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WCH-292

Rev. 0

River Corridor Closure Contract

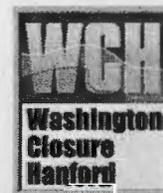
105-C Safe Storage Enclosure, Five-Year Surveillance in July 2008

December 2008

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Washington Closure Hanford

Prepared for the U.S. Department of Energy, Richland Operations Office
Office of Assistant Manager for River Corridor



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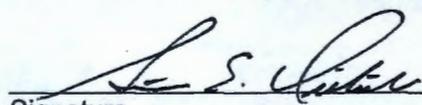
WCH-292
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STANDARD APPROVAL PAGE

Title: 105-C Safe Storage Enclosure, Five-Year Surveillance in July 2008

Author Name: R. G. Egge

Approval: S. E. Dieterle, Manager, Surveillance and Maintenance Utilities Operations



Signature

12/11/08

Date

The approval signature on this page indicates that this document has been authorized for information release to the public through appropriate channels. No other forms or signatures are required to document this information release.

**River Corridor
Closure Contract** 

**105-C Safe Storage Enclosure
Five-Year Surveillance in July
2008**

December 2008

Author:

R. G. Egge

Washington Closure Hanford

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1.0 INTRODUCTION

This document provides the overview, information/findings, and recommendations for the second 5-year interval surveillance of the 105-C Reactor Safe Storage Enclosure (SSE). The inspection is required by DOE/RL-98-44, *Surveillance and Maintenance Plan for the 105-C Reactor Safe Storage Enclosure* (S&M Plan) (DOE-RL 2004). Completion of the inspection is documented on the data sheets of the surveillance task instruction, included as Appendix A.

In fiscal year (FY) 1998, the Interim Safe Storage (ISS) Project work at the 105-C Reactor Building was completed with the installation and sealing of the SSE. 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 (for up to 75 years in the future). In the interim, ongoing surveillance and maintenance activities (external areas, every year; internal areas, every 5 years) are conducted that meet the following requirements in accordance with DOE-RL (2004):

- Ensure adequate confinement of hazardous substances were maintained within the SSE
- Provide physical safety and security controls for the SSE
- Verify the structural integrity of the facility
- Maintain the facilities in a manner that will minimize potential hazards to the public and workers
- Ensure adequate frequency of future inspections and identify potential hazards for the SSE
- Maintain the operability of installed equipment and facilitate periodic surveillance and required maintenance of the SSE
- Provide remote monitoring of key functions within the facility.

2.0 DISCUSSION

This discussion highlights the observations that found the overall condition of the internal and external portions of the 105-C SSE in FY 2008 to be very similar to the condition of the past 5-year surveillance that was conducted in FY 2003. Detailed structural inspection information can be found in the *105-C Building Structural Inspection*, included as Appendix B.

The **bolded heading numbers and titles** in the following section reflect the numbers and titles in the S&M Plan (DOE-RL 2004) that identify specific actions should be taken as part of the inspection effort. A brief explanation of the actions and findings of the July 2008 inspection is provided for each section listed. Missing numbers indicate that no specific actions were needed for those paragraphs or sections within the S&M Plan (DOE-RL 2004).

2.3.1 STRUCTURAL INTEGRITY – Appendix B provides the record of the inspection, discussion, pictures, and checklist of the structural inspection of the interior and exterior of the building. Overall, the original building has no detrimental issues regarding its structural integrity. In addition, the SSE also had no significant detrimental issues noted in the report.

2.3.2 BARRIERS AND POSTINGS – Radiological posting in the facility was found to be appropriate, and no areas were re-posted as a result of these inspections. The posting configuration of the post-ISS project for 105-C Reactor as a contaminated area matched the current observed configuration within the reactor building, although removable contamination was only found in expected areas as opposed to throughout the structure.

The current "as-left" radiological conditions are noted in Appendix C, and posting within the SSE (posted as a contamination area) complies with the guidance provided by RC-1, *Radiation Protection Procedures*, Part 6, "Posting and Labeling."

2.3.3 RADIOLOGICAL SURVEYS – See Appendix C for details of the radiological survey performed.

There was no notable spread of contamination associated with infiltration sources, (e.g., water, insects, or varmints), providing evidence that the integrity of the SSE structure has maintained or controlled the remaining radiological inventory within acceptable boundaries. One dead mouse, some mouse feces, and bat guano were observed in three locations (and removed as part of this inspection work).

2.3.4 REPAIR OF WEATHER-PROTECTION SYSTEMS – No significant indications were observed within the building that suggest that any sections of the new roof have leaked since the structure was sealed. The soffits at numerous locations were not adequately covered with foam inserts. Light could be seen between the roof and the wall. Upon careful inspection of these particular areas, there is no evidence of structural degradation due to the missing inserts because the roof overhangs the side wall and moisture cannot enter the building; therefore, no additional corrective actions need to be taken.

2.3.5 REPAIR OF STRUCTURAL COMPONENTS – Appendix B includes the following actions as recommendations, not because of structure failure but as preventive actions to enhance the long-term structure:

- There was a small hole located in a corrugated metal wall common to the northeast side of enclosure where light can pass through. Although the hole was not large enough to be structurally detrimental to the panel, sealing of the hole with epoxy was recommended to limit moisture getting into the building.
- Liquid had collected in a drip panel on the 30' 0" elevation (Experimental Room #1 and #2). Removal of the liquid was recommended to ensure that it does not pose any harm to the building structure.
- Some exposed rebar on the building exterior was identified that resulted from adjacent area demolition activities during the ISS Project, but the exposure and

subsequent corrosion were not viewed as significant. The application of sealant to these locations was recommended.

- In several locations, exterior metal was found in contact with the soil. The aggregate that is in contact with the metal door common to the northeast side of the building should be removed.

2.3.6 REMOVAL OF HAZARDOUS SUBSTANCES – Some minor amounts of mouse feces and bate guano were located and removed as part of this effort. There were also two discoveries regarding small amounts of oil on the 30' 0" level. One was located in a catch pan directly under a valve system, and the other was located directly under a small overhead hoist. The oil leaks were small in volumes (less than 6 to 8 ounces) and resulted from leakage/seepage from left in-place equipment. The oil leaks were cleaned up and small absorbent pads placed in these areas.

2.4.1 ELECTRICAL POWER – The electrical system was found as expected and is working as designed. There was a need to replace a number of the light bulbs throughout the building.

2.4.2 INSTRUMENTATION – Inspection of the temperature sensors and high-water detection circuit found sensors and circuitry functioning as expected. The entire monitoring system for all the reactors that have been placed into interim safe storage is now operating utilizing a new digital cellular telephone system.

2.4.3 VENTILATION – Air samples taken when the SSE was initially opened, and during subsequent entries, noted that the air quality (both radiologically and from an industrial safety perspective) was good, and forced ventilation was not needed or used for this inspection effort.

It should be noted that that the inspection work was conducted and met the programmatic requirements noted in the S&M Plan (DOE-RL 2004), **Sections 3.0 through 8.0**. However, the inspection was implemented in accordance with the Washington Closure Hanford procedures that replaced the Bechtel Hanford, Inc. procedures noted in the S&M Plan.

3.0 CONCLUSION AND RECOMMENDATIONS

The SSE structure is aging well with only minor, nonstructural issues noted (i.e., the foam inserts between wall and roof structures flashing and a few points of oil seeping from equipment). The radiological conditions found in July 2008 were essentially "as-left" from 2003 when the structure was last inspected. The electrical and monitoring system were found to be in good condition.

Based on the previous discussions, the following actions will be considered:

1. Epoxy the small hole in the corrugated metal wall common to the northeast side of enclosure.

2. Consider applying a sealant over the spalled areas that have exposed rebar for corrosion protection.
3. Remove soil/aggregate at the six locations identified on the building exterior that are in contact with the metal siding or doorways.
4. Add the specific inspection of flashing at the eave during the annual external SSE inspection routine to determine if additional damage is noted or if corrective action is needed.
5. Discuss with the U.S. Department of Energy the merits of changing the internal surveillance of the 105-C SSE from the current 5-year intervals to 10-year intervals.
6. Prepare a change to the S&M Plan to show that the remote monitoring system data for the 105-C SSE will be recorded on a monthly basis, since the structure and systems have demonstrated a very stable condition with only seasonal fluctuations expected in temperature and no water issues noted. References to the Bechtel Hanford, Inc. procedures should be updated to reflect the current Washington Closure Hanford procedures when this revision is made.

4.0 REFERENCES

DOE-RL, 2004, *Surveillance and Maintenance Plan for the 105-C Reactor Safe Storage Enclosure*, DOE/RL-98-44, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

RC-1, *Radiation Protection Procedures*, Part 6, "Posting and Labeling," Washington Closure Hanford, Richland, Washington.

APPENDIX A

TASK INSTRUCTION NO. SMU 07 12 17 002, REV. 0

10-YEAR SURVEILLANCE OF THE 105-C SAFE STORAGE ENCLOSURE

WCH Task Instruction

WP No. SMU 07 12 17 002

Type I

Revision 0

105-C Perform 5 Year Surveillance and Maintenance (2008)

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1. PURPOSE AND SCOPE

1.1. Purpose

- 1.1.1. The purpose of this Task Instruction (TI) is to describe the methods and procedures for the 5 year surveillance activities for the 105-C Reactor Safe Storage Enclosure as described in DOE/RL-98-44 Rev. 1, "Surveillance and Maintenance Plan for the 105-C Reactor Safe Storage Enclosure". This surveillance/inspection is required to ensure that any unfavorable conditions or trends are recognized and evaluated so that appropriate corrective actions can be initiated.

1.2. Scope

The following activities are covered in this task instruction:

- Building closure and securing of access door.
- Building exterior inspection.
- Building Radiological surveys.
- Building Surveillance.
- Documentation of building interior by digital photography.
- IH monitoring.
- Inspection of the interior of reactor for the presence of Bats.
- Inspection of the roof systems.
- Opening building to allow air flow.
- Perform Bio clean-up, as needed.
- Perform minor corrective maintenance, as needed.
- Perform re-lamping, as needed.
- Removal of plate securing access door to allow entry.
- Support verification of remote monitoring systems operability.

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2. PRECAUTIONS/LIMITATIONS

- All waste generated will be handled and packaged in accordance with the Site Specific Waste Management Instructions (SSWMI).
- At a minimum, Safety Glasses, hardhat and substantial footwear is required at the job site. Additional Personal Protective Equipment (PPE) may be required by Radcon, Industrial Safety, Industrial Hygiene, or Work Supervisor.
- Carbon 14 (C-14) may be an isotope of concern associated with the control/safety rods.
- Care should be taken to avoid tripping, slipping, and bumping hazards during surveillance activities. Watch for exposure to snakes and spiders. Surveillance personnel must carry an emergency light (flashlight) and radio when entering all area. Stay inside fall protection barriers, such as hand rails.
- High radiation areas may be encountered and will be posted and/or locked.
- If during the performance of this task instruction (TI), any equipment malfunctions, personnel error, procedural inadequacy, environmental, or physical hazards are identified, work shall immediately be stopped, area shall be placed in a safe condition, and exit the area. The Work Supervisor, and/or Facility Administrator shall be notified.
- If emergency/abnormal conditions are encountered, personnel are to respond to the situation as trained and as discussed in the Pre-Evolutionary safety meeting.
- If friable asbestos is encountered, do not disturb, contact Work Supervisor and IH professional.
- Industrial Hygiene personnel will monitor quality of the atmosphere in the surveillance route areas. Organic vapors, oxygen, LEL, CO (above and below grade).
- No permanent emergency equipment, communications equipment, warning systems, personal protective equipment, spill control and containment supplies are located within the facility.
- Notify Hanford Fire Department about entry/exit and the number of individuals entering/exiting the reactor 373-2745.
- Surveillance personnel shall carry self-contained lighting as needed to provide sufficient lighting when entering the reactor.

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- Surveillances should be scheduled in the early morning hours. Notify Safety Professional if ambient temperature is greater than 85 degrees. 100N heat stress hotline 373-9888.

3. PREREQUISITES

- 3.1. All personnel entering the 100 Area Inactive Facilities must be in compliance with the PAS-1-1.3, "Access Control and Administration for RCCC Facilities".
- 3.2. Before performing any grinding or welding activities to attach or remove the security plate, a "hot work" permit must be obtained. Hot work permit directions must be followed. A blank is in section 5 miscellaneous and field generated paperwork record of the work package.
- 3.3. Record Entries and Exits on the Log Sheet, section 5 miscellaneous field generated paperwork record.
- 3.4. The Work Supervisor shall conduct and document a Pre-Evolution Briefing, indicating the tasks to be performed have been reviewed and that any safety, radiological, environmental, training, IHWP, RWP or quality concerns have been addressed.

4. EQUIPMENT/MATERIALS

- ABC Fire extinguisher.
- Additional PPE as required by the applicable RWP.
- Air monitoring equipment (if required by Radcon and Industrial Hygiene).
- Flashlight(s) and extra batteries.
- Digital camera(s), and extra batteries.
- Hand tools as necessary.
- Computer with ISS reactor monitoring software and monitoring access.
- Two-way Radios (Mobile or Hand Held) or a Cellular Phone shall be available when working in remote locations to notify management in case of fire, accident, or other emergency situations.

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5. PROCEDURE

NOTE: The Work Package Status Log shall be used to document daily work activities, document work package changes and reasons for the change, job status, and to record anomalies and/or problems discovered.

NOTE: Steps 5.1 or 5.2 can be performed in any order.

5.1. Exterior Inspection

NOTE: The record sheet is in section 5 miscellaneous field generated paperwork record.

The record sheet is:

- Record 1 – 105-C SSE Exterior

WARNING

Be aware that roof flashing may have become dislodged during high winds.

5.1.1. Inspect the exterior portion of the facility. Attention must be given to roof flashing which may have become dislodged during high wind conditions. Document and photograph any suspect areas for evaluation by a qualified structural engineer. Document the findings on Record 1 in section 5 miscellaneous field generated paperwork record of the work package and put any photographs taken in section 5 miscellaneous field generated paperwork record of the work package.

5.1.2. Perform minor corrective maintenance as needed to prevent animal intrusion.

5.2. Interior Inspection

5.2.1. Check remote monitoring to measure temperature and water levels.

NOTE: Use leather gloves when removing security plate.

5.2.2. Remove the plate securing the access doors.

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5.2.3. Set-up for air monitoring as directed by Radcon and Industrial Hygiene.

5.2.4. Turn surveillance lighting on.

NOTE: Evaluation of air samples may take 72 hours.

5.2.5. Open the access door and obtain air samples as determined by Radcon. After air sampling is complete, close and secure the door.

5.2.6. After evaluation of air samples results, open the door and ventilate as necessary.

NOTE: C-14 may be an isotope of concern associated with the control/safety rods.

5.2.7. RCT's and IHT's shall perform facility surveys to determine current radiological conditions and Industrial Hygiene conditions.

5.2.8. Safety Professional to inspect primary fall protection systems concurrent with inspections.

NOTE: The surveillance routes are detailed on the attached floor plan figures in section 4 work package attachments.

The floor plans are as follows:

- Figure 1 – Surveillance and Inspection Route at Elevation 0' – 0"
- Figure 2 – Surveillance and Inspection Route at Elevation -17' – 6"
- Figure 3 – Surveillance and Inspection Route at Elevation 15' – 0" and 30' – 0"
- Figure 4 – Surveillance and Inspection Route at Elevation 45' – 2 1/4"
- Figure 5 – Surveillance and Inspection Route at Elevation 59' – 4"

NOTE: The record sheets are in section 5 miscellaneous field generated paperwork record.

The record sheets are as follows:

- Record 2 – 105-C Elevation 0' – 0"
- Record 3 – 105-C Elevation -17' – 6"
- Record 4 – 105-C Elevation 15' – 0"

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- Record 4 – 105-C Elevation 30' – 0"
- Record 6 – 105-C Elevation 45' – 2 1/4"
- Record 7 – 105-C Elevation 59' – 4"
- Record 8 – 105-C Signature Page

WARNING

Low lighting levels increase the chance of slips, trips, falls, bumps and encountering snakes and spiders.

5.2.9. Perform surveillance at all elevations. Attention must be given to water infiltration. Record the findings and observations on the appropriate record sheet. Place any pictures taken in section 5 miscellaneous and field generated paperwork record of the work package.

NOTE: Steps 5.2.10 thru 5.2.15 can be worked in any order, except 5.2.12 which needs to be performed prior to 5.2.13.

