts are made.

Table 5.1A includes photos from the 2012 inspection from the WCH interoffice memo along with new 2016 photo(s) of the same area. One or more photos follow each 2012 photo for comparison. Table 5.1B includes only 2016 photos as no photos were available for that area.



<p>2012 Exterior – Roof Flashing – Elev 0'-0", W Wall, Damaged</p>	<p>DSC04139- West wall (front face of reactor). Approximately ½ of inserts between metal roof and metal wall are missing.</p>

Table 5.1B - New Repair Recommendations From 2016

<p>DSC04130 Inserts between metal roof and metal wall are missing in several locations. Seeral at higher elevations could be seen to be missing from north side of building. Same issue was observed in 2012 inspection.</p>	<p>DSC04134 West wall (front face of reactor). Approximately ½ of inserts between metal roof and metal wall are missing.</p>



DSC04131 Inserts between metal roof and metal wall are missing in several locations. A few at higher elevations could be seen to be missing from north side of building. Same issue was observed in 2012 inspection.

5.2 Watch for Possible Change

Polestar suggests that that S&M Routes 5 and 6 be inspected in the next inspection process. This SSE was shut in 2003, and the past and current inspections have shown little or no degradation. The potential for roof corrosion in the Rod Room from bird droppings accumulating on the steel roof may be revealed through inspection of Route 5. Water intrusion, if any, from roof drainage may impact contaminated areas below grade in the D Elevator space visible from Route 6. A focus on these areas during the regular annual exterior inspections should identify potential problems that might develop before the next scheduled interior inspection. If excessive deterioration is revealed during the exterior inspection, an interim or off-cycle interior inspection would be warranted.

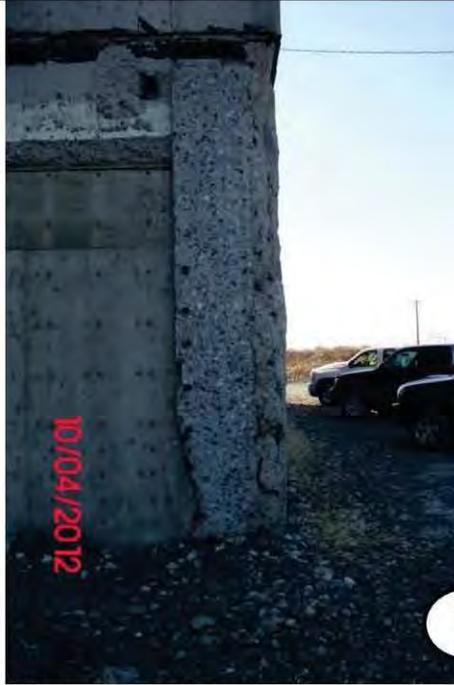
The high number of bats inside and swallows outside of the SSE, while not a structural or engineering concern at this time, may present issues in the future; e.g., swallow droppings on the metal roof in a few locations adversely impact the galvalume roof material providing a starting point for corrosion of the steel core of the roofing material.

The two tables that follow include “watch” suggestions documented in a series of photos. Whenever available and or applicable, the 2012 picture was included in Table 5.2a. The photos in both tables are from a number of elevations as well as the exterior of the building, however only elevations callouts are made only for interior photos.

Table 5.2A includes photos from the 2012 inspection from the WCH interoffice memo along with new 2016 photo(s) of the same area. One or more photos follow each 2012 photo for comparison. Table 5.2B includes only 2016 photos as no photos were available for that area.



Table 5.2A – Watch Recommendations with 2012 Pictures

2012 Photos	Comparable 2016 Photos
Exterior	
	
<p>2012 Exterior – Wall, Steel Cover Plates – Elev 0'-0", W Wall, Discoloration, Visible Corrosion on Plates, Existing Damage</p>	<p>DSC04133 Northwest corner of front face. Spalling of concrete on corner, no change from 2012 inspection.</p>



2012 Photos	Comparable 2016 Photos
 <p data-bbox="266 921 703 999">DSC04135 Northwest corner of front face. Spalling of concrete on corner, no change from 2012 inspection.</p>	 <p data-bbox="727 959 1349 1016">DSC04136 Northwest corner of front face. Spalling of concrete on corner, no change from 2012 inspection.</p>
 <p data-bbox="266 1486 695 1581">2012 L1-18 – Exterior – Wall, Steel Cover Plates - Elev 0'-0", W Wall, Discoloration, Visible Corrosion on Plates. Existing Damage.</p>	 <p data-bbox="727 1442 1294 1520">DSC04137 Wall plates are showing corrosion. Rust color is running down wall between plates. No change from 2012 inspection</p>



Elevation 0'



2012 Interior – Floor common to Door
Pourback – Elev 0'-0", W Wall, Discoloration,
Moisture Intrusion

DSC04220



2012 Interior – Wall – Elev 0'-0", W Wall,
Discoloration, Moisture Intrusion

DSC04221 Moisture intrusion was observed in this area on 2012 inspection. No moisture was observed.



2012 Interior – Wall – Elev 0'-0", W Wall, Discoloration, Moisture Intrusion



2012 Interior – Wall – Elev 0'-0", N Wall, No Visible Issues



DSC04228



2012 Interior – Ceiling Beam and Wall – Elev 0'-0", W Wall, Discoloration and Corrosion



DSC04225 2012 inspection observed "discoloration and corrosion". 2016 walkdown concluded that corrosion was very minimal.



2012 Interior – Ceiling Beam and Wall – Elev 0'-0", W Wall, Discoloration and Corrosion

DSC04226 2012 inspection observed "discoloration and corrosion". 2016 walkdown concluded that corrosion was very minimal.

Elevation -9'



2012 Interior – Stairs – Elev (-)9'-0", S Wall, Deflection, Damage, Instability

DSC04193 – Stairs to -9' appear stable, 2016 team could not replicate instability.



