1219402

[0089723]

Acrobat 8.0

Control #: D4-100N-0046

FACILITY STATUS CHANGE FORM

Date Submitted: ~~1/23/2012~~ 2/04/2013 CM 2/13/2013 Originator: Clay McCurley Phone: (509) 942-8928	Area: 100-N Facility ID: 105-N/109-N Buildings Action Memorandum: 105-N/109-N Buildings	Control #: D4-100N-0046

This form documents agreement among the parties listed below on the status of the facility D&D operations and the disposition of underlying soil in accordance with the applicable regulatory decision documents.

Section 1: Facility Status

☐ All D4 operations required by action memo complete.

☒ D4 operations required by action memo partially complete, remaining operations deferred.

Description of Completed Activities and Current Conditions:

Deactivation: Deactivation was complete in 1998, which included shutdown and isolation of operational systems, cleanup of radiological and hazardous waste, inventory of remaining hazardous materials, sealing access areas, and securing both buildings. Contaminated hardware and equipment, sludge, and water were also removed from the fuel storage basin and concrete cover blocks were placed over it to provide shielding and isolation.

Decontamination and Decommissioning: The following hazardous materials, if present in the portion of the facility to be demolished, were removed prior to demolition: batteries, light bulbs, oils, grease, asbestos-containing material (ACM), mercury, refrigerant and polychlorinated biphenyls. Hazardous material removal and waste disposition was performed in accordance with *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities*, DOE/RL-2005-43, Revision 1 (RAWP).

Demolition: Construction of the Safe Storage Enclosure (SSE) and demolition of the portions of the facilities outside of the SSE were performed simultaneously and completed in September 2012. The Overview and Attachments 1 through 8, attached to this Facility Status Change Form (FSCF), summarize the demolition activities. The demolition of the 1605-NE East Observation Post, formerly located on the roof of the 105-NE building, is documented via Facility Status Change Form D4-100N-0043.

Description of Deferral (as applicable):

Two actions are being deferred to FR actions as follows:

1) A layer of plastic is to be spread over the soil above the former lift station (pipe tunnel and valve pit) on the west side of the 105-N building, and sloped out and down to direct storm water away from the SSE. This task, which was part of an agreement between DOE and Ecology (described in Attachment 26), was postponed until the former FSB area can be backfilled to an elevation higher than the elevation of the material covering the lift station, thus directing storm water away from the SSE instead of toward the FSB.

2) Backfill of the excavation left from demolition activities on the west side of the 105-N Reactor Facility.

Section 2: Underlying Soil Status

☐ No waste site(s) present. No additional actions anticipated.

☒ Documented waste site(s) present. Cleanup and closeout to be addressed under Record of Decision.

☐ Potential waste site discovered during D4 operations. Waste site identification number <to be> assigned.

Cleanup and closeout to be addressed under Record of Decision.

472 pgs

Control #: D4-100N-0046

FACILITY STATUS CHANGE FORM

Description of Current/As-Left Conditions:
The Overview and Attachments 1 through 8 below describe the current/as-left conditions.

Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):
The post-demolition status of WIDS sites associated with the 105-N/109-N is provided in Attachment 10. These waste sites are within the 105-N/109-N footprint or lay back of the excavation around the buildings. Additional remediation and verification sampling for interim closure, if required for these waste sites, will be performed by FR in the future.

Section 3: List of Attachments

Overview
Attachment 1. 109-N Heat Exchanger Building
Attachment 2. 105-N Supply Fan Room
Attachment 3. 105-N Control Room
Attachment 4. 105-N Stair 4 and F Elevator
Attachment 5. 105-N Zone I Supply Plenum
Attachment 6. 105-N North and West Sides
Attachment 7. 105-N Fuel Storage Basin and Lift Station
Attachment 8. 105-N Shop and Offices
Attachment 9. Correspondence Providing Guidance for Finding *105-N & 109-N Safe Storage Enclosure (SSE) Final Room Status Report*
Attachment 10. Post Demolition Status of Documented WIDS Sites
Attachment 11. Completion of Tri-Party Agreement Milestone M-093-020
Attachment 12. Work Packages Prepared and Used for the 105-N/109-N
Attachment 13. Summary of Samples Collected from 105-N/109-N
Attachment 14. Pre-Demo GPS Survey Report for the 105-N/109-N Buildings
Attachment 15. Post-Demo GPS Survey Report for the 105-N/109-N Buildings
Attachment 16. Proposal to Leave Certain ACM Along 109-N SSE Boundary Wall, CCN 148324
Attachment 17. Radiological Survey Records
Attachment 18. Agreement Between DOE and Ecology - 109-N Below-Grade Structures, CCN 166796
Attachment 19. Agreement Between DOE and Ecology - 105-N East Side Below Grade SSE Wall Contamination, CCN 153078
Attachment 20. 105-N Visual Examination of Stair 4 Excavation and Demolition of F Elevator, CCN 168639
Attachment 21. 105-N Soil Contamination at Zone I Supply Plenum, CCN 167658
Attachment 22. Agreement Between DOE and Ecology - W Elevator Caissons at 105-N, CCN 168948
Attachment 23. Agreement Between DOE and Ecology - S Elevator Caisson at 105-N, CCN 168949
Attachment 24. 105-N West Side Excavation - Ecology Approval to Leave Anomaly in Soil, CCN 169290
Attachment 25. UPR-100-N-35 Unplanned Sub-Basin Drain Line in 105N, CCN-166302
Attachment 26. Agreement Between DOE and Ecology - 105-N West Side Below Grade Pipe Tunnel, CCN 153055
Attachment 27. 105-N Fuel Storage Basin Excavation - Ecology Approval to Pad In, CCN 165487
Attachment 28. MSDSs for Fixatives Applied to 105-N Pipe Tunnel
Attachment 29. Analytical Results for Lift Station Concrete Samples
Attachment 30. Analytical Results for Sample of Lift Station Valve Pit Water
Attachment 31. Analytical Results for Fuel Storage Basin Soil Samples
Attachment 32. Ecology Approval of Two Times Background for GPERS Around 105-N and 109-N