- 5.2.10. If visible, Environmental Project Lead (EPL) to document the physical integrity of the HEPA filtration system on the reactor core and check for any buildup. Record findings in the work package status log.
- 5.2.11. Perform instrument verification checks as follows and record on Instrument Data Sheet #1 and Instrument Data sheet #2 in section 5 miscellaneous and field generated paperwork record of the work package.
 - 5.2.11.1. Using M&TE check the primary and backup thermocouples for accurate temperature reading.
 - 5.2.11.2. Check the remote water sensor does not read "Alarm".
 - 5.2.11.3. Check water sensor float for high level alarm response.
- 5.2.12. Perform Bat inspection to determine if Bats are present in the reactor. Record findings in the Work package Status Log.
- 5.2.13. Perform Bio clean-up as needed.

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5.2.14. Perform minor corrective maintenance as needed to prevent animal intrusion.

5.2.15. Perform re-lamping as needed. Safety to inspect ladders before use.

5.3. Building closure.

5.3.1. After the surveillance/inspection is complete, remove all waste generated and package per SSWMI.

HP

5.3.2. Work Supervisor or designee shall verify all personnel have exited the building and the building is ready to secure. Print/sign below signifying the building is clear.

William Hayward/William Hayward 7/27/08
Work Supervisor/designee Date

5.3.3. Close access door and secure.

5.3.4. Prepare the security plate for welding and tack weld into original position.

HP

5.3.5. Work Supervisor or designee shall print/sign below signifying access door is secured and security plate has been welded into position.

William Hayward/William Hayward 7/27/08
Work Supervisor/designee Date

5.4. Inspection Documentation

5.4.1. Provide a description of undesirable conditions on the Task Instruction Data Sheet "Remarks" section.

5.4.2. Sign the Task Instruction Data Sheet signature page.

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5.5. Work Supervisor Closeout Actions

5.5.1. Work Package Completion, Work Supervisor to perform the following.

- 5.5.1.1. Review work package for accuracy and completeness. Provide signature on space provided on work package cover sheet when work is complete.
- 5.5.1.2. Complete and submit IWCP Feedback Checklist (WCH-FS-235) to IWCP Program Administrator and insert a copy into Miscellaneous Paper Work.
- 5.5.1.3. Return completed work package to Responsible Manager for closeout.

6. REFERENCES

- PAS-2, Integrated Work Control Program
- PAS-1-1.3, Access Control and Administration for RCCC Facilities
- DOE/RL-98-44 Rev. 1, Surveillance and Maintenance Plan for the 105-C Reactor Safe Storage Enclosure

7. ATTACHMENTS

Figure 1 - Surveillance and Inspection Route (Elevation 0'-0").

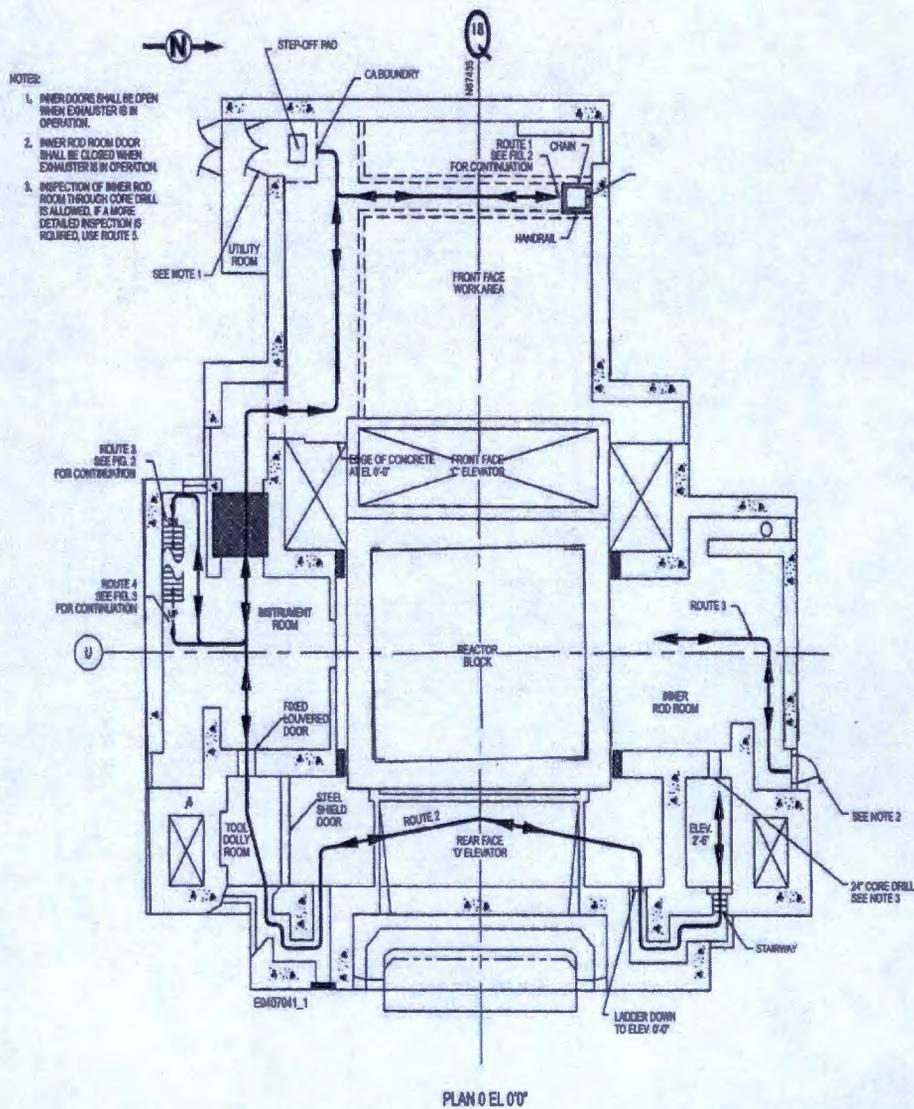


Figure 2 - Surveillance and Inspection Route (Elevation -17'-6").

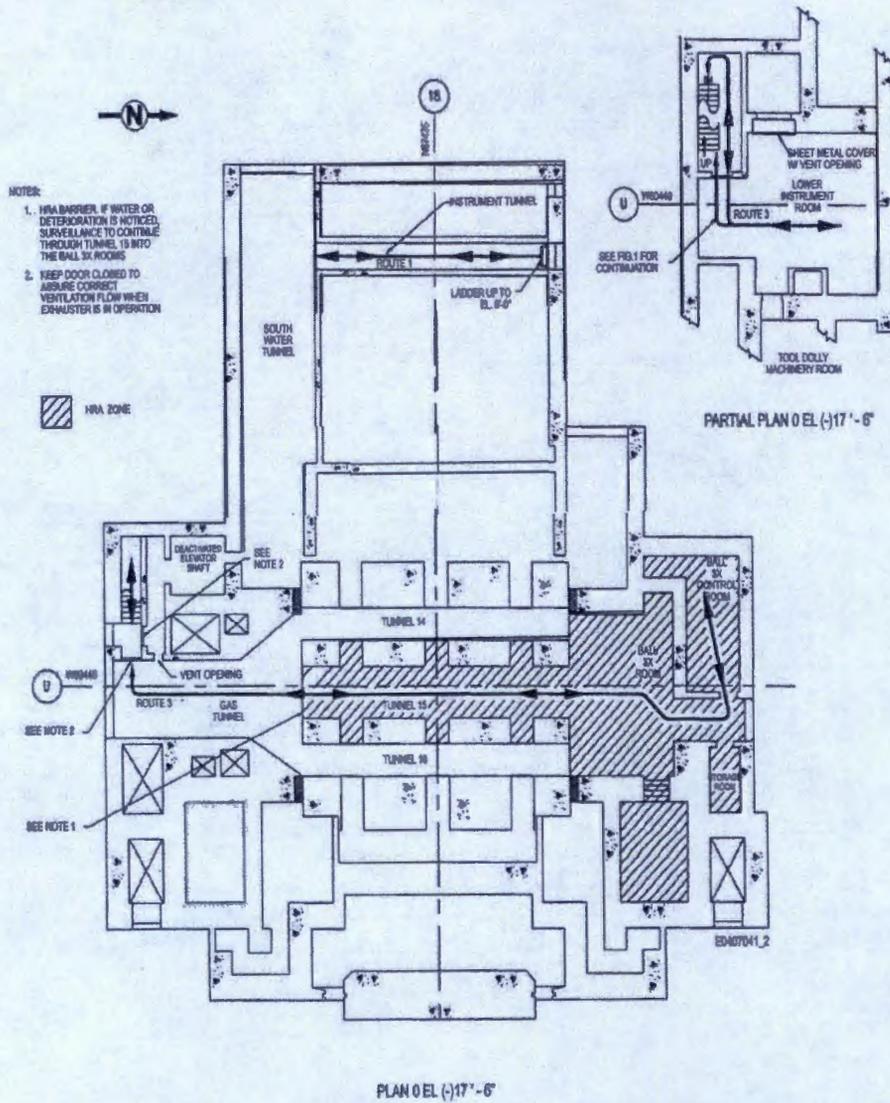


Figure 3 - Surveillance and Inspection Route (Elevation 15'-0" and 30'-0").

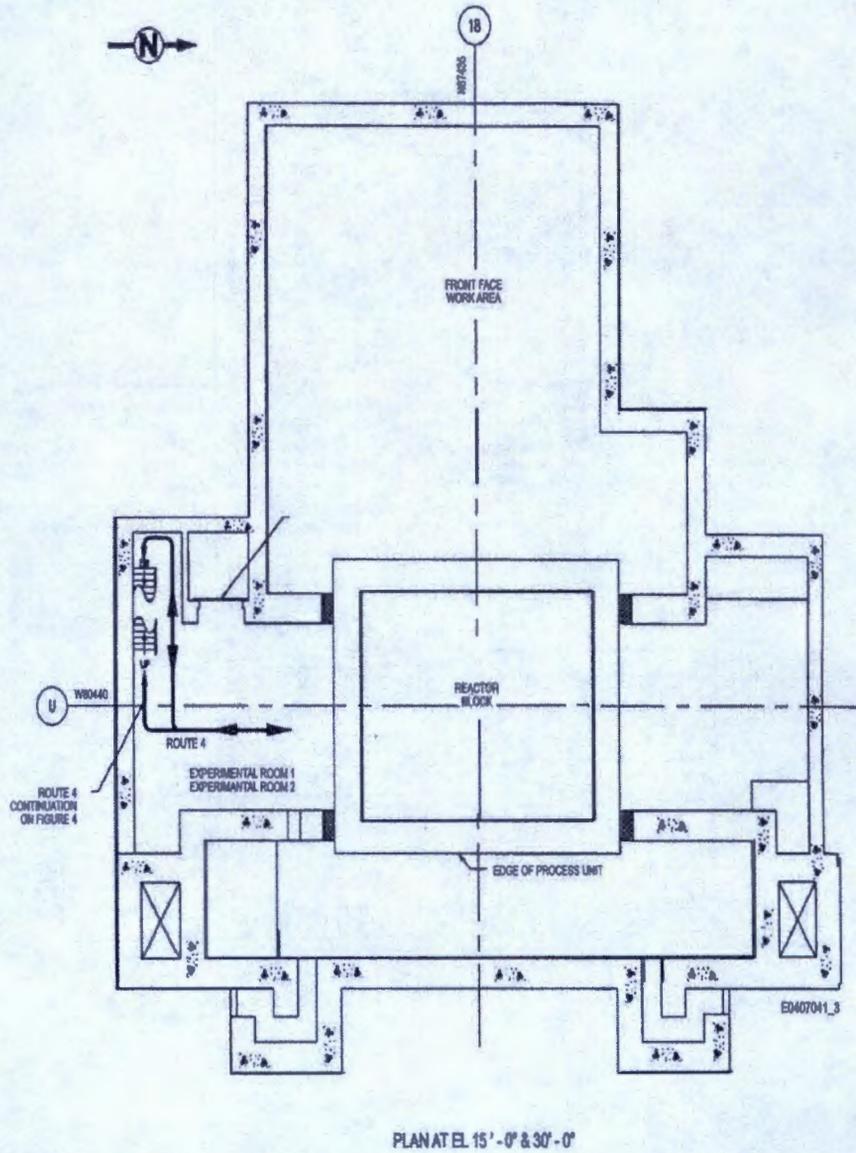
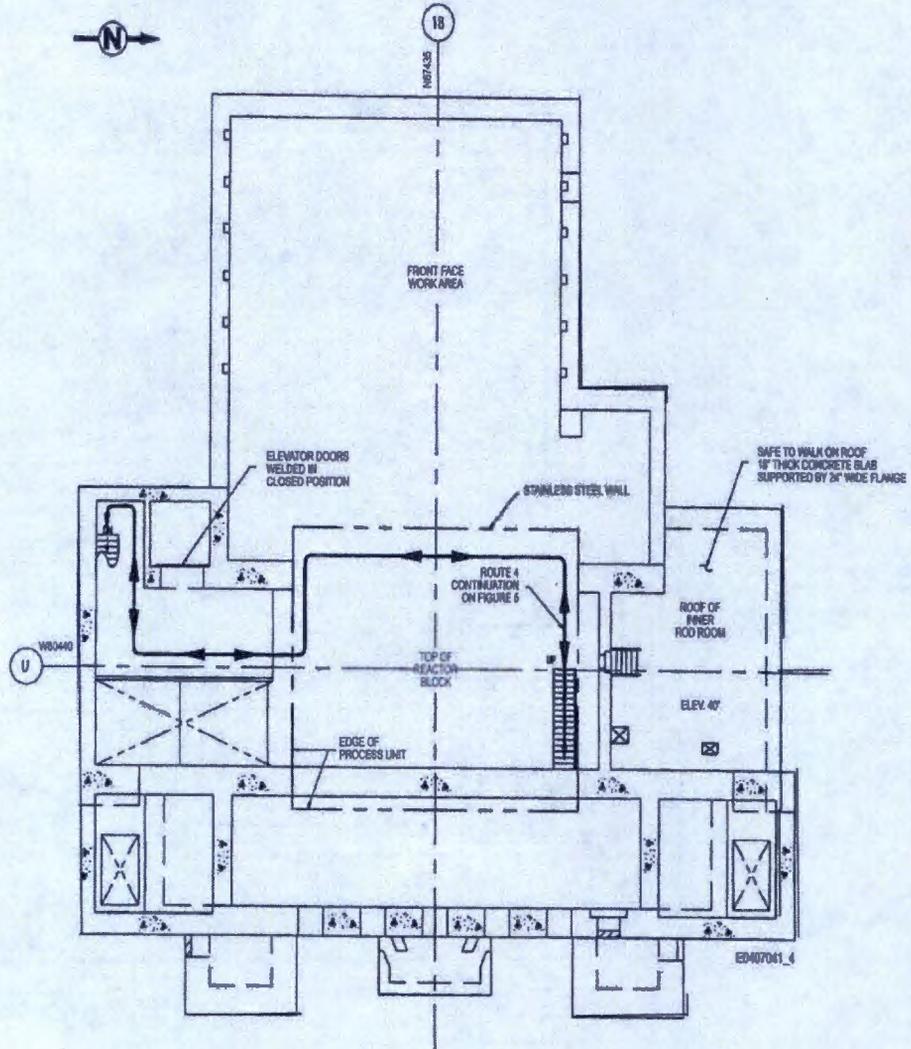
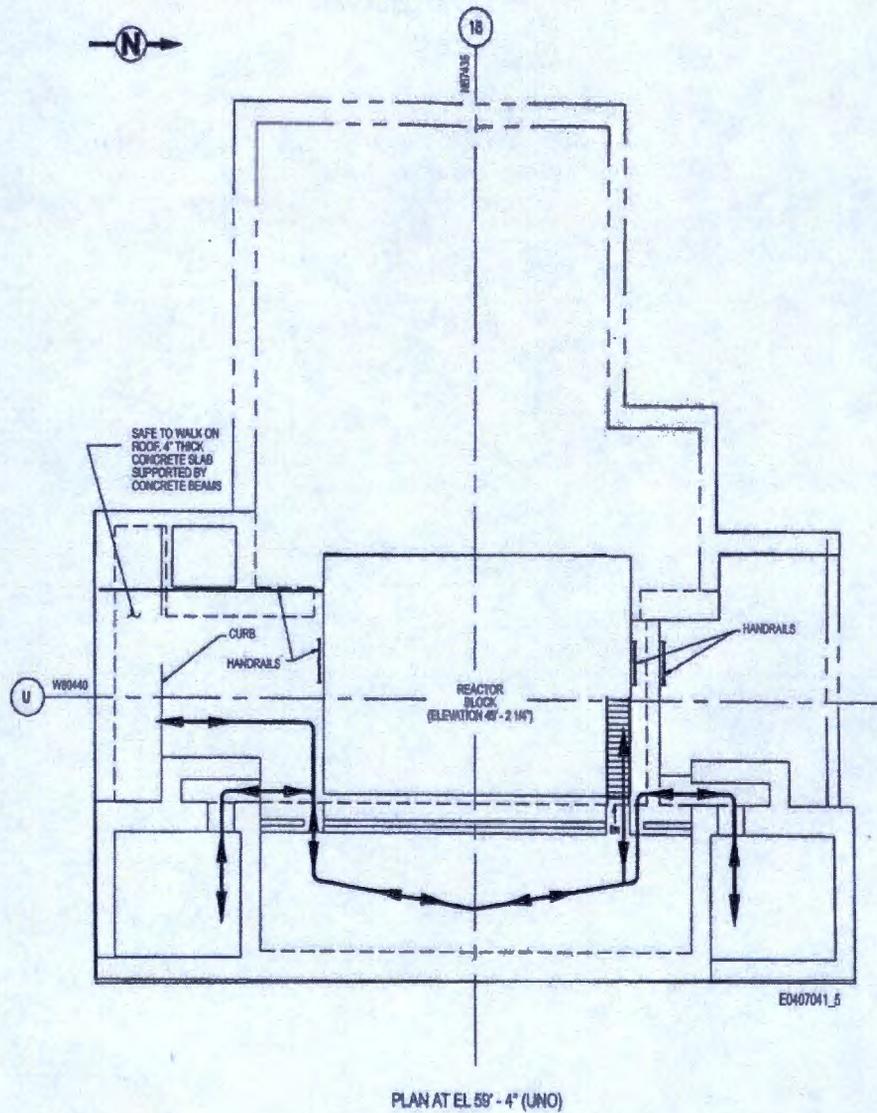


Figure 4 - Surveillance and Inspection Route (Elevation 45'-2 1/4").