2012 Interior – Stairs – Elev (-)9th-0th, S Wall,
Deflection, Damage, Instability



2012 Interior – Stairs Detail – Elev (-)9th-0th, S Wall,
Deflection, Damage, Instability



Elevation +42'



2012 Interior – Beam Ceiling – above 42' landing, Existing Discoloration



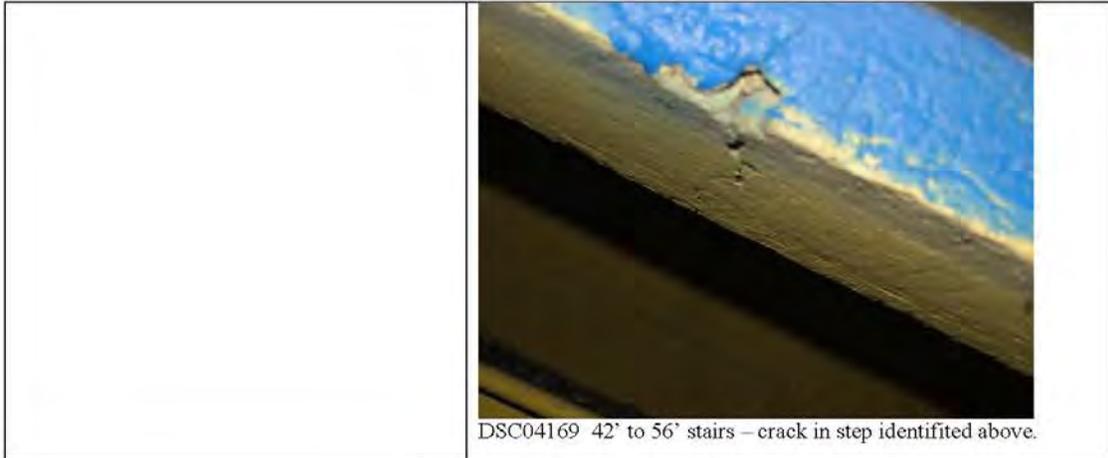
DSC04179 Discoloration/staining on concrete was noted in the 2012 walkdown. Staining still exists, looks the same as in 2012.



DSC04181 Discoloration/staining on concrete was noted in the 2012 walkdown. Staining still exists in 2016, looks the same as in 2012.



	 <p>DSC04180 Discoloration/staining on concrete was noted in the 2012 walkdown. Staining still exists, looks the same as in 2012.</p>
 <p>2012 Interior – Stairs – Elev 42' 4-5/8", Interior, Loose Steps, crack in upper step</p>	 <p>DSC04168 42' to 56' stairs</p>



DSC04169 42' to 56' stairs – crack in step identified above.

Elevation +56'



2012 Interior – Stairs – Elev 80' 5-1/4",
Interior, Crack, Loose Steps



DSC04144 stairs 70 foot to 80 foot



DSC04142 wobbly stairs 56 to 80 foot



DSC04143 wobbly stairs 56 to 80 foot

Elevation +80'



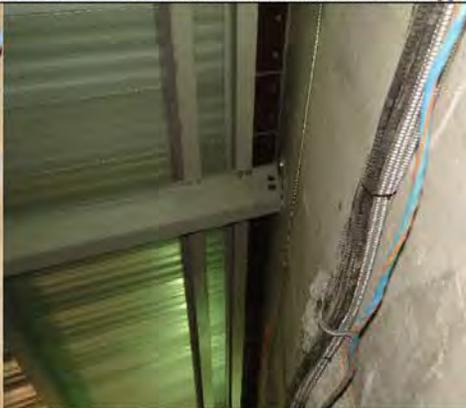
2012 Interior – Grating – Elev 80' 5-1/4",
Interior, Damage

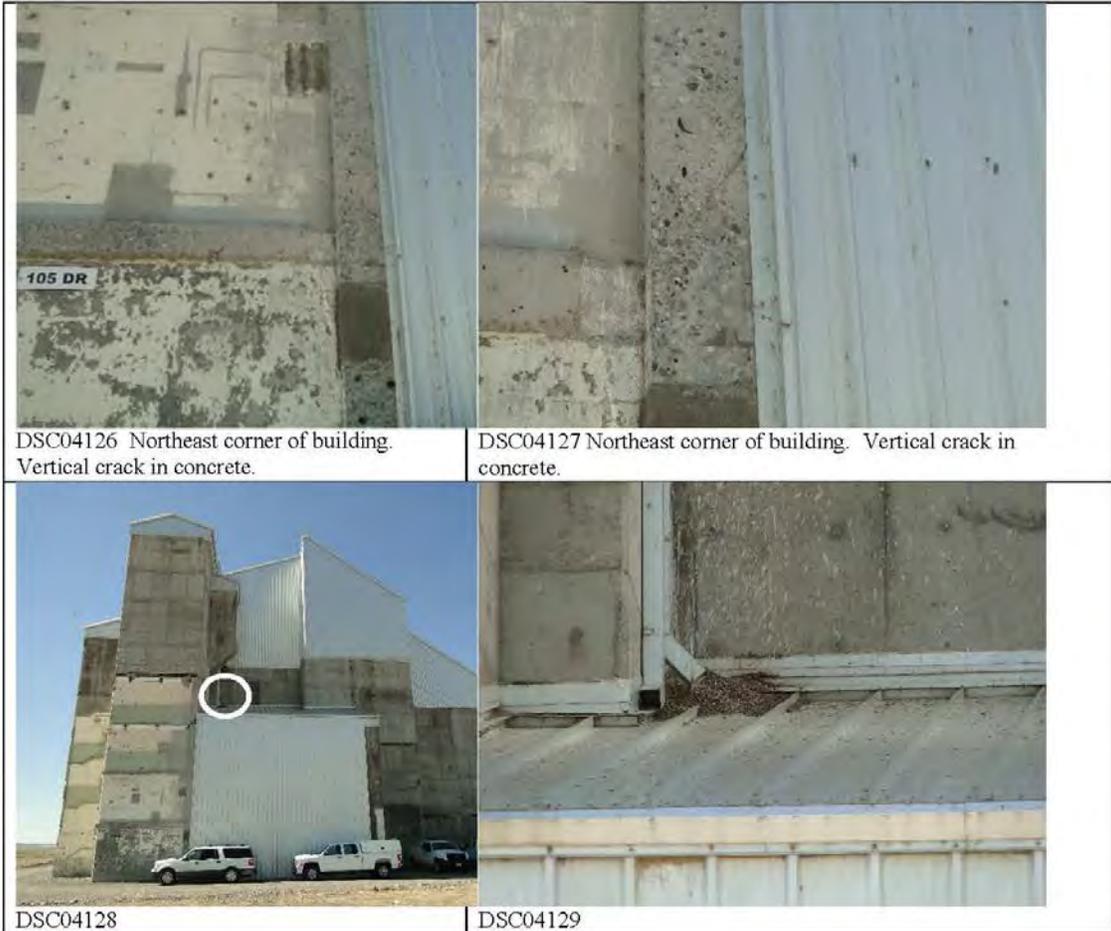


DSC04145 grating minor damage



Table 5.2B - New Watch Items from 2016 Inspection

Elevation 0'	
	