Rudy Guercia	2/4/2013
DOE-RL	Date
Rick Bond	2/4/2013
Lead Regulator ☐ EPA ☒ Ecology	Date

FACILITY STATUS CHANGE FORM

DISTRIBUTION:

EPA: Dennis Faulk, B1-46
Ecology: Rick Bond, HO-57
DOE: Rudy Guercia, A3-04
Document Control, H0-30
Administrative Record, H6-08 (100-NR-1 OU)

SIS Coordinator: Benjamin Cowin, H4-22
D4 EPL: Dave Warren, X9-08
Sample Design/Cleanup Verification: Theresa Howell, H4-23
FR Engineering: Rich Carlson, N3-30
FR EPL: Dan Saueressig, N3-30

Overview

OVERVIEW

Introduction

This document provides information regarding the 105-N Reactor Facility (105-N) and 109-N Heat Exchanger Building (109-N) facility history, characterization, and final status at the completion of deactivation, decontamination, decommissioning, and demolition (D4) and to complete a safe storage enclosure (SSE) for an interim safe storage (ISS) period of up to 64 years. The information in this document is to be used in conjunction with the *105-N/109-N Reactor Interim Safe Storage Project Final Report* (WCH-567, Rev. 0) and the *105-N and 109-N Safe Storage Enclosure Final Room Status Report* (Doc. No. 0635318, 2012), which documents the as-left condition of the accessible rooms in the 105-N/109-N facilities at final turnover in August 2012. Correspondence in Attachment 9 provides additional guidance for locating files of this report.

The D4 and SSE construction activities were performed in accordance with the *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities* (RAWP) (DOE/RL-2005-43, Rev.1) and *General Design Criteria for River Corridor Closure Contract* (WCH-56, Rev. 4). The six 100-N Area ancillary facilities affected by and directly related to 105-N/109-N were demolished in accordance with the *Removal Action Work Plan for 100-N Area Ancillary Facilities* (DOE/RL-2002-70, Rev. 3). All wastes generated during the construction of the SSE were disposed of in accordance with approved project procedures.

Facility History

Construction of the 105-N/109-N facility began in December 1959. The facility operated from 1963 through 1987 as part of the original N Reactor complex, and was in a stand-by condition until it was permanently shutdown in 1991. The reactor was then de-fueled, including fuel removal from the fuel storage basin (FSB). Deactivation was complete in 1998, which included shutdown and isolation of operational systems, cleanup of radiological and hazardous waste, inventory of remaining hazardous materials, sealing access areas, and securing both buildings. Contaminated hardware and equipment, sludge, and water were also removed from the FSB and concrete cover blocks were placed over it to provide shielding and isolation.

The "105-N Reactor Building and 109-N Heat-Exchanger Building Action Memorandum," (Administrative Record No. D7590430), 2005, external letter to K. A. Klein, U.S. Department of Energy, Richland Operations Office, from M. A. Wilson, Washington State Department of Ecology, Richland, Washington, February 22) noted the "pressurizer tank system and penthouse structure surrounding the pressurizer" would be removed. However, in 2006, a further evaluation indicated that entry could not be made in the pressurizer due to as low as reasonably achievable (ALARA) considerations. As a result, the U.S. Department of Energy (DOE) and Washington State Department of Ecology (Ecology) agreed to leave the pressurizer in place with the SSE. This agreement was documented at the 100/300 Area Unit Manager Meeting on October 12, 2006.

Final decommissioning and decontamination of the facility began in mid-2007 and was mostly complete near the end of 2008 when demolition activities commenced to remove the southern and eastern portions of the 109-N Building outside the steam generator cells. The removal of these areas, and the areas outside of shield walls surrounding the reactor proceeded in a general counterclockwise pattern around 105-N/109-N until September 2012 and impacted 23 Waste Information Data System (WIDS) sites that had been previously identified in or near the footprint of the buildings. Demolition activities completely removed 9, and partially removed 14, of these WIDS sites. The post-demolition status of these WIDS sites and a map showing their general locations are presented in Attachment 10. On September 19, 2012, a concrete wall (pour back) that had been constructed over the former FSB's fast cart tunnel was sealed. Sealing this pour back signified completion of the SSE and the Tri-Party Agreement (TPA) Milestone M-093-020. Ecology was officially notified of this completion on October 9, 2012, and concurred with DOE's declaration on November 1, 2012 (Attachment 11).