PLAN AT EL 45' - 2 1/4" (UNO)

Figure 5 - Surveillance and Inspection Route (Elevation 59'-4").



Attachments

- Work Process Form
- Risk Rank
- HDIT
- Washington Closure Hanford Radiological Work Permit (RWP) 100SMT-08-001
- Surveillance and Inspection Routes Figure 1 thru 5
- Pictures
- SSWMI
- DOE/RL-98-44 Rev. 1

Acrobat 8.0

WORK PROCESS FORM	
Work Document No: <u>SMW 071217 002</u>	
Section 1 - Work Initiation	
Originator Data	
Name: ^{via 7-9-08} William Hayward/Patty Lohy <u>Jack Dantley</u>	Date: <u>December 6, 2007</u>
Organization: <u>SM&U</u>	
Equipment/Facility Data	
Description of Work Request: Perform 10th year surveillance activities for the 105-C Reactor Safe Storage Enclosure as described in DOE/RL-98-44 Rev.1, "Surveillance and Maintenance Plan for the 105-C Reactor Safe Storage Enclosure."	
Section 2 - Project Engineer Review	
Review for and list any impacts on the safety or compliance status of the facility, along with any immediate impacts to applicable Authorization Basis (AB) documentation. Recommend or take actions required by applicable AB for approval.	
Comments: Operations during SRM of inactive reactors that involve significant non-radiological hazards (asbestos, lead paint, PCBs and lead/mercury containing items) will be controlled by established well procedures through the work control process. Specifically, the following are applicable: (1) asbestos removal (SM-1-4.7), (2) lead paint removal (SM-1-4.8), (3) removal of PCBs (SSHASP), and (4) removal of lead and mercury containing items (SM-1-4.8).	
Project Engineer: <u>Mark E. Allen</u>	<u>[Signature]</u> <u>12-10-07</u>
Name	Signature Date
Section 3 - Responsible Manager Evaluation	
Work Package Type: Type I <input checked="" type="checkbox"/> Type II <input type="checkbox"/> Type II A-Pack <input type="checkbox"/> Craft <input type="checkbox"/> PM <input type="checkbox"/>	Risk Ranking: Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High <input type="checkbox"/> Workability Review <input type="checkbox"/> Sr. Management Review <input type="checkbox"/>
Resolution/Comments:	
Responsible Manager: <u>ANIE GUTMANIS</u> <u>[Signature]</u> <u>12-17-07</u>	
Name	Signature Date

WCH-FS-229 (08/13/2007)

Acrobat 8.0

RISK RANK DETERMINATION WORKSHEET

Work/Activity Number or Description: Perform 10 year surveillance at 105-C Reactor SSE. SMU 07 12 17 002			
	Yes/No	Point Value	Scale
Is this non-field work? If YES, this form does not need to be completed.	<input type="radio"/> Y <input checked="" type="radio"/> N		
Determination of the Likelihood of an Accident (NOTE: A "No" answer equates to 0 points for that question.)			
1. Work Activity Status? Ongoing - 1, Similar - 3, New - 5		3	
2. Level of team experience in performing similar or identical work.		1	1 to 5
3. Is there potential for injuries while performing this work? (e.g., frequency, severity, etc.)	<input checked="" type="radio"/> Y <input type="radio"/> N	5	5 to 10
4. Is the work controlled by more than one supervisor/shift?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	1 to 5
5. Is the job complex? - Demo method - Heavy/critical lift - Special packaging/transportation - New technology - Special/unique hazard (e.g., pyrophoric, diving/boating)	<input type="radio"/> Y <input checked="" type="radio"/> N	0	5 to 15
6. Does the work involve subcontractors or other Hanford contractors? - CHC, current subcontractor, new subcontractor	<input type="radio"/> Y <input checked="" type="radio"/> N	0	1 to 5
7. Will work involve demolition or excavations?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	5 to 15
8. Will work in areas be on or near energized/electrical systems?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	5 to 15
9. Will work be performed on elevated surfaces or confined spaces?	<input checked="" type="radio"/> Y <input type="radio"/> N	5	5 to 15
10. Will work be performed in the vicinity of heavy equipment?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	1 to 5
11. Can hazardous/explosive chemicals/gasses, liquids, high energy sources or radioactive material be encountered?	<input checked="" type="radio"/> Y <input type="radio"/> N	5	1 to 15
12. Could the Facility Hazard Category be affected by the proposed activity?	<input checked="" type="radio"/> Y <input type="radio"/> N	1	1 to 5
13. Release within the facility?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	1 to 5
14. Release outside the facility within site boundaries?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	5 to 10
15. Worker exposure (internal or external)?	<input checked="" type="radio"/> Y <input type="radio"/> N	5	5 to 15
16. Public exposure?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	15 to 30
17. Potential impact to cultural/natural resources?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	1 to 3
18. Fire/explosion?	<input type="radio"/> Y <input checked="" type="radio"/> N	0	5 to 15
TOTAL		25	
Risk Rank:	Low = 1 to 35 Medium = 36-75 High = >75	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	
Comments:			
Responsible Manager: <u>Anie Gutmanis</u>	Signature: <u>[Signature]</u>	Date: <u>12-17-07</u>	

WCH-FS-347 (09/08/2007)

Acrobat 8.0

HAZARD AND DISCIPLINE IDENTIFICATION TOOL

Work Package/Procedure No.: SMU 07 12 17 002		Work Description: Perform 10th year surveillance activities for the 105-C Reactor Safe Storage Enclosure as described in "Surveillance and Maintenance Plan for the 105-C Reactor SSE."			
Date: 12/12/2007					
Does the Work Activity:	Yes	Discipline	JHA	PC	
1. Occur in an area that has or has had radioactive material, radioactive contamination, airborne contamination, or radiation generation devices?	<input checked="" type="checkbox"/>	Radiological Controls	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Potential to affect an assumption, preservation control, or fundamentally change the method of work execution as documented in the authorization basis?	<input checked="" type="checkbox"/>	Nuclear Safety	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Require design basis modifications, design, or other engineering assistance?	<input checked="" type="checkbox"/>	Engineering	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Occur in a RCRA/CERCLA regulated area? Impact a regulatory permit? Involve disturbance of soils, roads, or foundations?	<input checked="" type="checkbox"/>	Environmental	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Involve the packaging or movement of materials? (This does not apply to movement of material within a building for day-to-day operations.) Materials are defined as those items that: Meet the definition of a Department of Transportation hazard class; Are Radioactive per the Site Radiological Control Manual; Have unique size and weight concerns for transport outside of a building.	<input type="checkbox"/>	Waste Services	<input type="checkbox"/>	<input type="checkbox"/>	
6. Affect physical or administrative access controls or boundaries of security areas? Have the potential to impact security area controls and/or systems?	<input type="checkbox"/>	Security	<input type="checkbox"/>	<input type="checkbox"/>	
7. Have the potential to expose the worker to occupational safety related hazards, such as stored energy; elevated work; confined spaces; heavy equipment; excavation/trenching?	<input checked="" type="checkbox"/>	Industrial Safety	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8. Have the potential to expose the worker to industrial hygiene related hazards, such as exposure to dust, vapors, gasses, or fumes; asbestos; beryllium; high noise; and temperature extremes?	<input checked="" type="checkbox"/>	Industrial Hygiene	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Involves potential for contact with energized electrical systems or equipment.	<input type="checkbox"/>	Electrical	<input type="checkbox"/>	<input type="checkbox"/>	
10. Involve spark, flame, or heat producing equipment (Hot Work)? Involve explosives, combustible or flammable liquids and/or gasses, highly combustible materials, or pyrophoric material? Involves the protection from fires or fire notification (e.g., fire walls, alarms, sprinkler systems, etc.)? Impact emergency response access? Involve penetration or demolition of fire barriers? Impact means of egress (exits, stairs, doors, emergency lighting, etc.)? Require a Fire Marshal Permit? Involve temporary enclosures?	<input checked="" type="checkbox"/>	Fire Protection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Includes any activities such as code welding; backflow preventers or disinfection for potable water lines or breathing air lines; inspections, standards, verifications, or calibrations; procurement of safety related items; and procurement and installation/repair of items that could be suspect/counterfeit (e.g., circuit breakers and high strength bolts)?	<input type="checkbox"/>	Quality Assurance	<input type="checkbox"/>	<input type="checkbox"/>	
12. Change site traffic flow on roads around building? Affect access or egress to roads? Impact emergency response access? Block traffic?	<input type="checkbox"/>	Industrial Safety	<input type="checkbox"/>	<input type="checkbox"/>	
13. Other Subject Matter Experts:					
14. Craft:					
<input type="checkbox"/> Crane Operator	<input checked="" type="checkbox"/> D&D Worker	<input type="checkbox"/> Electrician			
<input type="checkbox"/> Heavy Equipment Operator	<input type="checkbox"/> IH Technician	<input type="checkbox"/> Pipe Fitter			
<input checked="" type="checkbox"/> RadCon Technician	<input type="checkbox"/> Rigger	<input checked="" type="checkbox"/> Teamster			
<input type="checkbox"/> Laborer	<input checked="" type="checkbox"/> Other: Inst. Tech	<input type="checkbox"/> Other: carpenter			

PC = Package Concurrence

WCH-FS-230 (08/13/2007)

Washington Closure Hanford Radiological Work Permit		100SMT-08-002 Rev. 01	
Survey Requirement Technical Assessment #: TA-06-SR-09		Radiological Work Screening #: 100SMT-08-0001	
Responsible Organization: 60 Areas SM&U		Start Date 01/29/2008	End Date 01/28/2009
Job Location: 100, 200 and 600 Areas			
Job Description: RCT Surveys, Tours, Inspections, Surveillance, Housekeeping, Sampling, Maintenance, Decontamination, Waste Packaging, Haz-Mat removal, low radiological risk demolition and associated support activities.			
Expected Posting: <input type="checkbox"/> RA <input type="checkbox"/> HRA <input type="checkbox"/> VHRA <input checked="" type="checkbox"/> CA <input checked="" type="checkbox"/> HCA <input type="checkbox"/> HCA/HPA <input checked="" type="checkbox"/> ARA			
Training Requirements: <input checked="" type="checkbox"/> HGET <input type="checkbox"/> RadWorker 1 <input checked="" type="checkbox"/> RadWorker 2 Radiation Emitted: <input checked="" type="checkbox"/> Alpha <input checked="" type="checkbox"/> Beta <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Neutron			
Expected Radionuclides: MFP; MAP; Pu-239; Am-241			
External Dosimetry Requirements: Hanford Standard TLD;			
COPY			
Internal Dosimetry Requirements: Confirmatory Pu Bioassay Confirmatory WBC			
Work Area Limiting Radiological Conditions			
Limiting Whole Body Dose Rate (@ 30 cm):		Limiting Extremity Dose Rate:	
RA	N/A mrem/h	CA	2,000 dpm/100cm ² α
HRA	N/A mrem/h		100,000 dpm/100cm ² βγ
VHRA	N/A mrem/h	HCA	3,000 dpm/100cm ² α
			1,000,000 dpm/100cm ² βγ
			N/A mrem/h γ
			Limiting Airborne Radioactivity Level in ARA: 3 DAC
Exit Survey Requirements: Whole Body CA/HCA/ARA Entry: Whole body shall be surveyed for beta-gamma contamination upon exit. Partial CA/HCA Entry: Portion of body entering CA/HCA shall be surveyed for beta-gamma contamination upon exit.			
Exit Coverage Requirements: Level 1 Coverage: HCA/ARA and partial entries into CA/HCA Level 2 Coverage: All other activities Level 3 Coverage: N/A			
Required PPE/Additional Monitoring (NOTE - More than one requirement may apply. Additional PPE may be listed in Special Instructions): CA Entries - Tours/Surveillances: Two Pairs of Gloves; Shoe Covers; Rubber Overshoes CA Entries Performing Work: One Full Set PCs HCA Entries: One Full Set PCs with additional pair of gloves and rubber overshoes HCA Entries Intrusive Work: Two Full Set PCs Partial Entries Into CAs: One Pair of Gloves Partial Entries Into HCAs: Two Pairs of Gloves ARA Entries: APR; Lapel Sample			
Worker Special Instructions: Entry into ERDF containers (e.g., contacting surfaces within the container or the underside of the tarp) requires Level 2 coverage, one set of gloves, and a survey of the workers gloves that contacted these surfaces prior to touching other surfaces or leaving the area. Hoods may be exempt unless an overhead contamination hazard exists. Water resistant/waterproof PPE, including face shields, may be added in wet working conditions.			

Key

Protective Clothing and Equipment

- One set of gloves:
- Surgeons gloves (or equivalent)

- Two sets of gloves:
- The inner set should be surgeons gloves (or equivalent), and the outer set may be surgeons glove (or equivalent), canvas or leather, etc.

- Additional set of gloves:
- The additional outer set may be surgeons glove (or equivalent), canvas or leather, etc.

- One full set of PCs:
- Coveralls
 - Two sets of gloves - the inner set should be surgeons gloves (or equivalent), and the outer set may be surgeons gloves (or equivalent), canvas or leather, etc.
 - Shoe covers
 - Rubber overshoes
 - Hood

- Two full sets of PCs:
- Two pairs of coveralls
 - Three sets of gloves - the inner two sets should be surgeons gloves (or equivalent), and the outer set may be surgeons gloves (or equivalent), canvas or leather, etc.
 - Two pairs of shoe covers
 - Rubber overshoes
 - Hood

RCT Coverage

- Level 1 Coverage:
- The RCT remains aware of work progress and the radiological safety impacts of present and upcoming steps in the work process or document (e.g. work package, craft package, task instruction). An RCT assigned to provide this level of support for a job functions as a member of the work team and is given no conflicting assignments.

- Level 2 Coverage:
- The RCT is aware of the progress of work and provides support as needed to ensure workers' radiological safety. Level 2 is generally prescribed for lower risk radiological work than Level 1; therefore, the RCT is allowed to support more than one RWP and/or work group.

- Level 3 Coverage:
- The RCT is at the job site during the performance of specific tasks, at pre-determined times, or as otherwise determined by the cognizant RadCon Supervisor.

Washington Closure Hanford Radiological Work Permit	100SMT-08-002 Rev. 01
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RCT SPECIAL INSTRUCTIONS

1. Removable surface contamination levels requiring Air Monitoring during work activities:
50 dpm/100cm² Alpha
25,000 dpm/100cm² beta-gamma
2. For all ARA entries, include ARA boundary locations when the RWP requirements are discussed at the Pre-Evolution brief.
3. Use of grinders, flapper wheels, cutting torches or similar tools on surfaces with total contamination greater than 100 dpm/100cm² alpha and/or 5,000 dpm/100cm² beta contamination requires an evaluation by the Radiological Engineer.
4. Removable Surface Contamination Action Level:
Alpha 50 dpm/100cm²,
Beta-gamma 50,000 dpm/100cm².
Contact RCT Supervisor or Radiological Engineer for evaluation.
5. Alpha surveys are required in conjunction with beta-gamma surveys for the top of K-East and K-West reactor, all radioactive liquid pipelines and vessels, and all uncharacterized areas.