DSC40194 Vestibule NE corner under bird droppings	DSC40195 Vestibule NE corner under bird droppings
	
DSC40197 Vestibule	DSC40196 Vestibule



Elevation 0'



DSC40227 Absorbent pads on floor of front face along north wall (2 locations). Leakage appears to be very slow.



DSC40186 Bottom stair of the south staircase to the +13' Elev. shows spalling and deterioration.



DSC40198 Bats present above front face work area, large amount of bat guano on the floor.



DSC40212 Bats present above front face work area, large amount of bat guano on the floor.



DSC40230 Front Face South moisture indication.

DSC40213 Bats present above front face work area, large amount of bat guano on the floor.

Elevation +42'



DSC04170 bats

DSC04175 bats above stairs from 42' to 24'



Three winches are leaking from above the 42' 4 5/8" level. Two areas with absorbent pads are located on the floor on the northwest side of floor. One area with absorbent pads is located on top of the top hat. Leakage appears to be very slow in all cases.



DSC04171



DSC04172



DSC04173

Three winches are leaking from above the 42' 4 5/8" level. Two areas with absorbent pads are located on the floor on the northwest side of floor. One area with absorbent pads is located on top of the top hat. Leakage appears to be very slow in all cases.



DSC04174



DSC04162 – Drip absorbant pad on top hat, adjacent to 42' to 56' stairs.



DSC04161



Elevation +56'



5.3 Historic Information

Appendix 1 includes a large number of photos that provide various views of areas at most elevations within the SSE. No issues or degradation is evident or identified in areas covered by these photos, if change is noted in the future they may provide useful for comparison with a newly identified issue. This is provided to ensure that, along with the WCH interoffice memo, an historic backdrop is provided to compare against following future inspections should a deficiency or change be noted at that time.



6 SUMMARY

The team found the new steel and siding were found to be in very good condition. The concrete and flashings were found to be in fair and stable condition with no significant defects. The ongoing program to repair flashing and gaps in the siding should be applied to 105-DR as planned. The rear face plate closure bolts should be welded as noted in Section 5.1 and Table 5.1A should be addressed in the near term. The large numbers of swallows at 105-DR may be cause for future roof corrosion concerns and the bats on the interior are discussed in Section 5.2 may be a cause for future concerns.

7 REFERENCES

- 1) DOE/RL-2002-28, Rev 1, *Surveillance and Maintenance Plan for the 105-DR Reactor Safe Storage Enclosure*
- 2) MSA Work Package; 2M-84324/C, "105DR Reactor - Perform 5 Year Surveillance & Maintenance"
- 3) Washington Closure Hanford Interoffice Memorandum, "105-DR Building Structural Inspection," CCN169872, dated February 19, 2013



APPENDIX 1 – HISTORIC INFORMATION

As noted earlier for Tables 5.1 and 5.2, elevations are provided only for interior photos.

Exterior



DSC04111– Elev 0'-0", SW Wall, No Visible Issues



DSC04115– Elev 0'-0" SE Wall, No Visible Issues



DSC04119 Elev 0'-0" SE Wall, No Visible Issues



DSC04120– Elev 0'-0", E Wall, No Visible Issues



DSC04124- Elev 0'-0", NE Wall, No Visible Issues



DSC04112



DSC04116



DSC04122



DSC04125



DSC04132

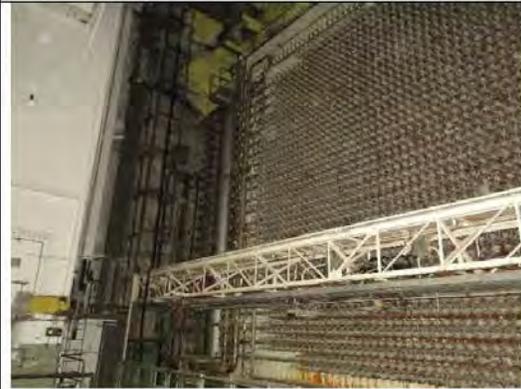


G0214T-DEL-005
Mission Support Alliance, LLC
105-DR SSE Engineering Inspection Report
July 25, 2016



DSC04138

At Grade Interior



DSC04211 Front Face north



DSC04209 Front Face south



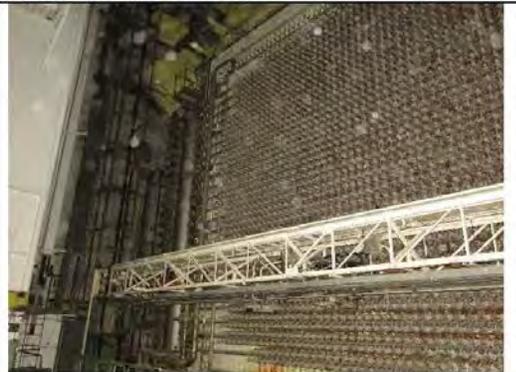
DSC04215 North side room



DSC04188 South Side Room



DSC40187 Nameplate – South Side Room



DSC40210 Front Face North



DSC40216 North side room

DSC40217 Front Face west wall pourback

DSC40218 Front Face NW pourback

DSC40229



Elevation -9'



DSC04192



DSC04191



DSC04201 North side hole to rear face

Elevation +24' 11"



DSC04177 13' to 24' landing room



DSC04178 13' to 24' landing room window



DSC04182



Elevation +56'



DSC04156



DSC04152



DSC04153



DSC04165



DSC04166



DSC04167



DSC04155



DSC04158



DSC04159

Elevation +80' 5"



DSC04147 Infill mortar marks on old structure



DSC04148 South old front face roof from above



DSC04149 North old front face roof from above

**APPENDIX C
WASHINGTON CLOSURE HANFORD
INSPECTION CHECKLISTS FOR 2012 THROUGH 2014**

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**APPENDIX C
WASHINGTON CLOSURE HANFORD
INSPECTION CHECKLISTS FOR 2012 THROUGH 2014**

This appendix presents the checklists that Washington Closure Hanford used for their surveillance and maintenance activities for the 105-DR safe storage enclosures from 2011 through 2014 are included in HNF-59342, *Five Year Surveillance Report for the 105-C, 105-D, 105-H, 105, F and 105-N/109 Safe Storage Enclosures*, Appendix G.