105-N Building Description

The 105-N Building, shown in Figure 1, was a 4,000-megawatt (thermal) nuclear reactor designed to operate as a dual-purpose reactor. The reactor core is a graphite-moderated, light water-cooled, horizontal pressure-tube facility designed to produce plutonium. On the south side of the building is the 109-N Building, which shares a common wall with 105-N Building. Reactor primary coolant water from 105-N was circulated to steam generators inside 109-N. Steam from those steam generators was either routed to the now demolished 185-N Hanford Generating Plant (185-N) to generate electricity or sent to the dump condensers inside 109-N. The 185-N Building, shown in Figure 1, was an electrical generation facility owned and operated by the Washington Public Power Supply System that produced electricity for use by the public.

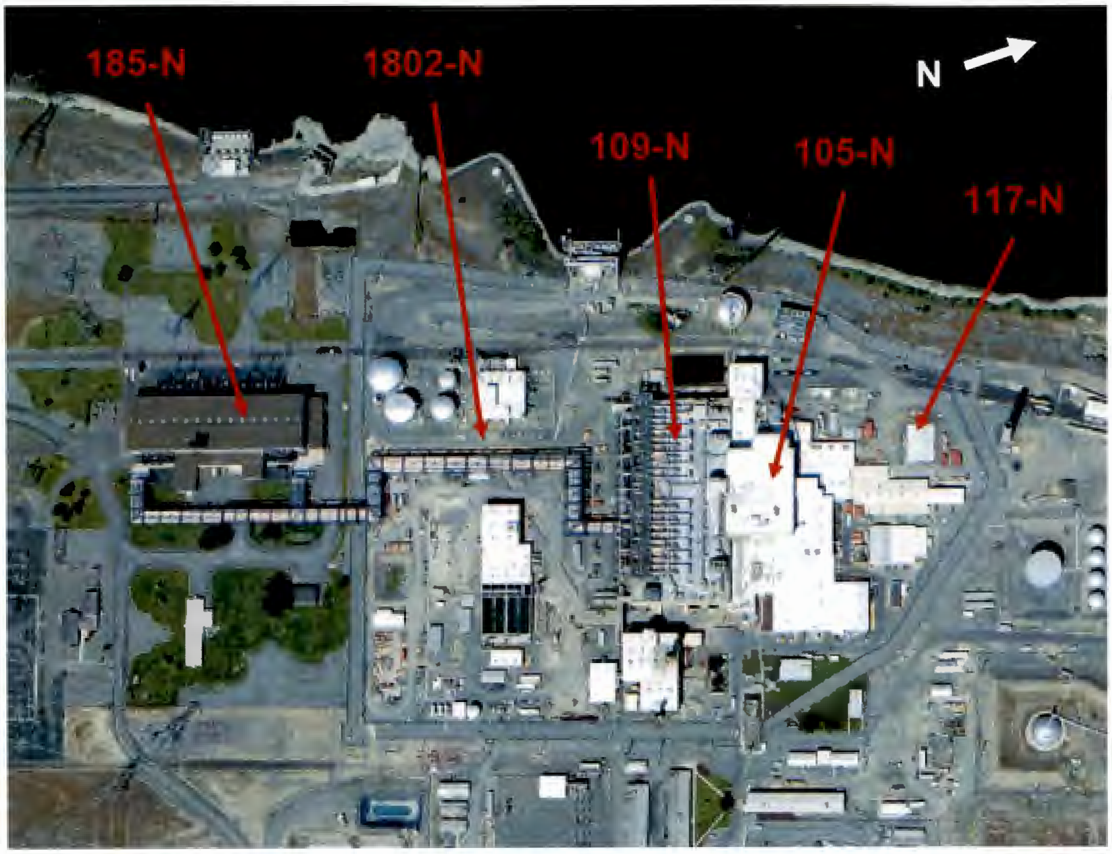
The 105-N Building contained the reactor block, front and rear elevators, pipe galleries, exhaust fans, a receiving basin for spent fuels, offices, control rooms, electrical and instrument rooms, a shop area, ventilation supply, metal preparation and storage areas, an FSB, and a fuel transfer area. A below-grade exhaust ventilation duct connected 105-N with the 117-N Exhaust Air Filter Building.

The 105-N Building has three below-grade floor areas (-) 10-ft level, (-) 16-ft level, and (-) 21-ft level), a main floor area (0-ft level), and four above-grade floor areas (15-ft level, 28-ft level, 40-ft level, and 60-ft level). The original roof is at the plus 70-ft level and includes a penthouse structure (pressurizer building) that extends to 80-ft above grade. The 105-N Building contains a reinforced concrete enclosure that that serves as a shield/confinement zone (Zone I).

The reactor core was contained within Zone I. It is composed of interlocking graphite bars containing zirconium-alloy pressure tubes that held the zirconium allot-clad uranium-metal fuel elements. Reactivity and reactor power levels were controlled using horizontal control rods and a vertical ball-drop system. Boron was the primary neutron-absorbing material used in the control rods and ball-drop system. Zone 1 also contained inlet and outlet pipe galleries, exhaust fans, elevators for servicing the front and rear faces of the reactor, a gallery beneath the reactor for various monitoring purposes, and receiving basin for spent fuel elements.