Field Supervisor MCGGERTY, KEVIN D <i>[Signature]</i> 01/29/2008	RCT Supervisor HUMPHRYS, DEAN W <i>[Signature]</i> 01/29/2008
Radiological Engineer MORRICK, ROGER C <i>[Signature]</i> 01/29/2008	

WCH-TM-R018 (01/15/2008)

Page 3 of 3

APPENDIX B
105-C REACTOR BUILDING STRUCTURAL INSPECTION

140900

K. J. Koegler
Page 2

The original structure also appears to be structurally adequate. The first floor concrete does not appear to have any detrimental cracks. There is some evidence of concrete spalling and exposed rebar at certain areas of the structure. There was also exposed bare metal when some SSCs were cut during closure. These exposed bare metal structural components did not exhibit any further structural degradation other than that caused by the torch cutting operation. There is some discoloration in the ceiling at Elevation 17'-6". Closer inspection of the ceiling yielded no detrimental cracks that can contribute to structural degradation of the ceiling.

There is also a mechanical system component that has liquid in its pan that is located common to the south side of the building at Elevation 30'-0. The liquid in the pan is not contacting the building structure but should be removed to ensure that it does not pose any harm to the building structure.

Overall, the original building has no detrimental issues regarding its structural integrity. The ISS closure details also had no significant detrimental issues. An annual year external walkdown/inspection to the exposed rebar is recommended to ensure that the noted areas will not get structurally detrimental to the structure. The application of a sealant is recommended over any bare metal rebar common to the spalled areas for corrosion protection against the environment (wind erosion, and corrosion due to moisture). Also, any exterior metal should not contact soil. The soil aggregate that is contacting the metal door common to the North East and East side of the building exterior should be removed. Finally, the hole in the corrugated metal panel at the East Side of the building is recommended to be repaired by sealing the hole with epoxy to limit moisture getting inside the building.

Note that those soffit areas that have no flashing between the roof and the walls do NOT need any remediation since the surrounding areas did NOT exhibit any structural degradation. Unlike the hole on the corrugated metal wall on the East Side of the building, these areas have roof overhangs so that moisture cannot get inside the building.

Photographs of the inspection are provided in Attachment A, and the structural inspection sheet is provided in Attachment B.

PPS:mrc

Attachments: A) Inspection Pictures and Details
 B) Surveillance & Maintenance Structural Inspection Sheet

Copies (w/a)

K. D. Haggerty N3-10
S. E. Dieterle L1-04
R.G. Egge N3-22
P. P. Santos H4-20
B. D. Smith G1-04

ATTACHMENT A – Inspection Pictures and Details

Figure 1. Exterior Building Inspection Map – Elevation 0'-0" Level.

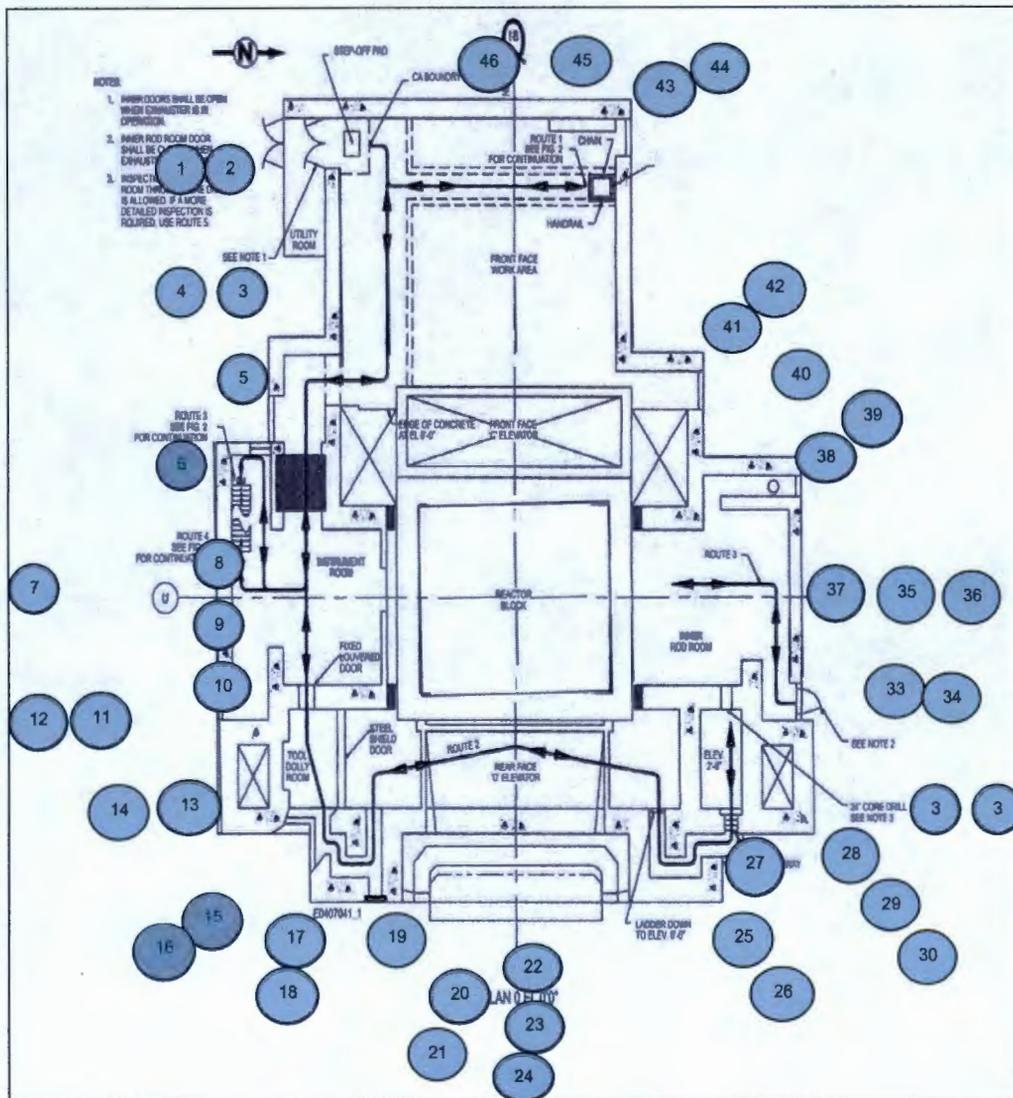


Figure 2. Exterior Building Details - Grade Level, SW Wall Areas.

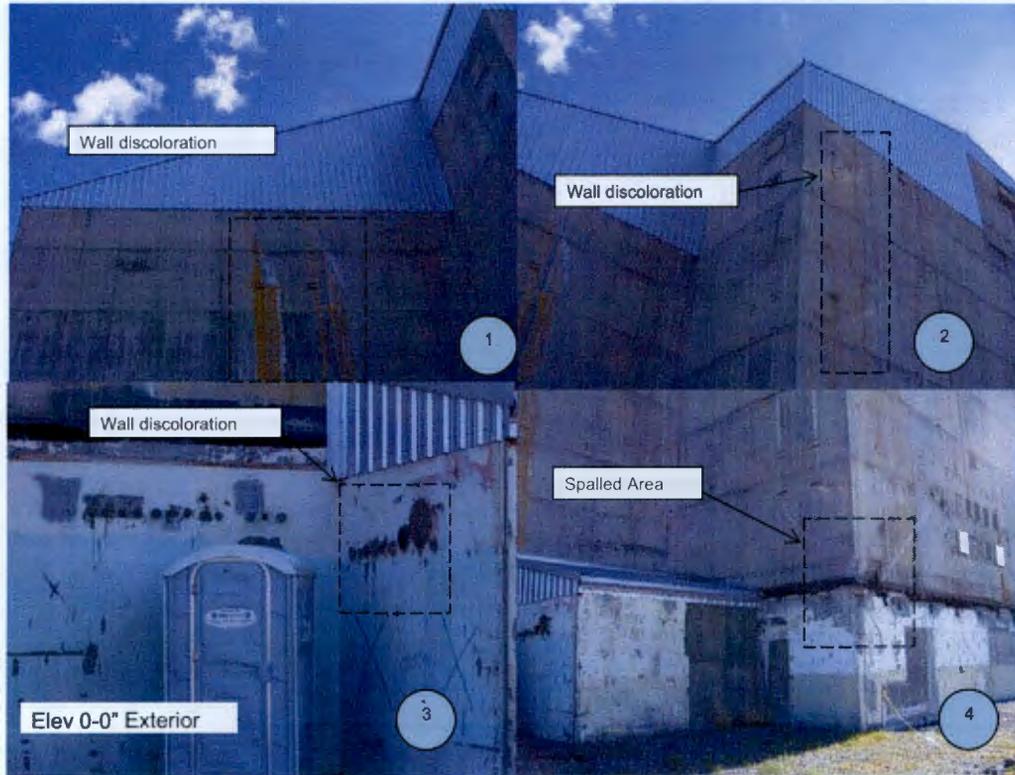


Figure 2 Details:

- Item 1 – Wall Discoloration at SW Wall of Building Exterior, Elev 0'-0", minor corrosion
- Item 2 – Wall Discoloration at SW Corner of Building Exterior, Elev 0'-0", minor corrosion
- Item 3 – Exposed ISS Closure Details SW Wall of Building Exterior, Elev 0'-0", minor corrosion
- Item 4 – Exposed Aggregate & Rebar at SW Wall Corner of Building Exterior, Elev 0'-0", spalling

Figure 3. Exterior Building Details - Grade Level, South Wall Areas.

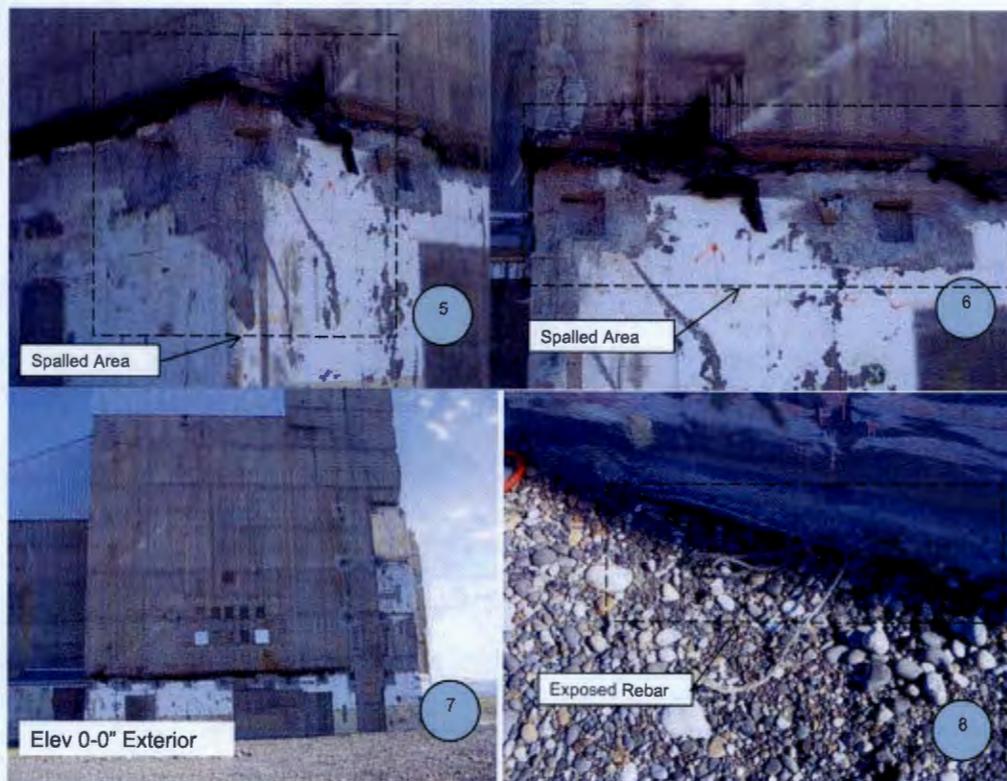


Figure 3 Details:

- Item 5 – Exposed Aggregate and Rebar at S Wall of Building Exterior, Elev 0'-0", minor corrosion, and spalling
- Item 6 – Exposed Aggregate at S Wall of Building Exterior, Elev 0'-0", spalling
- Item 7 – View of South Wall, Elevation 0'-0"
- Item 8 – Exposed Foundation/Floor Rebar at S Wall of Building Exterior, Elev 0'-0", recommend soil removal

Figure 4. Exterior Building Grade Level Details, South Wall.

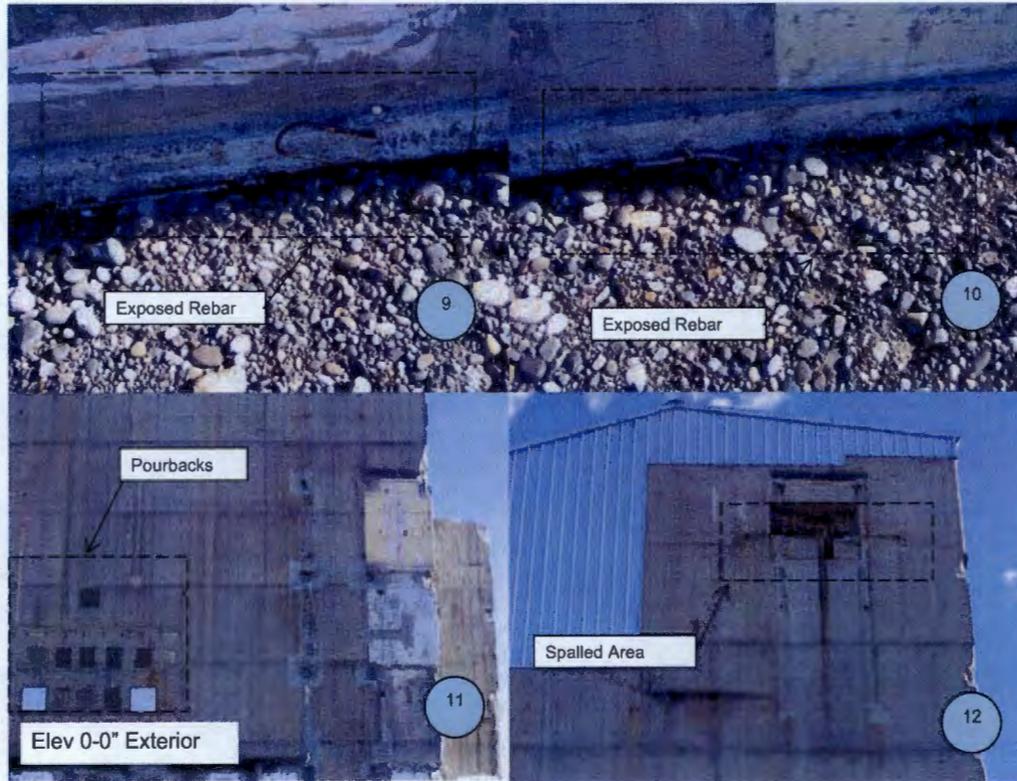


Figure 4 Details:

- Item 9 – Exposed Foundation/Floor Rebar at S Wall of Building Exterior, Elev 0'-0", recommend soil removal.
- Item 10 – Exposed Foundation/Floor Rebar at S Wall of Building Exterior, Elev 0'-0", recommend soil removal
- Item 11 – Pourback ISS Detail at S Wall of Building Exterior, as seen from Elev 0'-0", no visible defect
- Item 12 – Exposed Aggregate Detail at S Wall of Building Exterior, as seen from Elev 0'-0", no visible defect

Figure 5. Exterior Building Grade Level Details, SE Wall.