SM-650-08-2011

8/11 PM

Acrobat 8.0

PREVENTATIVE MAINTENANCE PACKAGE COVER SHEET				
PM Package No.: <u>SM-650</u>		Rev No.: <u>3</u>		
Title: <u>Annual Surveillance 100B, C, D, DR, NE, N, F & H Inactive Facilities</u>				
Procedure No. (if applicable): <u>Task Instruction</u>				
Work Supervisor: <u>Dean Humphrys</u>		Technical:		Planner: <u>Patty Lichy</u>
Freq <u>Annual</u>		Grace/Lead <u>25%</u> days		Active Date <u>08/01/11</u>
RWP # (or N/A) <u>N/A</u>		Air Quality <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Due Date <u>08/31/11</u>
LOCATION:				
Area <u>N/A</u>		Bldg/Fac <u>Various</u>		Room <u>N/A</u>
Equip Tag <u>N/A</u>		Model <u>N/A</u>		Serial # <u>N/A</u>
Equip # <u>N/A</u>		Description <u>Annual Surveillances of Inactive Facilities</u>		
COA <u>H100SM2222</u>				
RESOURCES:				
	<u>CODE</u>	<u>CRAFT NAME</u>	<u>NO.</u>	<u>EST. MHRS</u>
	<u>D&D</u>	<u>D&D Worker</u>	<u>2</u>	<u>40.00</u>
	<u>RCT</u>	<u>RAD. Con. Tech</u>	<u>1</u>	<u>40.00</u>
Brief Description, Reference Documents:				
<u>PERFORM THE ANNUAL SURVEILLANCE ON THE 100 B, C, D, DR, NE, N, F AND H INACTIVE FACILITIES PER THE TASK INSTRUCTIONS. RECORD RESULTS FOR EACH FACILITY ON A DATA SHEET.</u>				
Lockout Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If Lockout required, check one: <input type="checkbox"/> TAF <input type="checkbox"/> Eight-Criteria Checklist		
USQ Screening <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If no, Project Engineer print name, sign and date: <u>MARK ALLEN PER TELECON</u>		
If yes, Screening/Determination/CX No.:				
USQ Evaluator(s) print name, sign, date:		<u>PA Lichy 8-17-11</u>		
FHC Evaluation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, FHC Evaluation No.:		
Project Engineer print name, sign, date:		<u>PA Lichy 8-17-11</u>		
AUTHORIZATION				
Based on my personal review, I agree that the work described in this package meets technical requirements, can be performed safely, and contains the controls from the JHA and is authorized for work release.				
Responsible Manager:	<u>Bill Hooper</u>	<u>Bill Hooper</u>	<u>8-17-11</u>	
	Name	Signature	Date	
PM PACKAGE CLOSURE RECOMMENDATION				
Based on my personal review of this work package and inspection of the work site, I recommend closure of this preventative maintenance work package.				
Work Supervisor: (or designee)	<u>Dean Humphrys</u>	<u>Dean Humphrys</u>	<u>5/10/12</u>	
	Name	Signature	Date	
Technical: (if applicable)	<u>Steve Garnett</u>	<u>Steve Garnett</u>	<u>05/10/2012</u>	
	Name	Signature	Date	
PM PACKAGE CLOSURE APPROVAL				
Responsible Manager:	<u>Bill Hooper</u>	<u>Bill Hooper</u>	<u>5/10/2012</u>	
	Name	Signature	Date	

PREVENTATIVE MAINTENANCE WORK PACKAGE APPROVAL FORM													
PM Package No.: <u>SM-650</u>	Rev. No.: <u>4</u>												
Title: <u>Annual Surveillance of 100 B, C, D, DR, F, H Area Inactive Facilities</u>													
CONCURRENCE													
Based on my personal review, I agree all work described in this package meets technical requirements under my cognizance, and contains the controls from the JHA.													
Work Supervisor:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"><u>Dean Humphrys</u> <i>Dean Humphrys</i></td> <td style="width: 40%;"><u>8/16/11</u></td> </tr> <tr> <td>Name and Signature</td> <td>Date</td> </tr> </table>	<u>Dean Humphrys</u> <i>Dean Humphrys</i>	<u>8/16/11</u>	Name and Signature	Date								
<u>Dean Humphrys</u> <i>Dean Humphrys</i>	<u>8/16/11</u>												
Name and Signature	Date												
PSR:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Morgan Spaman <u>Nick Smith</u> <i>Nick Smith</i></td> <td style="width: 40%;"><u>8-16-11</u></td> </tr> <tr> <td>Name and Signature</td> <td>Date</td> </tr> </table>	Morgan Spaman <u>Nick Smith</u> <i>Nick Smith</i>	<u>8-16-11</u>	Name and Signature	Date								
Morgan Spaman <u>Nick Smith</u> <i>Nick Smith</i>	<u>8-16-11</u>												
Name and Signature	Date												
EPL:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"><u>Dave Warren</u> <i>PER TELECON PA Licky</i></td> <td style="width: 40%;"><u>8-10-11</u></td> </tr> <tr> <td>Name and Signature</td> <td>Date</td> </tr> </table>	<u>Dave Warren</u> <i>PER TELECON PA Licky</i>	<u>8-10-11</u>	Name and Signature	Date								
<u>Dave Warren</u> <i>PER TELECON PA Licky</i>	<u>8-10-11</u>												
Name and Signature	Date												
Engineering :	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"><u>Mark Allen</u> <i>per telecon PA Licky</i></td> <td style="width: 40%;"><u>8-10-11</u></td> </tr> <tr> <td>Name and Signature</td> <td>Date</td> </tr> <tr> <td> :</td> <td> </td> </tr> <tr> <td>Name and Signature</td> <td>Date</td> </tr> <tr> <td> :</td> <td> </td> </tr> <tr> <td>Name and Signature</td> <td>Date</td> </tr> </table>	<u>Mark Allen</u> <i>per telecon PA Licky</i>	<u>8-10-11</u>	Name and Signature	Date	:		Name and Signature	Date	:		Name and Signature	Date
<u>Mark Allen</u> <i>per telecon PA Licky</i>	<u>8-10-11</u>												
Name and Signature	Date												
:													
Name and Signature	Date												
:													
Name and Signature	Date												
USQ Screening	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, Project Engineer print name, sign and date: <u>MARK ALLEN</u>												
If yes, Screening/Determination/CX No.:	<u>PER TELECON PA Licky 8-10-11</u>												
USQ Evaluator(s) print name, sign, date:													
FHC Evaluation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
If yes, FHC Evaluation No.:	<u>MARK ALLEN PER TELECON PA Licky 8-10-11</u>												
Project Engineer print name, sign, date:													
APPROVAL													
Based on my personal review, and the concurrence of the above technical experts, I agree that the work described in this package meets technical requirements under my cognizance, can be performed safely and contains the controls from the JHA.													
Responsible Manager:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"><u>Bill Hooper</u> <i>Bill Hooper</i></td> <td style="width: 40%;"><u>8/16/11</u></td> </tr> <tr> <td>Name and Signature</td> <td>Date</td> </tr> </table>	<u>Bill Hooper</u> <i>Bill Hooper</i>	<u>8/16/11</u>	Name and Signature	Date								
<u>Bill Hooper</u> <i>Bill Hooper</i>	<u>8/16/11</u>												
Name and Signature	Date												