The irradiated reactor fuel was discharged from the rear face of the reactor to the FSB and placed into metal canisters. The FSB was an unlined, reinforced-concrete structure measuring 150 ft long, 50 ft wide, and 24 ft deep. The fuel was cooled and stored in the FSB to provide for radioactive decay of short-lived radionuclides before it was shipped for processing.

Figure 1. 100-N Area Buildings (date not available).



Surrounding the west, north, and east side of the reactor enclosure were rooms housing auxiliary facilities and supporting services. These consisted of offices, common facilities, the main control room, electrical control rooms, shop area, ventilation supply rooms, gas dryer and cooler rooms, instrumentation rooms, metal preparation and storage facilities, spent fuel storage, examination facility, and a fuel transfer area. A zoned ventilation system maintained airflow in the direction of areas having the greatest potential risk of contamination. The control room had its own refrigerated air conditioning system. The 109-N Building, which shares the south wall of the 105-N Building, is described in more detail below.

109-N Building Description

The 109-N Building, shown in Figure 1-1, produced steam by transferring heat energy between the 105-N Building primary coolant loop and secondary loop. The steam was used to generate electric power in the 185-N Hanford Generating Plant (HGP) facility. The building, which shares its north wall with the south wall of the 105-N Building, is a reinforced concrete and steel building with a concrete roof that varies in thickness from 4 in. to 3 ft, and interior concrete block walls. Prior to construction of the SSE, the roof also had thirteen 6-ft-diameter roof confinement vent valves, steam generator headers, and piping.

Prior to beginning D4 and SSE construction activities, the 109-N Building included a decontamination equipment area at minus 24 ft, a below-grade floor area at minus 16 ft, a main floor area at 0 ft, and two above-grade floor areas at 15 ft and 24 ft. The breakdown of these areas included three offices, two shops, a common area, a processing area, and a central penthouse area that contained a 44.5-ft high by 6.5-ft diameter pressure vessel weighing approximately 90 tons.

The Zone I Segment of 109-N contains a large pipe gallery on the north side that spans six separate cells. Each cell houses two large steam generators (each 57 ft long, 10 ft in diameter, and weighing approximately 170 tons), a primary circulating pump, and associated piping. Zone 1 also contains an auxiliary system cell, primary recirculation pump areas, a pressurizer room, spill coolers, a recuperative heat exchanger room, a supply plenum, and associated pipe galleries. The walls around the steam generator cells are approximately 5 ft thick.

The portions of 109-N not in Zone I included the drive turbine bays, decontamination cell, electrical and mechanical rooms, maintenance shops, pump drive systems, dump condensers, condensate return pumps, other auxiliary equipment, a small chemical laboratory, and water sampling and monitoring facilities. A service bay contained facilities for decontaminating the primary coolant system and contained the heating and ventilation equipment, shop areas, office, and common space.

During operation, primary coolant from the 105-N Building was circulated to the 109-N Building steam generators and back to 105-N via primary coolant pumps. Secondary steam from the steam generators was distributed, via the 1802-N piping system (Figure 1), to 185-N for power generation. The highly radioactive primary coolant contaminated the 109-N equipment, piping, and steam generators to levels comparable to 105-N primary coolant system equipment and piping. Tube leaks in 109-N steam generators allowed radiologically contaminated primary water to be carried to HGP secondary systems.

Radioactive waste generated in the 109-N Building included primary coolant water, fuel storage basin cooling water, reactor periphery systems cooling water, reactor primary coolant loop decontamination and rinse solution, and miscellaneous drainage from reactor support facilities. Sanitary and non-radioactive liquid waste was discharged through the 100-N-84 waste site pipeline septic systems.

Construction of the SSE

Demolition activities commenced in late 2008 and focused on eight (8) specific areas around the SSE, as shown in Figure 2. The activities were coordinated to facilitate simultaneous construction of the SSE roof and scheduled to meet the TPA Milestone M-093-020. Activities (e.g., above-grade/below-grade demolition and loadout, sealing of penetrations, excavation inspections, surveys, backfill) were completed first in Area 1 so a crane could be operated there to support 109-N roof assembly. The crane then followed the activities counterclockwise to the north side of the facilities to support the completion of the 105-N Building roof. All SSE construction activities were complete, four years later in 2012, with the completion of a pour back in the former FSB. Attachments 1 through 8 provide information specific to the activities in each area. The specific areas are identified in Table 1. Figure 2 shows the locations identified in Table 1 relative to SSE.

Figures 3 and 4 provide aerial views of 105-N/109-N before demolition of structures outside the SSE began and Figures 5 and 6 provide aerial views of 105-N/109-N after SSE completion.

Table 1. List of Areas.

Area	Specific Area Description	Attachment
1	109-N Heat Exchanger Building	1
2	105-N Supply Fan Room	2
3	105-N Control Room	3
4	105-N Stair 4 and F Elevator	4
5	105-N Zone I Supply Plenum	5
6	105-N North and West Sides	6
7	105-N Fuel Storage Basin and Lift Station	7
8	105-N Shop and Offices	8

Figure 2. Areas of 105-N/109-N Demolished.