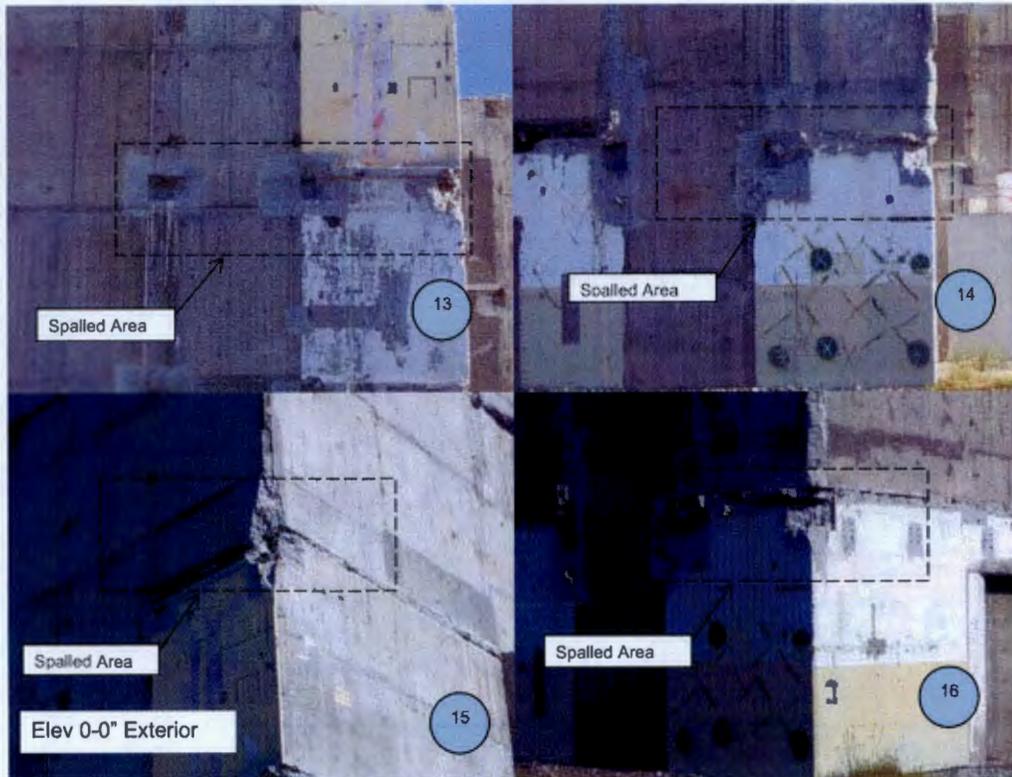


Figure 5 Details:

- Item 13 – Exposed Aggregate at SE Wall Corner of Building Exterior, Elev 0'-0", spalling
- Item 14 – Exposed Aggregate at SE Wall Corner of Building Exterior, Elev 0'-0", spalling
- Item 15 – Exposed Aggregate at SE Wall Corner of Building Exterior, Elev 0'-0", spalling
- Item 16 – Exposed Aggregate at SE Wall Corner of Building Exterior, Elev 0'-0", spalling

Figure 6. Exterior Building Grade Level Details – SE wall.



Figure 6 Details:

- Item 17 – Exposed Aggregate at SE Corner Wall of Exterior Building, Elev 0'-0", spalling
- Item 18 – Exposed Aggregate at SE Corner Wall of Exterior Building, Elev 0'-0", spalling
- Item 19 – Exposed ISS Detail at SE Wall of Exterior Building, Elev 0'-0", discoloration
- Item 20 – Existing Metal Door at SE of Exterior Building, Elev 0'-0", minor corrosion

Figure 7. Exterior Building Grade Level Details – East Wall.



Figure 7 Details:

- Item 21 – Existing Reactor Metal Door at SE of Exterior Building Area , Elev 0'-0", minor corrosion, soil removal recommended
- Item 22 – ISS Closure Detail , Elev 0'-0", no visible defect
- Item 23 – ISS Closure Detail, as seen from Elev 0'-0", no visible defect
- Item 24 – ISS Closure Detail, as seen from Elev 0'-0", no visible defect

Figure 8. Exterior Building Grade Level Details, East Wall.



Figure 8 Details:

- Item 25 – Exposed Aggregate at E Corner Wall of Building Area , Elev 0'-0", spalling
- Item 26 – Exposed Aggregate at E Corner Wall of Building, Elev 0'-0", spalling
- Item 27 – Exposed Aggregate at E Corner Wall of Building, Elev 0'-0", spalling
- Item 28 – Exposed Aggregate at E Corner Wall of Building, Elev 0'-0", spalling

Figure 9. Exterior Building Details, NE Wall.



Figure 9 Details:

- Item 29 – Exposed Aggregate at NE Corner Wall of Building Exterior, Elev 0'-0", spalling.
- Item 30 – Exposed Aggregate at NE Corner Wall of Building Exterior, Elev 0'-0", spalling
- Item 31 – Pourback ISS Detail at NE Wall of Building Exterior, as seen from Elev 0'-0", discoloration
- Item 32 – Exposed Aggregate from ISS detail at Wall of Building Exterior, as seen from Elev 0'-0", no further visible defect

Figure 10. Exterior Building Details, North Wall .

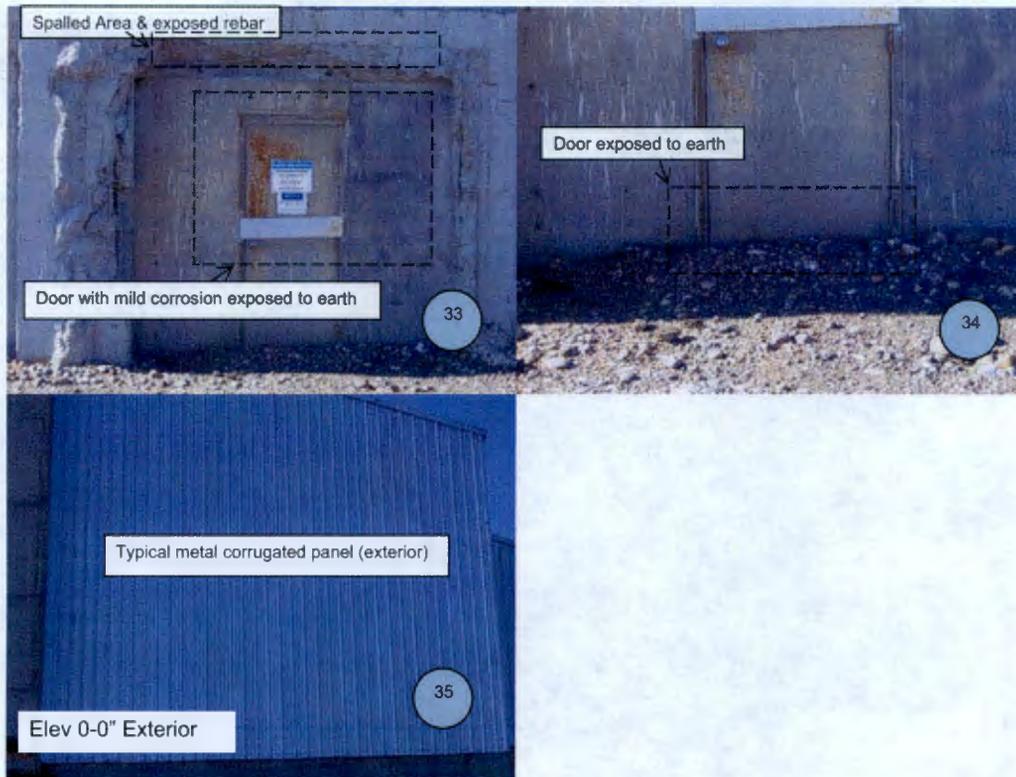


Figure 10 Details:

- Item 33 - Metal Door at N Wall of Building Exterior, Elev 0'-0", mild corrosion.
- Item 34 - Metal Door Detail Exposed to Earth at N Wall of Building Exterior, Elev 0'-0", recommended soil removal
- Item 35 - Pourback ISS Detail at N Wall of Building Exterior, as seen from Elev 0'-0", no visible defect

Figure 11. Exterior Building Details, North Wall.

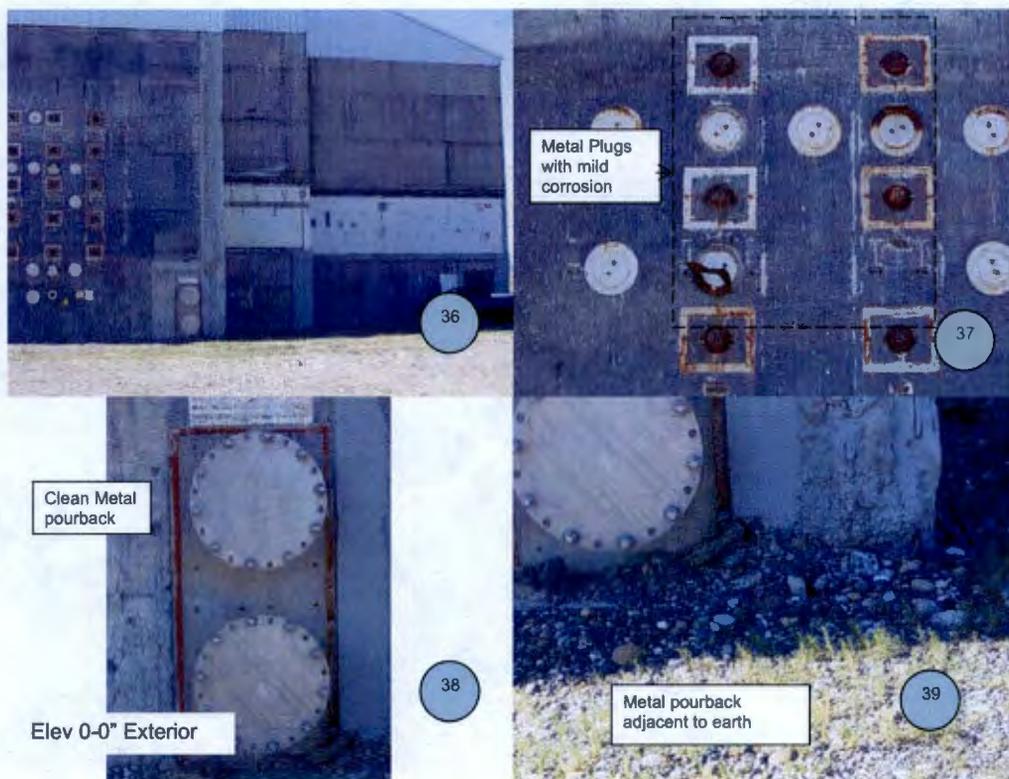


Figure 11 Details:

Item 36 – North Wall View of Exterior Building I, from Elev 0'-0"

Item 37 – Exposed Metal Plugs at North Wall of Building Exterior, Elev 0'-0", moderate corrosion

Item 38 – Pourback ISS Detail at N Wall of Building Exterior, Elev 0'-0", no visible defect

Item 39 – Pourback ISS detail at N Wall of Building Exterior, Elev 0'-0", recommend soil removal

Figure 12. Exterior Building Details, NW Wall.

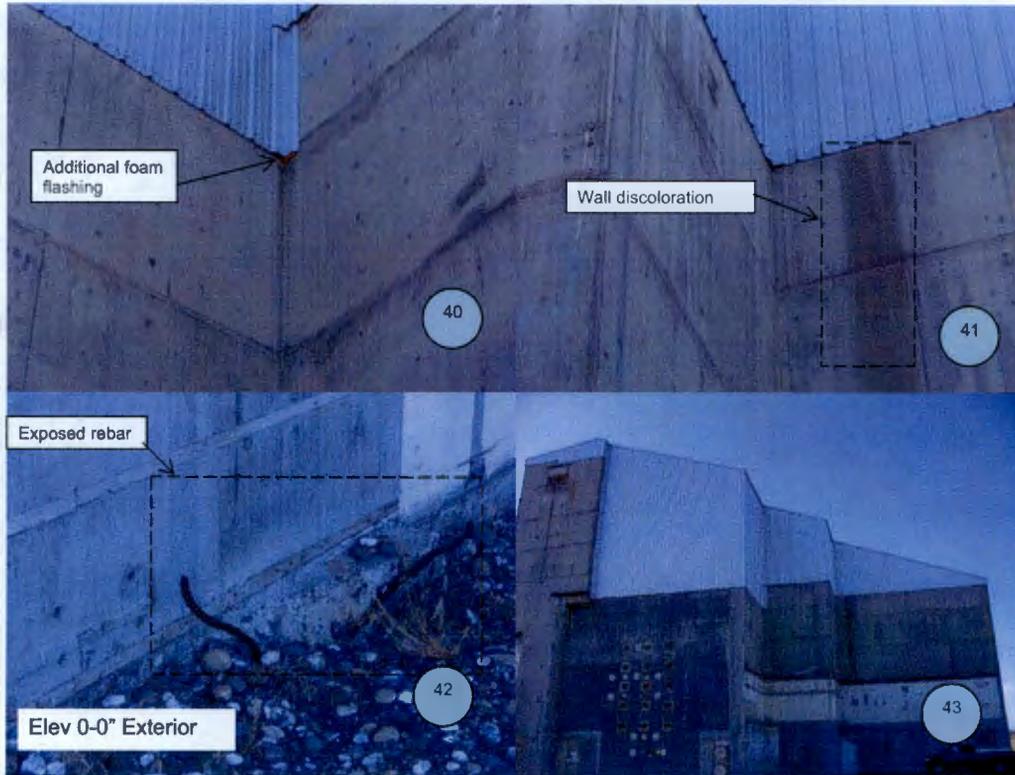


Figure 12 Details:

- Item 40 – ISS Detail at NW Wall, from Elev 0'-0", flashing exposed, no visible structural defect
- Item 41 - Discoloration at NW Wall of Building Exterior, from Elev 0'-0", unknown substance, no visible structural degradation
- Item 42 – Exposed Aggregate & Rebar at NW Wall of Building Exterior, Elev 0'-0", moderate corrosion
- Item 43 – Pourback ISS details at NW Wall of Building Exterior, from Elev 0'-0"

Figure 13. Exterior Building Details, North Wall.

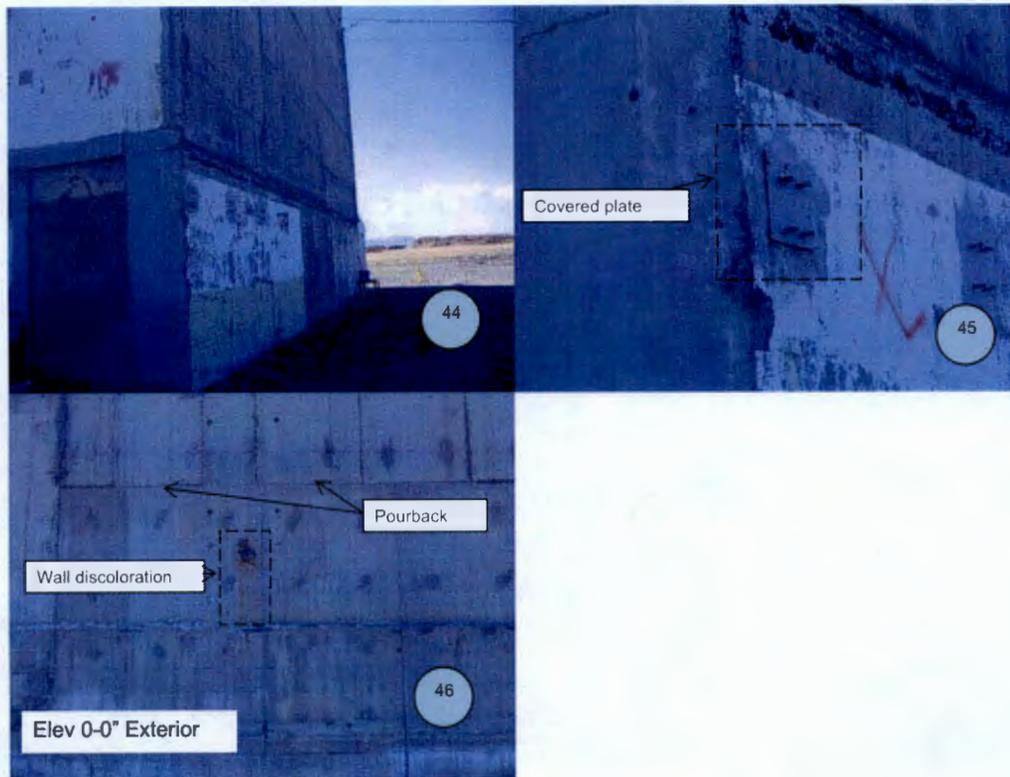


Figure 13 Details:

Item 44 – View of NW Wall of Building Exterior, from Elev 0'-0"

Item 45 – Exposed ISS detail at NW Wall of Exterior Building, from Elev 0'-0", no visible defect

Item 46 – Exposed ISS details at NW Wall of Building Exterior, Elev 0'-0", minor corrosion

Figure 15. Interior Building Details, Connections Beams, Walls, Elevation 0'-0".