WCH Task Instruction

PM# SM-650
 Rev 4
 Page 7 of 8

Surveillance of 100 Area Inactive Facilities

**ATTACHMENT 1
 ANNUAL SURVEILLANCE OF 100 AREA INACTIVE FACILITIES
 TASK INSTRUCTION DATA SHEET**

Building No. 105-DR	
People Performing Surveillance	Sign/Initial <i>[Signature]</i> 1 SP Date 8/11/11
	Sign/Initial <i>[Signature]</i> 1 SD Date 8/12/11
5.2 Walk down	
Inspect for structural damage	N/G
No signs missing	NO
No water leaks	NO
No ground subsidence (Possible pipe failure)	NO
Doors locked	Yes
No excess combustible	no
No excess equipment	no
No electrical hazards	NO
No asbestos concerns	NO
No unidentified containers or suspect hazardous material	NO
No occupational hazards	NO
Housekeeping needed	NO
REMARKS	
<p>Applied sealant to rebar at spalled concrete at 0' level. Removed pail that was in contact with metal siding. Inspected flashing at rear face of observation tower. Verified utility lighting for other 4 sectors in off position. Applied sealant to exposed rebar > 8'</p>	
SUPERVISOR REVIEW: <i>[Signature]</i> DATE 5/10/12	

ROUTINE WORK DETERMINATION FORM

Title: 105-DR Repairs

Task Description
 Perform the following external repairs to the 105 DR reactor in response to issues identified in the 105-DR 5 Year Inspection. Apply a sealant to rebar located in areas of spalled concrete. Remove soil and aggregate on the North side of the building that is in contact with the metal siding. Verify the utility lighting for the other 4 SSE building are in the off position. Inspect flashing at the eave of the rear-face observation room.

1. Based on the location, environmental conditions and personnel assigned to the task, answer the following questions.

Yes No
 Are the workers familiar with the location?
 Are the environmental conditions acceptable for calling this task routine?
 Is the timing of the work (with relation to other work activities) acceptable for this task to be routine?
 Do the workers have sufficient experience with this task to consider this work routine?

If any of the above questions are answered **NO**, the task cannot be **PERFORMED** as Routine.
 Yes No Does the task require a critical resource per PAS-2-1.1?
 Yes No Is the task intrusive HCA work?

If any of the above questions are answered **YES** the task cannot be performed as Routine. If the answer is **NO** proceed to Section 2.

2. Check all potential hazards and activities associated with this task.

Fall Hazard Prevention Analysis Hot Work
 Work in a Permit Controlled Area (BWP, RWP, etc.) Work in Confined Space
 Potential exposure to hazardous energy Potential Respiratory hazard requiring specific PPE
 Potential exposure to hazardous substance above the PEL

Based on the checked boxes above, complete the following:
 Yes No Are there more than TWO potential hazards and activities?

If the above question is answered YES, the task CANNOT be performed as Routine. Initiate a Work Process Form.

3. USQ Evaluation
 Affect Important To Safety equipment and/or configuration of Hazard Category 2 or 3 Facility? Yes No
 If yes, Screening/Determination Number or Categorical Exclusion Number and signature by USQ evaluator is required.
 Review # _____
 USQ Evaluator(s): _____
 Name(s) Signature(s) Date

4. Approval
 Based on the results of this form and my professional judgement, the associated task may be performed as Routine.
 Responsible Manager: Bill Hooper Bill Hooper 8-15-11
 Name Signature Date