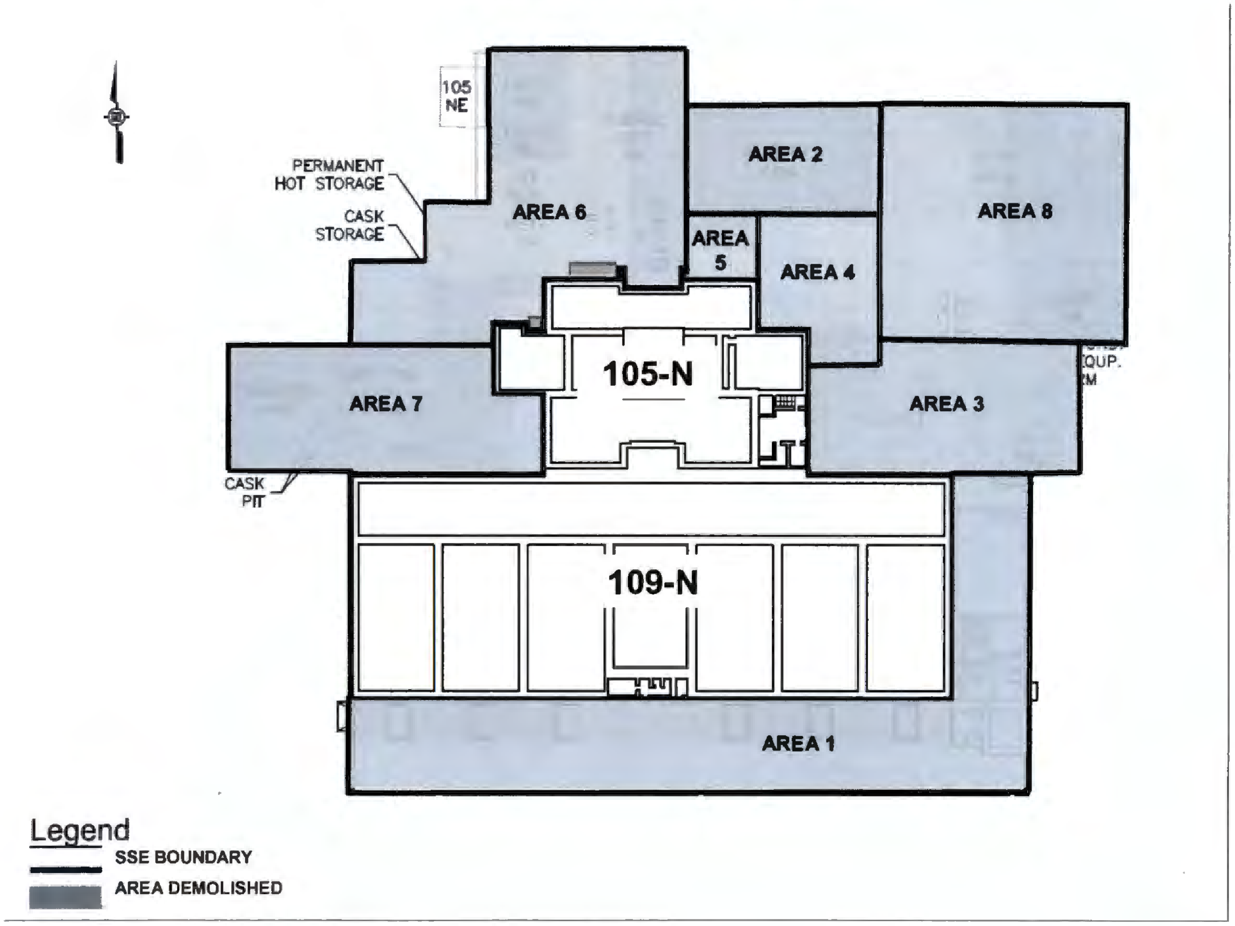


Figure 3. Aerial View of 105-N/109-N in May 2008 (prior to SSE construction).

Figure 4. Aerial View of 105-N/109-N in July 2007 (prior to SSE construction).