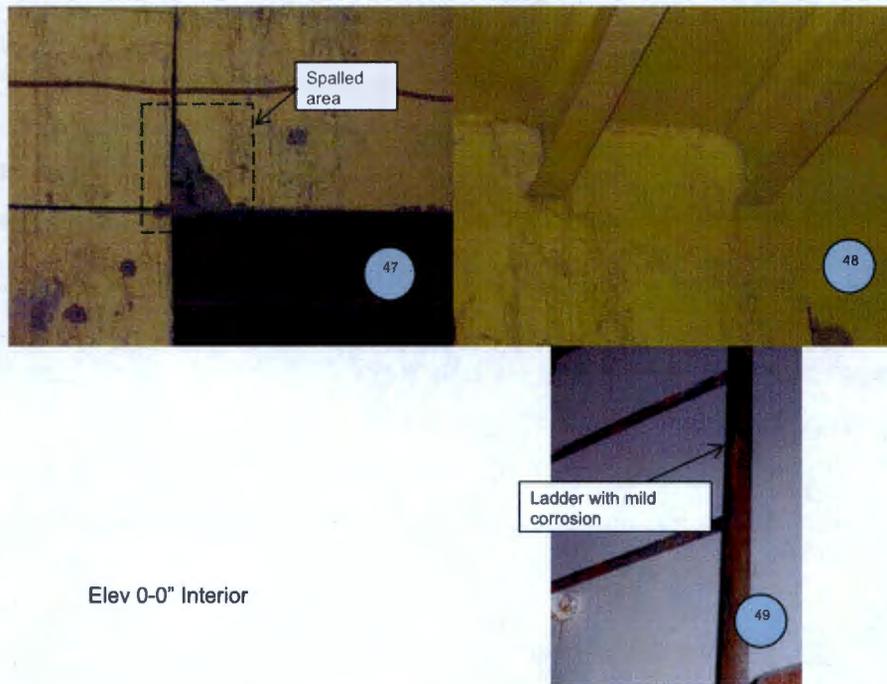


Figure 15 Details:

- Item 47 – Exposed Aggregate Detail at Building Interior, Elev 0'-0", spalling.
- Item 48 – Original Building Beam Details at Building Interior, Elev 0'-0", no visible defect
- Item 49 – Original Building Ladder at Building Interior, Elev 0'-0", minor corrosion

Figure 16 - Original Building Details, Elev. 0'-0".

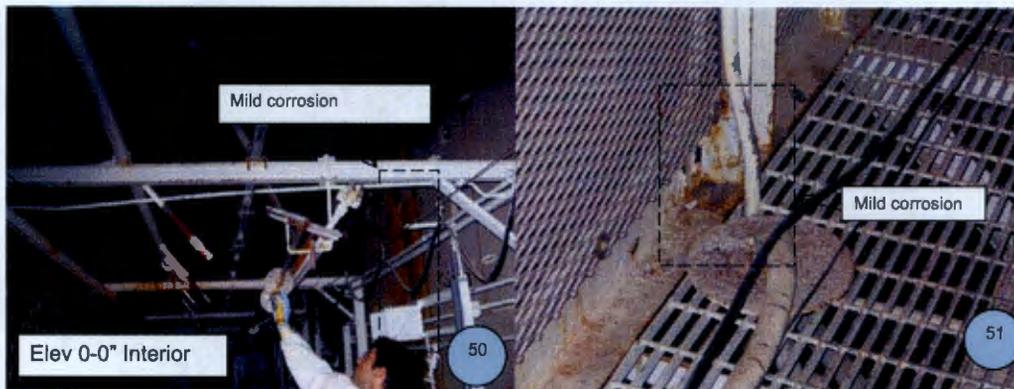


Figure 16 Details:

Item 50 -- Original Building Structural Details at Building Interior, Elev 0'-0", minor corrosion.

Item 51 -- Original Building Structural Details Details at Building Interior, Elev 0'-0", moderate corrosion

Figure 17. Interior Building Inspection Map, Elevation -17'-6".

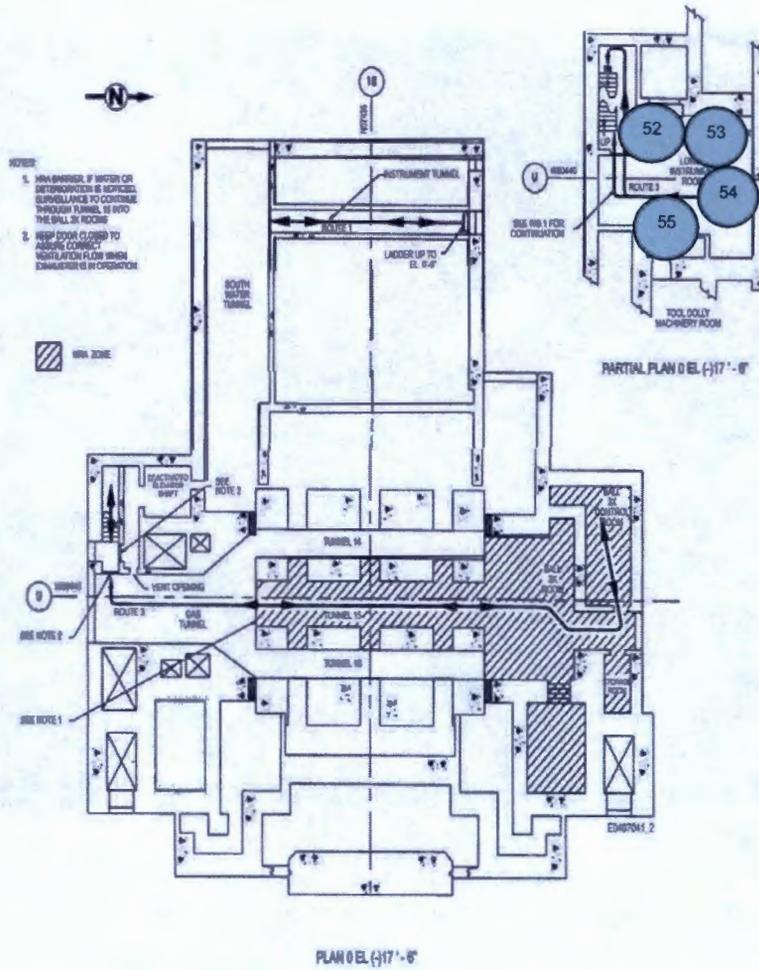


Figure 18. Interior Building Inspection Map, Elevation -17'-6".



Figure 18 Details:

- Item 52 – ISS Details rebar and pourback, Elev -17'-6", no visible structural defects
- Item 53 – ISS Door Detail, Elev -17'-6", no visible structural degradation
- Item 54 – Original Building Structure Floor Detail, Elev -17'-6", moderate corrosion
- Item 55 – Original Building Building Exterior, Elev 17'-6", spalling

Figure 19. Interior Building Inspection Map, Elevation 15'- 0" and 30'-0".

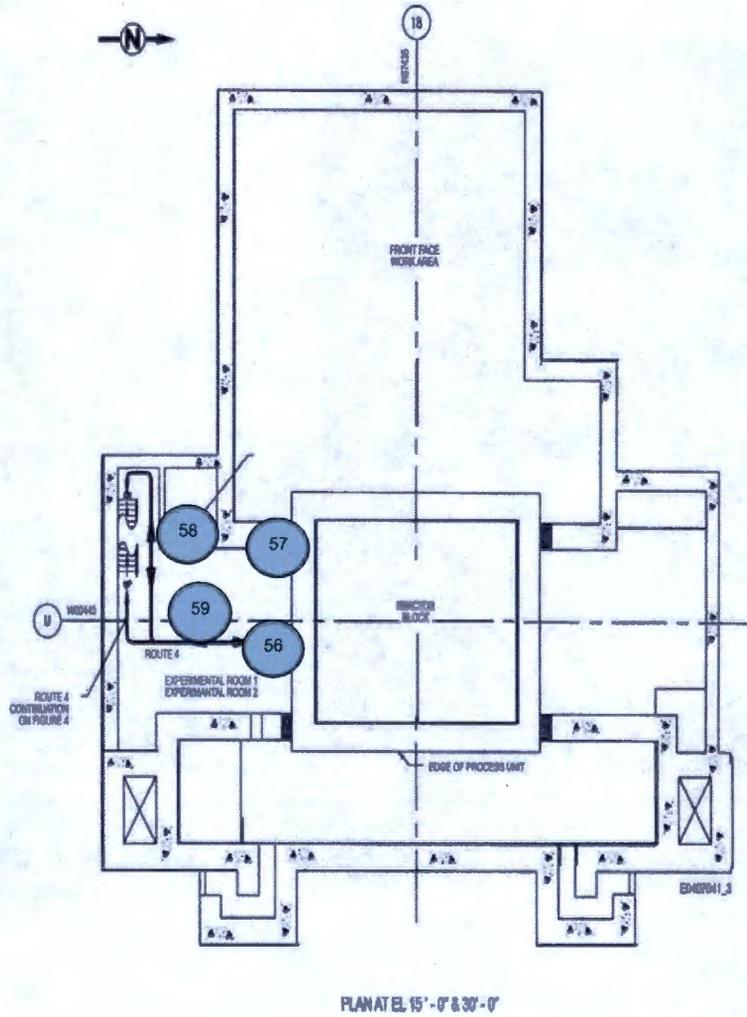


Figure 20. Interior Building ISS Details, Roof, Beams, Columns and Connections, Elevation 30'-0".

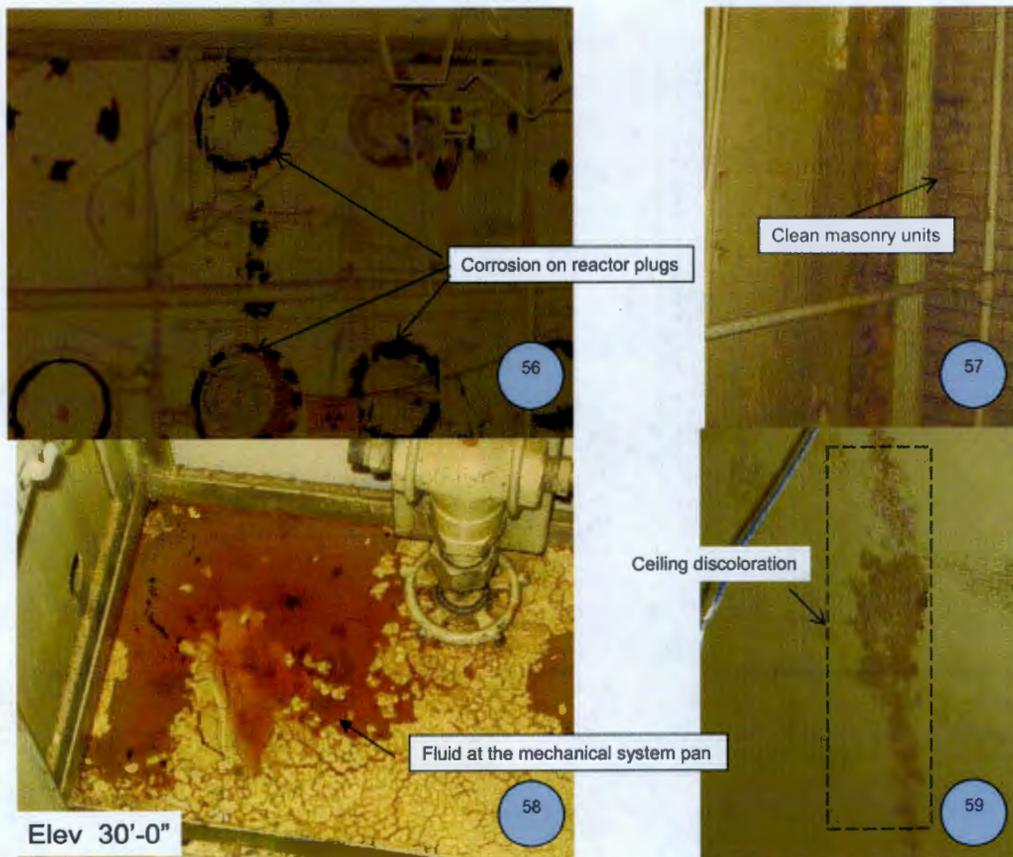


Figure 20 Details:

- Item 56 – Existing Reactor Block Wall, Elev 30'-0", moderate corrosion
- Item 57 – Existing Reactor masonry and flashing at Building Interior, Elev 30'-0", no visible cracking
- Item 58 – Unknown Liquid at a Mechanical System Component, Elev 30'-0", recommend cleanup
- Item 59 – Wall Discoloration at Building Interior, Elev 30'-0", no visible structural defect

Figure 21. Interior Building Inspection Map – Elevation 45'-2 1/4".

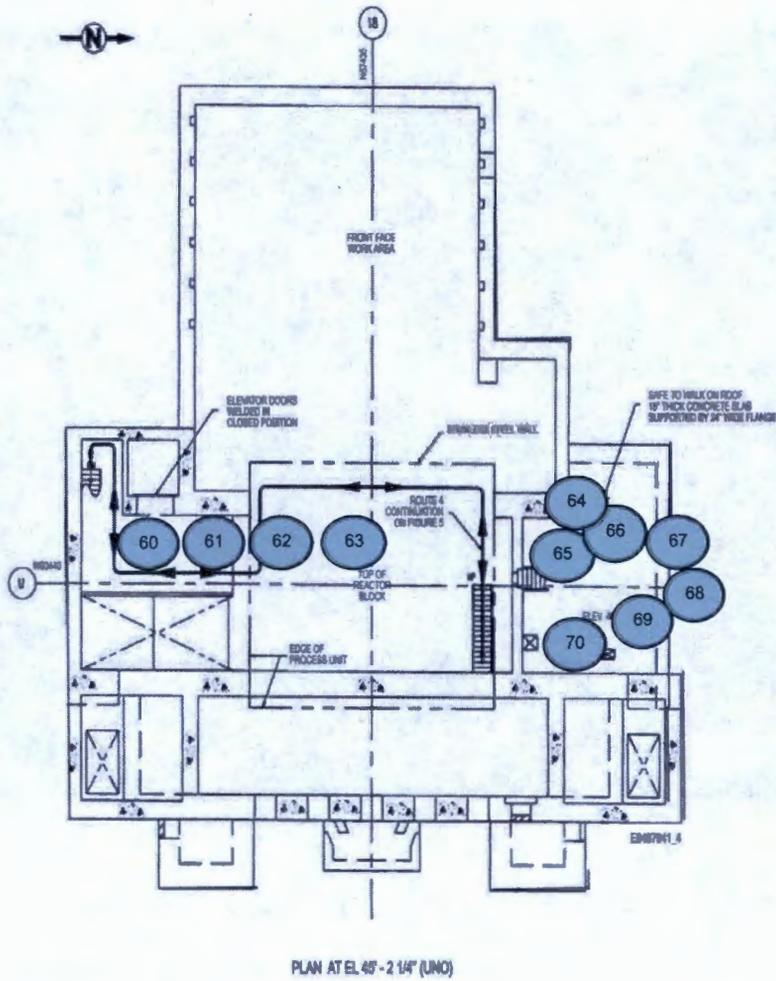


Figure 22 - ISS Structural Details Elevation 45'-2 1/4".

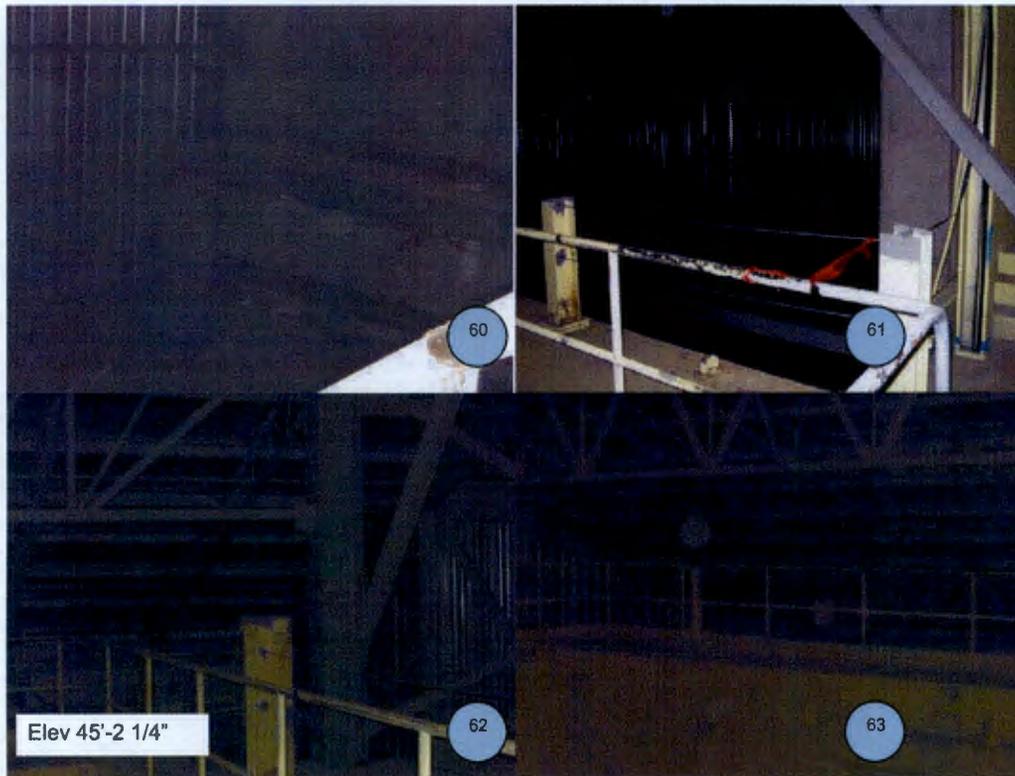


Figure 22 Details:

- Item 60 – ISS Details, walls & girts, Elev 45'-2 1/4", no visible structural defects
- Item 61 – ISS Details, trusses, Elev 45'- 2 1/4", no visible structural defects
- Item 62 – ISS Details, Columns & Beams, Elev 45'-2 1/4", no visible structural defects
- Item 63 – ISS Details, Elev 45'-2 1/4", no visible structural defects

Figure 23 - ISS Details, Elevation 45'-2 1/4".