SEND COMPLETED RWDFs TO DOCUMENT CONTROL AT MSIN H4-11

SM-650-08-2012

Acrobat 9.0

PREVENTATIVE MAINTENANCE PACKAGE COVER SHEET				
PM Package No.: <u>SM-650</u>		Rev No.: <u>3</u>		
Title: <u>Annual Surveillance 100B, C, D, DR, NE, N, F & H Inactive Facilities</u>				
Procedure No. (if applicable): <u>TASK INSTRUCTION</u>				
Work Supervisor: Dean Humphrys		Technical: Steve Garnett		Planner: Patty Lichy
Freq <u>Annual</u>	Grace/Lead <u>25%</u> days	Active Date <u>08/01/2012</u>		
RWP # (or N/A) <u>N/A</u>	Air Quality <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Due Date <u>08/31/2012</u>		
LOCATION:				
Area <u>100</u>	Bldg/Fac <u>Various</u>	Room <u>N/A</u>		
Equip Tag <u>N/A</u>	Model <u>N/A</u>	Serial # <u>N/A</u>		
Equip # <u>N/A</u>	Description <u>Annual Surveillances of Inactive Facilities</u>			
COA <u>H100SM2222</u>				
RESOURCES:				
CODE	CRAFT NAME	NO.	EST. MHRS	
<u>D&D</u>	<u>D&D Woker</u>	<u>2</u>	<u>40.00</u>	
<u>RCT</u>	<u>Rad. Con. Tech.</u>	<u>1</u>	<u>40.00</u>	
Brief Description, Reference Documents:				
PERFORM THE ANNUAL SURVEILLANCE ON THE 100 B, C, D, DR, NE, N F AND H INACTIVE FACILITIES PER THE TASK INSTRUCTIONS. RECORD RESULTS FOR EACH FACILITY ON A DATA SHEET.				
Lockout Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If Lockout required, check one: <input type="checkbox"/> TAF <input type="checkbox"/> Eight-Criteria Checklist		
USQ Screening <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If no, Project Engineer print name, sign and date: <u>MARK ALLEN PER</u>		
If yes, Screening/Determination/CX No.: <u>TELECON</u>				
USQ Evaluator(s) print name, sign, date: <u>PA Lichy 7-24-12</u>				
FHC Evaluation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, FHC Evaluation No.: <u>MARK ALLEN PER TELECON</u>		
Project Engineer print name, sign, date: <u>PA Lichy 7-24-12</u>				
APPROVAL				
Based on my personal review, I agree that the work described in this package meets technical requirements, can be performed safely, contains the controls from the JHA and is approved for scheduling.				
Responsible Manager:	<u>Gregory L Fennell</u>	<u>[Signature]</u>	<u>7-24-12</u>	
	Name	Signature	Date	
PM PACKAGE CLOSURE RECOMMENDATION				
Based on my personal review of this work package and inspection of the work site, I recommend closure of this preventative maintenance work package.				
Work Supervisor: (or designee)	<u>Dean Humphrys</u>	<u>[Signature]</u>	<u>12/19/12</u>	
	Name	Signature	Date	
Technical: (if applicable)	<u>Steve Garnett</u>	<u>[Signature]</u>	<u>03/04/13</u>	
	Name	Signature	Date	
PM PACKAGE CLOSURE APPROVAL				
Responsible Manager:	<u>STEVEN J GARNETT</u>	<u>[Signature]</u>	<u>03/04/13</u>	
	Name	Signature	Date	

~~SM-650-201~~ PAL 7-5-13
SM-650-05-2013

Acrobat 9.0

PREVENTATIVE MAINTENANCE PACKAGE COVER SHEET				
PM Package No.: <u>SM-650</u>		Rev No.: <u>3</u>		
Title: <u>Annual Surveillance 100B, C, D, DR, N, F & H Inactive Facilities</u>				
Procedure No. (if applicable): TASK INSTRUCTION				
Work Supervisor: Greg Funnell		Technical: Steve Garnett		Planner: Patty Lichy
Freq <u>Annual</u>		Grace/Lead <u>25%</u> days		Active Date <u>05/01/2013</u>
RWP # (or N/A) <u>N/A</u>		Air Quality <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Due Date <u>05/31/2013</u>
LOCATION:				
Area <u>100</u>		Bldg/Fac <u>Various</u>		Room <u>N/A</u>
Equip Tag <u>N/A</u>		Model <u>N/A</u>		Serial # <u>N/A</u>
Equip # <u>N/A</u>		Description <u>Annual Surveillances of Inactive Facilities</u>		
COA <u>H100SM2222</u>				
RESOURCES:				
CODE	CRAFT NAME		NO.	EST. MHRS
<u>D&D</u>	<u>D&D Woker</u>		<u>2</u>	<u>40.00</u>
<u>RCT</u>	<u>Rad. Con. Tech.</u>		<u>1</u>	<u>40.00</u>
Brief Description, Reference Documents:				
PERFORM THE ANNUAL SURVEILLANCE ON THE 100 B, C, D, DR, N, F AND H INACTIVE FACILITIES PER THE TASK INSTRUCTIONS. RECORD RESULTS FOR EACH FACILITY ON A DATA SHEET.				
Lockout Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If Lockout required, check one: <input type="checkbox"/> TAF <input type="checkbox"/> Eight-Criteria Checklist		
USQ Screening <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If no, Project Engineer print name, sign and date: <u>MARK ALLEN per TELECON</u>		
If yes, Screening/Determination/CX No.: <u>TELECON</u>				
USQ Evaluator(s) print name, sign, date: <u>P. Lichy 5-2-13</u>				
FHC Evaluation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, FHC Evaluation No.: <u>MARK ALLEN PER TELECON</u>		
Project Engineer print name, sign, date: <u>P. Lichy 5-2-13</u>				
APPROVAL				
Based on my personal review, I agree that the work described in this package meets technical requirements, can be performed safely, contains the controls from the JHA and is approved for scheduling.				
Responsible Manager:	<u>Gregory L Funnell</u> Name	<u>[Signature]</u> Signature	<u>5-6-13</u> Date	
PM PACKAGE CLOSURE RECOMMENDATION				
Based on my personal review of this work package and inspection of the work site, I recommend closure of this preventative maintenance work package.				
Work Supervisor:	<u>Greg Funnell</u> Name	<u>[Signature]</u> Signature	<u>7-2-13</u> Date	
Technical:	<u>William Hayward</u> (if applicable) Name	<u>W. M. Hayward</u> Signature	<u>7/2/13</u> Date	
PM PACKAGE CLOSURE APPROVAL				
Responsible Manager:	<u>Gregory L Funnell</u> Name	<u>[Signature]</u> Signature	<u>7-3-13</u> Date	