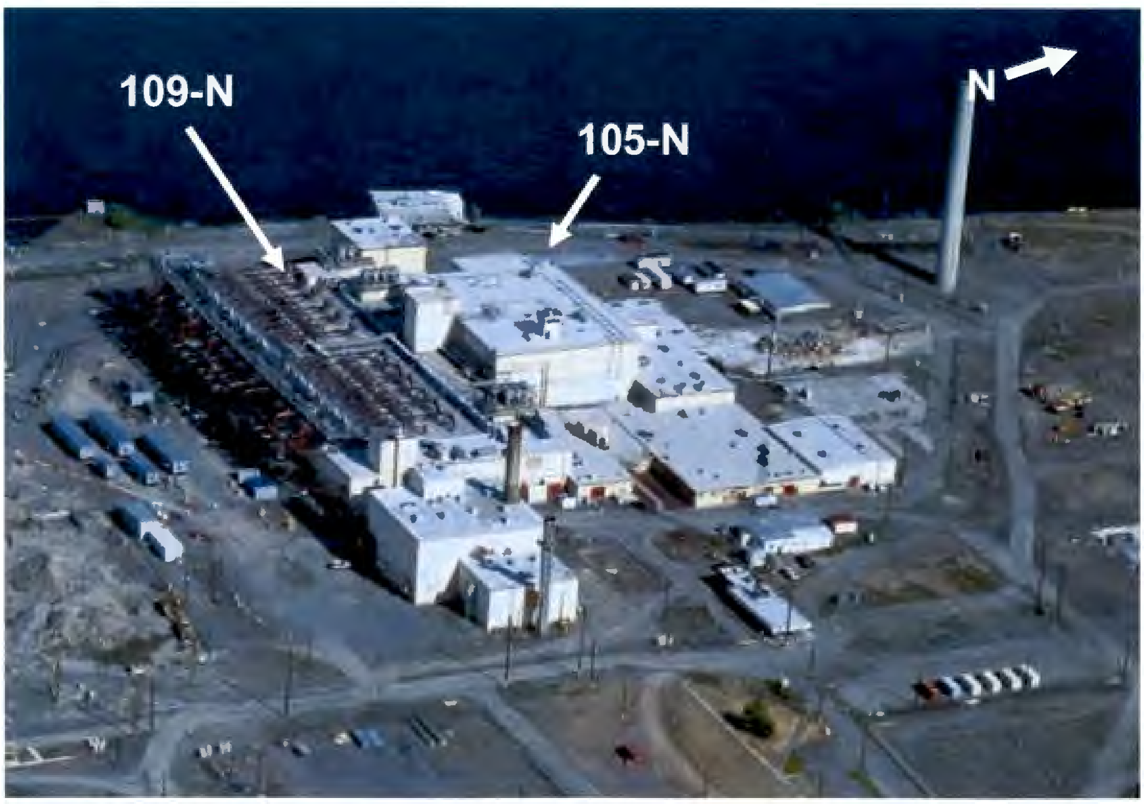


Figure 5. Aerial View of 105-N/109-N in October 2012 (after SSE completion).

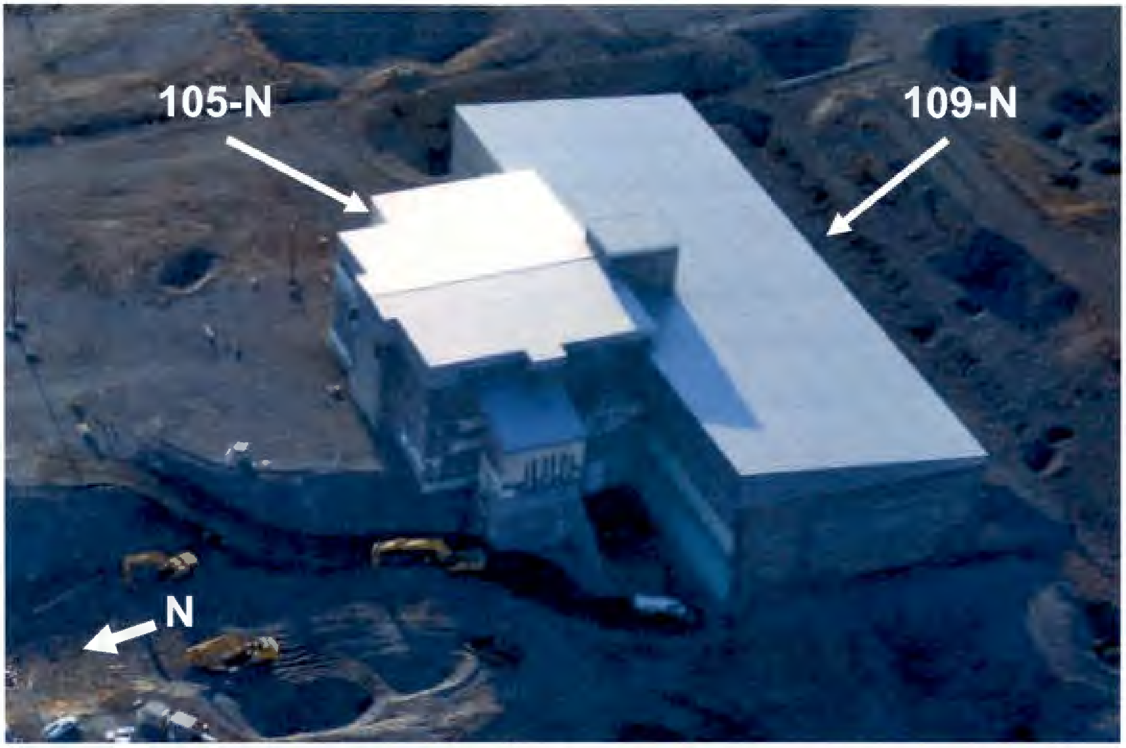
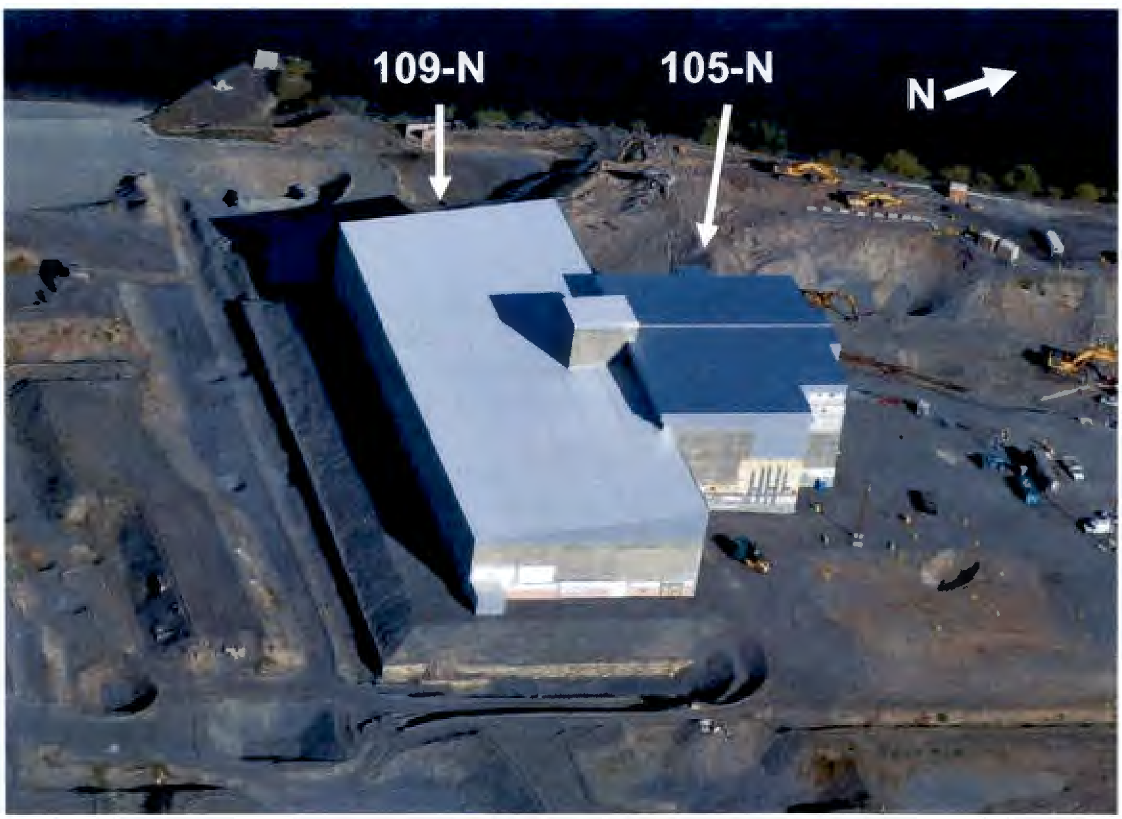