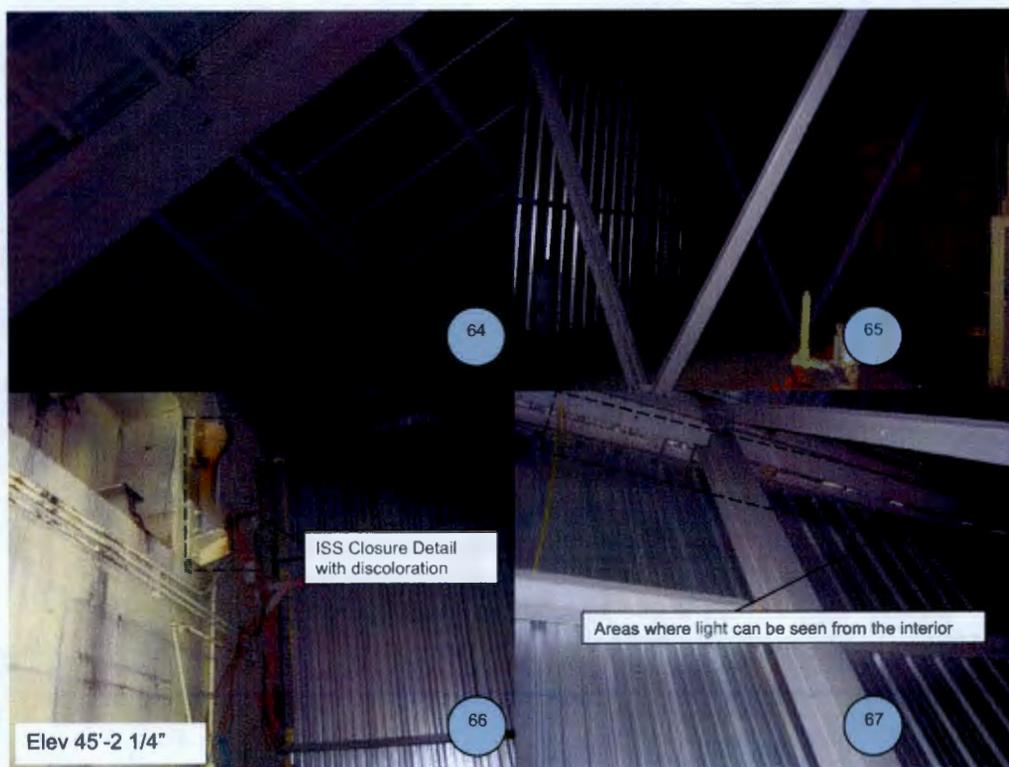


Figure 23 Details:

- Item 64 – ISS Details, rafters, Elev 45'-2 1/4", no visible structural defects
- Item 65 – ISS Details, trusses, Elev 45'- 2 1/4", no visible structural defects
- Item 66 – ISS Details, Original Beam, Elev 45'-2 1/4", no further structural degradation
- Item 67 – ISS Details, Soffit area between wall and roof, Elev 45'-2 1/4", visible light thru gaps, recommend to leave as is

Figure 24 - ISS Details, Elevation 45'- 2 1/4".

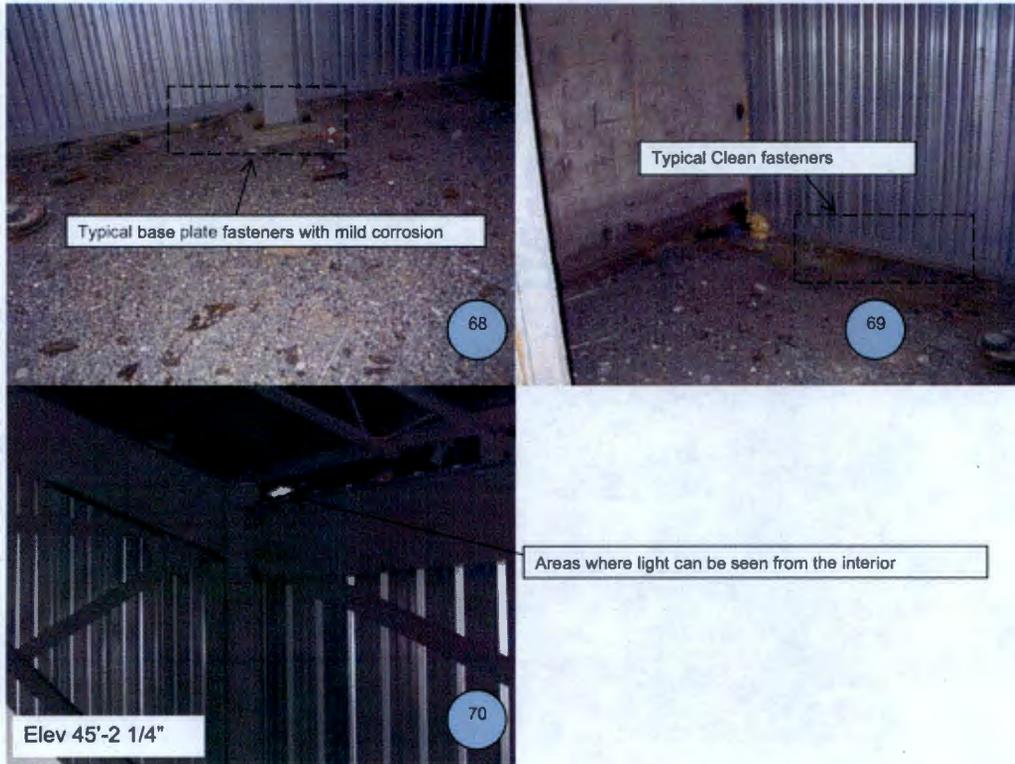


Figure 24 Details:

- Item 68 – ISS Details, column base plates & bolts, Elev 45'-2 1/4", no visible structural defects
- Item 69 – ISS Details, fasteners, Elev 45'- 2 1/4", no visible structural defects
- Item 70 – ISS Details, Soffit area between wall and roof, Elev 45'-2 1/4", visible light thru gaps, recommend to leave as is

Figure 25 - Interior Building Inspection Map - Elevation 59'-4".

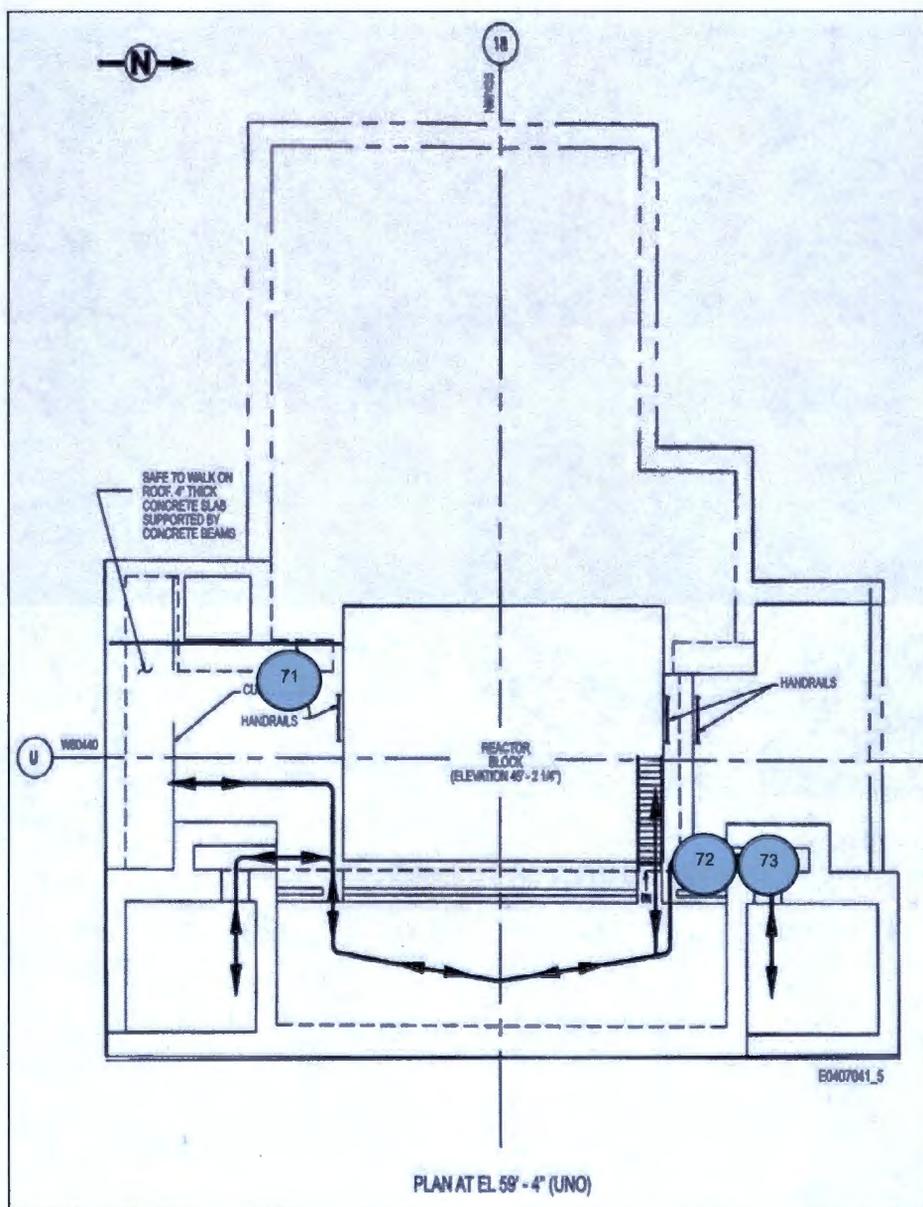


Figure 26 - ISS & Original Building Details - Elev. 59'-4".

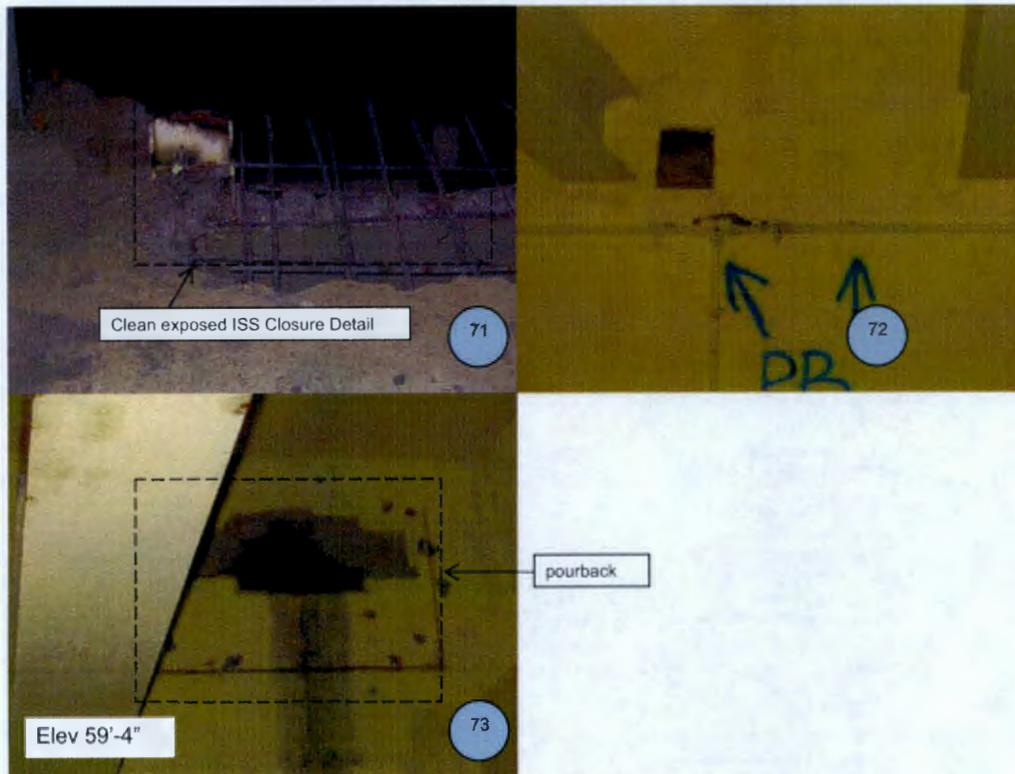


Figure 26 Details:

- Item 71 – ISS Details, removed original structure, Elev 59'-4", no further structural damage
- Item 72 – ISS Details, pourbacks, Elev 59'- 4", no visible structural defects
- Item 73 – ISS Details, pourback, Elev 59'-4", no visible structural defects

ATTACHMENT B – Surveillance & Maintenance Structural Inspection Sheet



Washington Closure Hanford

105-C Surveillance Maintenance Checklist

Practitioner:
P. Santos, P.E.

Date Evaluated:
7/16/2008

Contact Info:
WCH, Fermi Drive, A236
372-9069
Engineering Services

LEGEND:

CO = Corrosion
CR = Crack
DE = Deflection
EX = Suspected Existing
MI = moisture intrusion
ST = Possible Settlement
WI = Possible Wind Damage
CH = Corrosion Miscellaneous

FE = Steel
RC = concrete
MA = Masonry
SP = Spall
NA = No Visible Issues

Surveillance & Maintenance Structural Inspection Sheet						
Item No.	Description	Area Location	Evaluation? (Y/N)	Material (FE/RC)	Condition (CO/CR/SP)	Notes/Causes: (P/DE/SP/MI/ST/WI/EX)
1	Exterior - Wall discoloration	Elev. 0'-0", SW Wall	N	FE, RC	CO	MI
2	Exterior - Wall discoloration	Elev. 0'-0", SW Wall	N	FE, RC	CO	MI
3	Exterior - ISS Detail	Elev. 0'-0", SW Wall	N	FE, RC	CO	MI
4	Exterior - Exposed Aggregate & Rebar, Next to Pourback	Elev. 0'-0", SW Wall	N	FE, RC	CO, SP	MI
5	Exterior - Exposed Aggregate & Rebar, Next to Pourback	Elev. 0'-0", S Wall	N	FE, RC	CO, SP	MI
6	Exterior - Exposed Aggregate	Elev. 0'-0", S Wall	N	RC	SP	EX
7	Exterior - Pourback Details	Elev. 0'-0", S Wall	(Intentionally left blank)	(Intentionally left blank)	(Intentionally left blank)	(Intentionally left Blank)
8	Exterior - Exposed Aggregate & Rebar	Elev. 0'-0", S Wall	N	RC	SP	EX
9	Exterior - Exposed Foundation/Floor Aggregate and Rebar	Elev. 0'-0", S Wall	N	FE, RC	CO, SP	EX, MI
10	Exterior - Exposed Foundation/Floor Aggregate/Rebar	Elev. 0'-0", S Wall	N	FE	NA	EX
11	Exterior - Pourback Details	Elev. 0'-0", S Wall	N	RC	NA	EX
12	Exterior - Exposed Aggregate Detail	Elev. 0'-0", S Wall	N	RC	NA	EX
13	Exterior - Exposed Aggregate	Elev. 0'-0", SE Wall Corner	N	RC	SP	EX
14	Exterior - Exposed Aggregate	Elev. 0'-0", SE Wall Corner	N	RC	SP	EX
15	Exterior - Exposed Aggregate	Elev. 0'-0", SE Wall Corner	N	RC	SP	EX
16	Exterior - Exposed Aggregate	Elev. 0'-0", SE Wall	N	RC	SP	EX
17	Exterior - Exposed Aggregate	Elev. 0'-0", SE Wall	N	RC	SP	EX
18	Exterior - Exposed Aggregate	Elev. 0'-0", SE Wall	N	RC	SP	EX
19	Exterior - Exposed ISS Detail	Elev. 0'-0", E Wall	N	RC	NA	EX
20	Exterior - Metal Door	Elev. 0'-0", SE Wall	N	FE	CO	CH
21	Exterior - Metal Door Detail	Elev. 0'-0", SE Wall	N	FE	CO	CH