SM-650-05-2014

Acrobat 9.0

PREVENTATIVE MAINTENANCE PACKAGE COVER SHEET				
PM Package No.: <u>SM-650</u>		Rev No.: <u>3</u>		
Title: <u>Annual Surveillance 100B, C, D, DR, N, F & H Inactive Facilities</u>				
Procedure No. (if applicable): <u>TASK INSTRUCTION</u>				
Work Supervisor: Greg Funnell		Technical: Steve Garnett		Planner: Patty Lichy
Freq <u>Annual</u>	Grace/Lead <u>25%</u> days	Active Date <u>05/01/2014</u>		
RWP # (or N/A) <u>N/A</u>	Air Quality <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Due Date <u>05/31/2014</u>		
LOCATION:				
Area <u>100</u>	Bldg/Fac <u>Various</u>	Room <u>N/A</u>		
Equip Tag <u>N/A</u>	Model <u>N/A</u>	Serial # <u>N/A</u>		
Equip # <u>N/A</u>	Description <u>Annual Surveillances of Inactive Facilities</u>			
COA <u>H100SM2222</u>				
RESOURCES:				
CODE	CRAFT NAME	NO.	EST. MHRS	
<u>D&D</u>	<u>D&D Woker</u>	<u>2</u>	<u>40.00</u>	
<u>RCT</u>	<u>Rad. Con. Tech.</u>	<u>1</u>	<u>40.00</u>	
Brief Description, Reference Documents:				
PERFORM THE ANNUAL SURVEILLANCE ON THE 100 B, C, D, DR, N, F AND H INACTIVE FACILITIES PER THE TASK INSTRUCTIONS. RECORD RESULTS FOR EACH FACILITY ON A DATA SHEET.				
Lockout Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If Lockout required, check one: <input type="checkbox"/> TAF <input type="checkbox"/> Eight-Criteria Checklist		
USQ Screening <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If no, Project Engineer print name, sign and date: <u>MARK ALLEN per TELECON</u>		
If yes, Screening/Determination/CX No.: _____				
USQ Evaluator(s) print name, sign, date: <u>PA Lichy 4-21-14</u>				
FHC Evaluation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, FHC Evaluation No.: _____		
Project Engineer print name, sign, date: <u>PA Lichy 4-21-14</u>				
APPROVAL				
Based on my personal review, I agree that the work described in this package meets technical requirements, can be performed safely, contains the controls from the JHA and is approved for scheduling.				
Responsible Manager:	<u>Gary L Funnell</u> Name	<u>[Signature]</u> Signature	<u>4-22-14</u> Date	
PM PACKAGE CLOSURE RECOMMENDATION				
Based on my personal review of this work package and inspection of the work site, I recommend closure of this preventative maintenance work package.				
Work Supervisor: (or designee)	<u>Greg Funnell</u> Name	<u>[Signature]</u> Signature	<u>6-30-14</u> Date	
Technical: (if applicable)	<u>Steve Garnett</u> Name	<u>[Signature]</u> Signature	<u>07/07/2014</u> Date	
PM PACKAGE CLOSURE APPROVAL				
Responsible Manager:	<u>Gary L Funnell</u> Name	<u>[Signature]</u> Signature	<u>7-8-14</u> Date	

WCH Task Instruction Surveillance of 100 Area Inactive Facilities	PM#	SM-650
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**ATTACHMENT 1
ANNUAL SURVEILLANCE OF 100 AREA INACTIVE FACILITIES
TASK INSTRUCTION DATA SHEET**

Building No. <u>105-DR</u>	
People Performing Surveillance	Sign/Initial <u>SMR</u> 150 Date <u>5/15/14</u>
	Sign/Initial _____ Date ____/____/____
5.2 Walk down	
Inspect for structural damage	<u>good</u>
No signs missing	<u>good</u>
No water leaks	<u>good</u>
No ground subsidence (Possible pipe failure)	<u>good</u>
Doors locked	<u>good</u>
No excess combustible	<u>good</u>
No excess equipment	<u>good</u>
No electrical hazards	<u>good</u>
No asbestos concerns	<u>good</u>
No unidentified containers or suspect hazardous material	<u>no</u>
No occupational hazards	<u>no</u>
Housekeeping needed	<u>yes</u>
REMARKS <u>not very much, but what looks like bat droppings</u> <u>will perform cleanup</u>	
SUPERVISOR REVIEW: <u>[Signature]</u>	DATE <u>6-30-14</u>

LTS ANNUAL SSE SURVEILLANCE FORM	
SSE Surveillance No.: <u>LTS-2015-105DR-001</u>	
CAS WBS: <u>N/A</u>	Area: <u>100D</u>
Facility No.: <u>105DR</u>	Facility Status: <u>Concooned</u>
Assessor Name: <u>Steve Mattair</u>	Assessment Date: <u>3/26/2015</u>
Basis for Assessment: Sitewide Institutional Controls Plan DOE/RL-2001-41 (Instructions: Enter answer in box. Comment block on Page 2 may be used for additional comments.)	
1. Pre-Assessment Planning:	
A. The job hazards (AJHA) have been reviewed for this assessment. <u>Yes</u> If No, provide explanation.	
2. Structural elements are in good condition. <u>Yes</u>	If No, provide description:
3. All required signs are present and in good condition. <u>Yes</u>	If No, provide description:
4. The area around the facility is free of subsidence. <u>Yes</u>	If No, provide description:
5. The Facility was locked Upon Arrival. <u>Yes</u>	If No, provide description:
6. The Utility Room was inspected. <u>No</u>	If Yes, provide inspection results. If No, provide reason:
7. The area around the facility is free of combustibles. <u>Yes</u>	If No, provide description:
8. The area around the facility is free of excess equipment. <u>Yes</u>	If No, provide description:
9. The area around the facility is free of electrical hazards. <u>Yes</u>	If No, provide description:
10. The area around the facility is free of uncontrolled asbestos. <u>Yes</u>	If No, provide description:
11. The area around the facility is free of unlabeled containers. <u>Yes</u>	If No, provide description:
12. The area around the facility is free of hazardous material. <u>Yes</u>	If No, provide description:

LTS ANNUAL SSE SURVEILLANCE FORM	
SSE Surveillance No.: <u>LTS-2015-105DR-001</u>	
CAS WBS: <u>N/A</u>	Area: <u>100D</u>
Facility No.: <u>105DR</u>	Facility Status: <u>Concooned</u>
Assessor Name: <u>Steve Mattair</u>	Assessment Date: <u>3/26/2015</u>
Basis for Assessment: <u>Sitewide Institutional Controls Plan DOE/RL-2001-41</u> (Instructions: Enter answer in box. Comment block on Page 2 may be used for additional comments.)	
1. Pre-Assessment Planning:	
A. The job hazards (AJHA) have been reviewed for this assessment. <u>Yes</u> If No, provide explanation.	
2. Structural elements are in good condition. <u>Yes</u>	If No, provide description:
3. All required signs are present and in good condition. <u>Yes</u>	If No, provide description:
4. The area around the facility is free of subsidence. <u>Yes</u>	If No, provide description:
5. The Facility was locked Upon Arrival. <u>Yes</u>	If No, provide description:
6. The Utility Room was inspected. <u>No</u>	If Yes, provide inspection results. If No, provide reason:
7. The area around the facility is free of combustibles. <u>Yes</u>	If No, provide description:
8. The area around the facility is free of excess equipment. <u>Yes</u>	If No, provide description:
9. The area around the facility is free of electrical hazards. <u>Yes</u>	If No, provide description:
10. The area around the facility is free of uncontrolled asbestos. <u>Yes</u>	If No, provide description:
11. The area around the facility is free of unlabeled containers. <u>Yes</u>	If No, provide description:
12. The area around the facility is free of hazardous material. <u>Yes</u>	If No, provide description:

LTS ANNUAL SSE SURVEILLANCE FORM	
SSE Surveillance No.: <u>LTS-2015-105DR-001</u>	
CAS WBS: <u>N/A</u>	Area: <u>100D</u>
Facility No.: <u>105DR</u>	Facility Status: <u>Concooned</u>
Assessor Name: <u>Steve Mattair</u>	Assessment Date: <u>3/26/2015</u>
Basis for Assessment: Sitewide Institutional Controls Plan DOE/RL-2001-41 (Instructions: Enter answer in box. Comment block on Page 2 may be used for additional comments.)	
13. The area around the facility is free of occupational hazards. <u>Yes</u> If No, provide description:	
14. Housekeeping is in good condition. <u>Yes</u> If No, provide description:	
15. Photos were taken during surveillance. <u>Yes</u> If Yes, provide photo storage location information: <u>Photos located in facilitylandmgmt shared area/LTS/CAS photos</u>	
16. There is an apparent hazard that requires expedited response. <u>No</u> If Yes, provide description:	
17. There are follow-up actions or activities required. <u>No</u> If Yes, provide description:	
18. Comments:	
19. CAS Condition:	
Post-Surveillance Data Management and Records and Disposition Activities To Be Performed: <ol style="list-style-type: none"> a. Enter the Surveillance results data into LTS Data system via appropriate input screen. b. Scan the filled out surveillance form and rename the scan file using the following syntax: LTS_SSE_Surveillance_(date of surveillance).pdf [date of surveillance is the same date as at the top of the form] c. Turn over the SSE surveillance pdf file for disposition by emailing the pdf file to the LTS Records Specialist. d. If applicable, complete any follow-up activities noted on the surveillance form. 	

LTS SSE SURVEILLANCE FORM	
SSE Surveillance No.: <u>LTS-2016-105DR-001</u>	Assessment Date: <u>1/28/2016</u>
CAS WBS: <u>N/A</u>	Area: <u>100D</u>
Facility No.: <u>105DR</u>	Facility Status: <u>Cocooned</u>
Assessor Name: <u>Steve Mattair</u> Print	 Signature
Basis for Assessment: Surveillance and Maintenance Plan for the SSEs	
Assessment Type: <input checked="" type="checkbox"/> Annual <input type="checkbox"/> Other (Describe): _____	
(Instructions: Enter answer in box. Comment block on Page 2 may be used for additional comments.)	
1. Pre-Assessment Planning:	
A. The job hazards (AJHA) have been reviewed for this assessment. <u>Yes</u> If No, provide explanation.	
2. Structural elements are in good condition. <u>Yes</u>	If No, provide description:
3. Roof is in good condition. <u>Yes</u>	If No, provide description:
4. All required signs are present and in good condition. <u>Yes</u>	If No, provide description:
5. The area around the facility is free of subsidence. <u>Yes</u>	If No, provide description:
6. The Facility was locked Upon Arrival. <u>Yes</u>	If No, provide description:
7. The Utility Room was inspected. <u>Yes</u>	If Yes, provide inspection results. If No, provide reason:
8. The area around the facility is free of combustibles. <u>Yes</u>	If No, provide description:
9. The area around the facility is free of excess equipment. <u>Yes</u>	If No, provide description:
10. The area around the facility is free of electrical hazards. <u>Yes</u>	If No, provide description:
11. The area around the facility is free of uncontrolled asbestos. <u>Yes</u>	If No, provide description:
12. The area around the facility is free of unlabeled containers. <u>Yes</u>	If No, provide description:

LTS SSE SURVEILLANCE FORM	
SSE Surveillance No.: LTS-2016-105DR-001	Assessment Date: 1/28/2016
13. The area around the facility is free of hazardous material. <u>Yes</u>	If No, provide description:
14. The area around the facility is free of occupational hazards. <u>Yes</u>	If No, provide description:
15. Housekeeping is in good condition. <u>Yes</u>	If No, provide description:
16. Photos were taken during surveillance. <u>Yes</u>	If Yes, provide photo storage location information:
17. There is an apparent hazard that requires expedited response. <u>No</u>	If Yes, provide description:
18. There are follow-up actions or activities required. <u>No</u>	If Yes, provide description:
19. Comments: There are additional bird nests on the south and east sides.	
20. CAS Condition: No signs of problems or deficiencies.	
Post-Surveillance Data Management and Records and Disposition Activities To Be Performed:	
<ul style="list-style-type: none"> a. Enter the Surveillance results data into LTS Data system via appropriate input screen. b. Scan the filled out surveillance form and rename the scan file using the following syntax: LTS_SSE_Surveillance_(date of surveillance).pdf [date of surveillance is the same date as at the top of the form] c. Turn over the SSE surveillance pdf file for disposition by emailing the pdf file to the LTS Records Specialist. d. If applicable, complete any follow-up activities noted on the surveillance form. 	