Figure 6. Aerial View of 105-N/109-N in July 2012 (after SSE completion).



A listing of the work packages prepared and used to demolish the areas around the SSE and construct the SSE is provided in Attachment 12.

Radiological Scoping and Industrial Hygiene Baseline Surveys. Surveys characterizing the extent of radiological contamination still inside Zone I and non-Zone I areas of 105-N/109-N are documented in the *105-N and 109-N Safe Storage Enclosure Final Room Status Report* (Doc. No. 0635318, 2012). Correspondence in Attachment 9 provides additional guidance for locating files of this report.

Beryllium. Beryllium contamination exceeding the project's trigger level of 0.1 µg/100 cm^2 and action level of 0.2 µg/100 cm^2 was identified in the FSB's crane and rail system. This triggered the requirement to perform demolition activities of the FSB under beryllium controls. Following demolition and load-out of the debris, the remaining soil was sampled in accordance with approved procedures and the area was down-posted.

Facility and Waste Characterization Sampling. From 2005 through mid-2011, 339 samples of materials were collected from 105-N/109-N for purposes of asbestos abatement, characterization, health and safety, regulatory splits, and waste designation. The materials sampled include oil-based liquids, paint, protective paint coatings, filters, pipe coupons, pipe sludge, caisson water and lift station water. A summary of these samples is provided in Attachment 13.

Hazardous Material Removal. The scope of 105-N/109-N demolition included removing and properly disposing flammable and hazardous material (e.g., oils, grease, asbestos-containing material, mercury, lead and polychlorinated biphenyls [PCBs]). The majority of the flammable and hazardous materials were removed from inside and outside of the SSE, with the exception of the reactor block and other similar Zone I areas (e.g., 109-N steam generator cells) which were not disturbed. The material was typically removed prior to heavy equipment demolition, with the exception of the lead joints in bell and spigot piping and a few heavy pieces of lead-encased equipment which were carefully removed during demolition.

Asbestos monitoring was performed in support of asbestos removal activities and included the use of glove-bags, a cut-and-wrap technique, and negative-pressure enclosure. Applicable areas were sprayed with a "lock-down" paint material after abatement. An asbestos clearance sampling and inspection program was implemented to release each area from asbestos concerns following the asbestos abatement in each area. Approximately 82,107 ft^3 of asbestos insulation and other asbestos containing material were removed.

During demolition, 32.8 tons of lead were removed from 105-N/109-N, treated and disposed of at the Environmental Restoration Disposal Facility (ERDF). The reactor block and reactor block components within the SSE contain significant amounts of lead, which are integral to radioactive shielding and could not be removed during demolition. Lead-based paint was originally used throughout the facility, but testing per the Toxicity Characteristic Leaching Procedure (40 CFR 261.24) found the regulatory level of 5.0 mg/L was not exceeded. The majority of lead encountered during demolition was in the form of protective shielding. Lead was also encountered in sheet material, lead blankets, small lead beads, areas around piping and plumbing p-traps, bell and spigot drain piping joints, and light bulbs.