Washington Closure Hanford

105-C Surveillance Maintenance Checklist

22	Exterior - ISS Closure Detail	Elev. 0'-0"	N	(Intentionally left blank)	(Intentionally left blank)	(Intentionally left blank)
23	Exterior - ISS Closure Detail	Elev. 0'-0"	N	(Intentionally left blank)	NA	(Intentionally left blank)
24	Exterior - ISS Closure Detail	Elev. 0'-0"	N	(Intentionally left blank)	NA	(Intentionally left blank)
25	Exterior - Exposed Aggregate	Elev. 0'-0", East Wall	N	RC	SP	EX
26	Exterior - Exposed Aggregate	Elev. 0'-0", East Wall	N	RC	SP	EX
27	Exterior - Exposed Aggregate	Elev. 0'-0", East Wall	N	RC	SP	EX
28	Exterior - Exposed Aggregate	Elev. 0'-0", East Wall	N	RC	SP	EX
29	Exterior - Exposed Aggregate	Elev. 0'-0", NE Corner Wall	N	RC	SP	EX
30	Exterior - Exposed Aggregate	Elev. 0'-0", NE Wall	N	RC	SP	EX
31	Exterior - Pourback Details	Elev. 0'-0", NE Wall	N	RC, FE	CO	M
32	Exterior - Exposed Aggregate	Elev. 0'-0", NE Wall	N	RC	SP	EX, NA
33	Exterior - Metal Door	Elev. 0'-0", North Wall	N	FE	CO	CH
34	Exterior - Metal Door	Elev. 0'-0", North Wall	N	FE	CO	CH
35	Exterior - ISS Closure Detail, Metal Wall	Elev. 0'-0", North Wall	N	FE	NA	(Intentionally left blank)
36	Exterior - ISS Details	From Elev. 0'-0", North Wall	(Intentionally left blank)	(Intentionally left blank)	(Intentionally left blank)	(Intentionally left blank)
37	Exterior - Metal Plugs	From Elev. 0'-0", North Wall	N	FE	CO	M
38	Exterior - Metal Pourback	Elev. 0'-0", North Wall	N	FE	NA	(Intentionally left blank)
39	Exterior - Metal Pourback Detail	Elev. 0'-0", North Wall	N	RC	SP	EX
40	Exterior - ISS Detail	From Elev. 0'-0", NW Wall	N	FE	NA	
41	Exterior - ISS Detail	From Elev. 0'-0", NW Wall	N	RC	NA	M
42	Exterior - Exposed Rebar	Elev. 0'-0", NW Wall	N	FE	CO	CH
43	Exterior - ISS Details	From Elev. 0'-0", NW Wall	N	(Intentionally left blank)	(Intentionally left blank)	(Intentionally left blank)
44	Exterior - View of North Wall	From Elev. 0'-0", North Wall	N	(Intentionally left blank)	(Intentionally left blank)	(Intentionally left blank)
45	Exterior - Metal Pourback Detail	Elev. 0'-0", North Wall	N	FE	NA	EX
46	Exterior - Exposed ISS Detail	Elev. 0'-0", North Wall	N	FE, RC	CO	CH
47	Interior - Exposed Aggregate Detail	Elev. 0'-0", South Wall	N	RC	SP	NA
48	Interior - Original Building Beam Detail	Elev. 0'-0", South Wall	N	FE	NA	(Intentionally left blank)
49	Interior - Original Building Ladder	Elev. 0'-0", North Wall	N	FE	NA	(Intentionally left blank)



Washington Closure Hanford

105-C Surveillance Maintenance Checklist

50	Interior - Original Building Details	Elev. 0'-0" East Wall	N	FE, RC	NA	EX
51	Interior - Original Building Details	Elev. 0'-0" East Wall	N	FE	CO	CH
52	Interior - ISS Details	Elev. -17'-6"	N	FE, RC	NA	(Intentionally left Blank)
53	Interior - ISS Door Detail	Elev. -17'-6"	N	FE, RC	NA	(Intentionally left Blank)
54	Interior - Original Building Structure,	Elev. -17'-6"	N	RC	CO	CH
55	Wall	Elev. -17'-6"	N	RC	SP	(Intentionally left Blank)
56	Interior - Existing Reactor Block	Elev. 30'-0"	N	FE	CO	CH
57	Wall	Elev. 30'-0"	N	MA	NA	(Intentionally left Blank)
58	Interior - Mechanical System	Elev. 30'-0"	N	FE	NA	(Intentionally left Blank)
59	Component Pan	Elev. 30'-0"	N	RC	NA	(Intentionally left Blank)
60	Interior - Wall Detail	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
61	Interior - ISS Details, walls & girts	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
62	Interior - ISS Details, trusses	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
63	Interior - ISS Details, Columns & Beams	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
64	Interior - ISS Details	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
65	Interior - ISS Details, rafters	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
66	Interior - ISS Details, trusses	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
67	Interior - Original Beam	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
68	Interior - ISS Details, Soffit Area between wall and roof	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
69	Interior - ISS Details, Column Base Plates & Bolts	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
70	Interior - ISS Details, Fasteners	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
71	Interior - ISS Details, Soffit Area between wall and roof	Elev. 45'-2 1/4"	N	FE	NA	(Intentionally left Blank)
72	Interior - Original Building Closure Detail	Elev. 59'-4"	N	RC, FE	NA	(Intentionally left Blank)
73	Interior - ISS Details, Pourback	Elev. 59'-4"	N	RC	NA	(Intentionally left Blank)
74	Interior - ISS Details, Pourback	Elev. 59'-4"	N	RC	NA	(Intentionally left Blank)

APPENDIX C
RSR-100SMT-08-0281
RADIOLOGICAL SURVEY RECORD FOR 105-C SSE ENTRY

RADIOLOGICAL SURVEY RECORD												Page <u>1</u> of <u>16</u>								
Type of Survey (If release, no other boxes can be checked)						<input type="checkbox"/> Release		Survey #												
<input type="checkbox"/> Routine			<input checked="" type="checkbox"/> Work Progress			<input type="checkbox"/> Shipment		RSR - 100SMT-08-0281												
RWP # / Rev. # 100SMT-08-002/01			Date 7/14/08		Time 1430		Location 100B													
Description 105C 5 year entry																				
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-06-SR-09/2																				
																				
105 C Reactor 5 year entry												COPY								
CA	Contamination Area	HCA	High Contamination Area	FBA	Rad. Buffer Area	ARA	Airborne Radioactivity Area	[AS]	Air Sample Location	RMA	Radioactive Materials Area	RA	Radiation Area	HRA	High Radiation Area	VHRA	Very High Radiation Area			
<input type="checkbox"/>	Technical Area	#	Direct	M	Large Area Wipe	T	Transferable	General Area Dose Rates =Uncorrected Meter Reading (mR/hr)		All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated			Contact 30 cm	N	Neutrons (nRem/hr)	Δ	Micro Rem (μ R/hr)	SCA	Soil Contamination Area	Rad. Boundary
Instruments																				
Model			ID #			Cal Due Date			Model			ID #			Cal Due Date					
2224-3/4393			0010/0066			1/10/09			n/a			n/a			n/a					
2224-3/43-93			0014-0098			9/11/08			n/a			n/a			n/a					
Ro-20			1504			1/21/09			n/a			n/a			n/a					
RCT Name/Signature/Date: Annette Howell <i>Annette A Howell</i> 7/14/08 Julie Davenport <i>Julie Davenport</i> 7/14/08									RCT Supervisor Name/Signature/Date: <i>Ron Cygus</i> 7/14/08											

WCH-TM-R006a (11/28/2007)

RCT signature indicates instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>3</u> of <u>16</u> Survey # RSR-100SMT-08-0281
Additional Information (Drawing, Map, Etc.)	
	
-16' LEVEL	Smear < 20dpm/100cm ² α < 1000dpm/100cm ² β
COPY	

WCH-TM-R006c (03/15/2006)

RADIOLOGICAL SURVEY RECORD (continuation)

Page: 9 of 16

Survey # RSR-100SMT-08-0281

Additional Information
(Drawing, Map, Etc.)



-16' LEVEL

Smear
< 20dpm/100cm²a < 1000dpm/100cm²yβ

COPY

WCH-TM-R006c (03/15/2006)

RADIOLOGICAL SURVEY RECORD (continuation)

Page: 5 of 16

Survey # RSR-100SMT-08-0281

Additional Information
(Drawing, Map, Etc.)



0' LEVEL

Smear
70dpm/100cm²α 4500dpm/100cm²γβ
< 20dpm/100cm²α < 1000dpm/100cm²γβ

COPY

WCH-TM-R006c (03/15/2006)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>6</u> of <u>16</u> Survey # RSR-100SMT-08-0
Additional Information (Drawing, Map, Etc.)	
	
0' LEVEL	Smear 70dpm/100cm ² α 4500dpm/100cm ² γβ < 20dpm/100cm ² α < 1000dpm/100cm ² γβ
COPY	

WCH-TM-R006c (03/15/2006)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>7</u> of <u>16</u> Survey # RSR-100SMT-08-0281
Additional Information (Drawing, Map, Etc.)	
	
15' LEVEL	
<p>The range of all Smear 56 dpm/100cm²α 4000dpm/100cm²γβ < 20dpm/100cm²α <1000dpm/100cm²γβ</p>	
<h1>COPY</h1>	

WCH-TM-R006c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>8</u> of <u>16</u> Survey # RSR-100SMT-08-0281
Additional Information (Drawing, Map, Etc.)	
	
15' LEVEL	
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">The range of all Smear 58 dpm/100cm²α 4000dpm/100cm²β < 20dpm/100cm²α <1000dpm/100cm²β</div>	
COPY	

WCH-TM-R008c (03/15/2008)

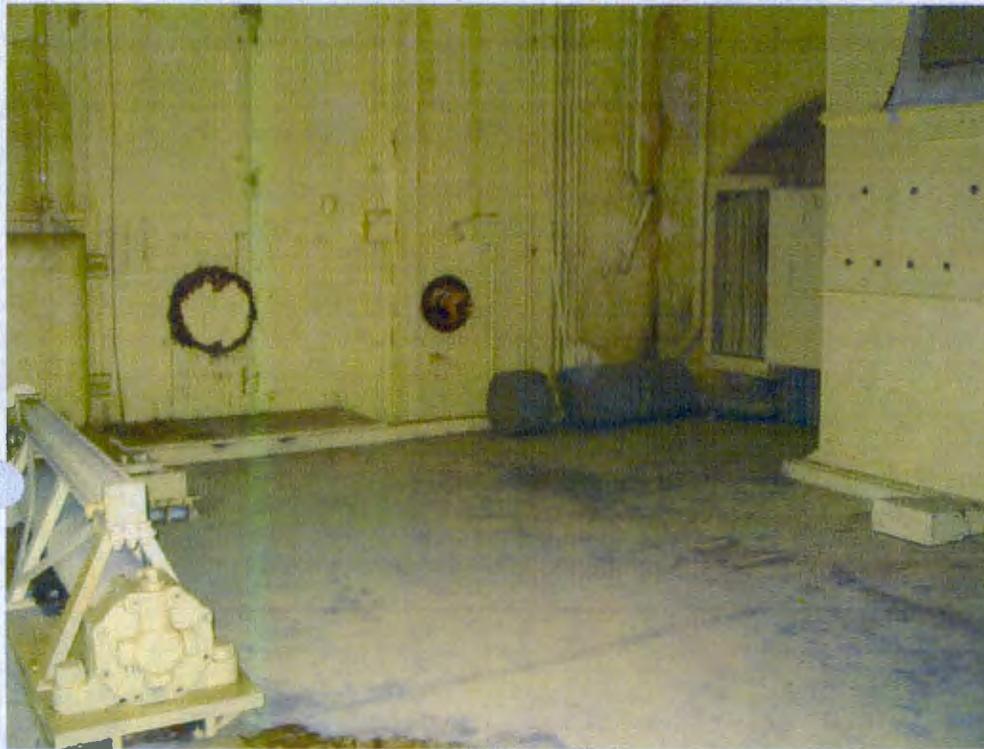
RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>9</u> of <u>10</u> Survey # RSR-100SMT-08-0 <u>251</u>
Additional Information (Drawing, Map, Etc.)	
	
15' LEVEL	
<p>The range of all Smear 56 dpm/100cm²α 4000dpm/100cm²β < 20dpm/100cm²α < 1000dpm/100cm²β</p>	
<h1>COPY</h1>	

WCH-TM-R006c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)

Page: 10 of 16
Survey # RSR-100SMT-08-0231

Additional Information
(Drawing, Map, Etc.)



30' LEVEL

The range of all Smear
28 dpm/100cm²α 4300dpm/100cm²β
< 20dpm/100cm²α <1000dpm/100cm²β

COPY

WCH-TM-R006c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>11</u> of <u>16</u> Survey # RSR-100SMT-08-0
Additional Information (Drawing, Map, Etc.)	
	
30' LEVEL	<p>The range of all Smear 28 dpm/100cm²α 4300dpm/100cm²γβ < 20dpm/100cm²α <1000dpm/100cm²γβ Oil 25 dpm/100cm²α 4200dpm/100cm²γβ</p>
COPY	

WCH-TM-R006c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)

Page: 12 of 26
Survey # RSR-100SMT-08-02 & 1

Additional Information
(Drawing, Map, Etc.)



45' LEVEL

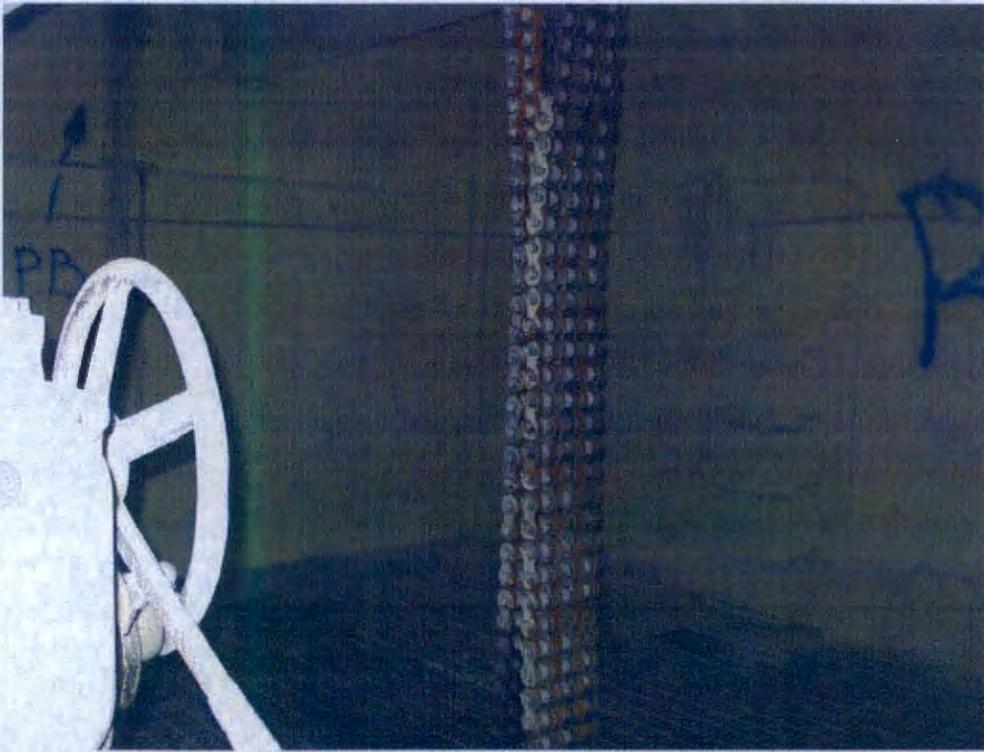
The range of all Smear
70 dpm/100cm²α 4300dpm/100cm²β
< 20dpm/100cm²α < 1000dpm/100cm²β

COPY

WCH-TM-R008c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>13</u> of <u>16</u> Survey # RSR-100SMT-08-0281
Additional Information (Drawing, Map, Etc.)	
	
45' LEVEL	Smear of vent 28dpm/100cm ² a 2000dpm/100cm ² yβ
COPY	

WCH-TM-R006c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>14</u> of <u>16</u> Survey # RSR-100SMT-08-0281
Additional Information (Drawing, Map, Etc.)	
	
60' LEVEL	Smear < 20dpm/100cm ² α < 1000dpm/100cm ² β
COPY	

WCH-TM-R008c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: <u>15</u> of <u>16</u> Survey # RSR-100SMT-08-0281
Additional Information (Drawing, Map, Etc.)	
	
60' LEVEL	Smear < 20dpm/100cm ² α < 1000dpm/100cm ² β
COPY	

WCH-TM-R006c (03/15/2008)

RADIOLOGICAL SURVEY RECORD (continuation)

Page: 16 of 16

Survey # RSR-100SMT-08-0281

Additional Information
(Drawing, Map, Etc.)



60' LEVEL

Smear
< 20dpm/100cm²α < 1000dpm/100cm²β

COPY

WCH-TM-R008c (03/15/2008)



0ft
Lead plug



15 ft
Bat guano



30ft oil in pan



30ft
Oil on floor



30ft
Source of oil on floor



30ft
Dead mouse



30ft
Lead



45ft
Stairs leading on to roof



60ft
Cable wire



60ft
D machine room
Tripping hazards



60 ft
Bat guano

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