Approximately 267 lbs of mercury were found in numerous switches, manometers and instruments. Mercury was sent to the ERDF for treatment and disposal, and to Centralized

Consolidated Recycling Center (CCRC) for recycling prior to the implementation of the Mercury Export Ban Act of 2008.

No regulated quantities of PCBs were found in any of the grease or oil. Five 55-gal drums of light ballasts and some applied dried paints were the only PCB waste streams requiring disposal during the SSE construction.

A listing of the major equipment removed during the SSE is provided in Table 2. A total of 2,782 containers (773,374 ft^3, 33,029 tons) of debris were shipped to the ERDF

Table 2. Major Equipment Removed During SSE Construction.

Building	Description	Location
105-N	"F" Elevator	NE Corner 105-N
	"S" Elevator	North Side 105-N
	"W" Elevator	North Side 105-N
	Fuel Loading Equipment	"W" Elevator Room
	Control Room Equipment	Control Room
	Zone 1, 2 and 3 Supply Air Fans	Supply Fan Room
	Zone 1 Exhaust Fans	Zone 1 Exhaust Fan Room
	Zone 2 Exhaust Fans	Zone 2 Exhaust Fan Room
	Zone 3 Exhaust Fans	NW Corner 105-N, El. 60'
	Switch Gear Equipment	Switch Gear Room
	Electrical Equipment	Pile Inst. And Elec. Room
	Gas Facility Piping and Equipment	Gas Tunnel 32 and 40
	Transducer Equipment	Transducer Rooms
	Process and Service Piping (Outside Zone I)	N, E and W Side 105-N
109-N	Dump Condensers (16 each)	Turbine Bay
	Drive Turbines (6 each)	Turbine Bay
	Drive Turbine Condensers (6 each)	Turbine Bay
	Condensate Surge Tank	Turbine Bay
	Decontaminant Mix Tank and Equipment	Solution Prep Area
	Sodium Hydroxide Storage Tanks (2 each)	Solution Prep Area
	Phosphoric Acid Storage Tank	SE Side 109-N
	Ion Exchange Tank	Solution Prep Area
	Hydrogen Peroxide Storage Tank	Solution Prep Area
	Zone 1 Air Conditoning Equipment	Mechanical Room
	Zone 2 Air Conditoning Equipment	Mechanical Room
	Zone 3 Air Conditoning Equipment	Mechanical Room
	Freight Elevator	SE Corner 109-N
	Process and Service Piping (Outside Zone I)	S and E Side 109-N

Global Positioning System (GPS) Surveys. Pre- and post-demolition, Global Positioning System (GPS) surveys were performed around the 105-N/109-N Buildings at various times and throughout various stages of demollition and SSE construction activities. Pre-demolition GPS survey maps are provided as Figures 7 and 8 and the pre-demolition survey data are provided in Attachment 14. Post demolition GPS survey maps are provided as Figures 9 and 10 and the post-demolition survey data are provided in Attachment 15.

In general, demolition activities excavated to a depth of approximately 21 ft below grade around the 105-N/109-N. The deepest excavation was approximately 42 ft below grade at the western edge of the 105-N lift station valve pit. With the exception of the excavation left open on the west side of 105-N/109-N (Attachment 6, Figure 6-18), and the excavation left open from the air duct removal in the Shop and Offices area (Attachment 8, Figure 8-7), excavations were backfilled primarily with material from the 100 Area Borrow Pit. Post backfill GPS survey maps and data are not provided.

Global Positioning Environmental Radiological Surveyor (GPERS) Surveys.
Post-demolition GPERS surveys for gamma and beta were performed in excavations and their respective layback areas as demolition activities progressed for more than 3 years around 105-N/109-N. The results have been composited and superimposed on the post-demolition GPS survey maps to graphically present areas where gamma and beta were measured using GPERS. For gamma, 42,550 measurements were made. The colored dots shown in the Figures 11 and 12 indicate where gamma was detected greater than twice the average background concentration of 1,263 counts per minute (cpm). For beta, 31,043 measurements were made. The colored dots shown in Figures 13 and 14 indicate where beta was detected greater than twice the average background concentration of 446 cpm.

The survey in Area 4 had to be performed using Laser-Assisted Ranging and Data System (LARADS) because of building interference with satellite signals. LARADS collects radiological data in the same manner as GPERS but establishes each sample location using a laser to measure from established Washington State Plane coordinates.

Final Building Status

The final building status of areas inside the SSE but outside the Zone I shield walls is provided in the *105-N and 109-N Safe Storage Enclosure Final Room Status Report* (Doc. No. 0635318). This report also provides information on the new steel roof constructed over 105-N/109-N. Correspondence in Attachment 9 provides additional guidance for locating files of this report.

Most above/below grade portions of the 105-N Reactor Facility, including the Fuel Storage Basin, outside of the SSE were removed and above/below grade portions of the 109-N Heat Exchanger Building outside of the steam generator cells were removed. Shaded portions of Figure 2 depict the areas removed.

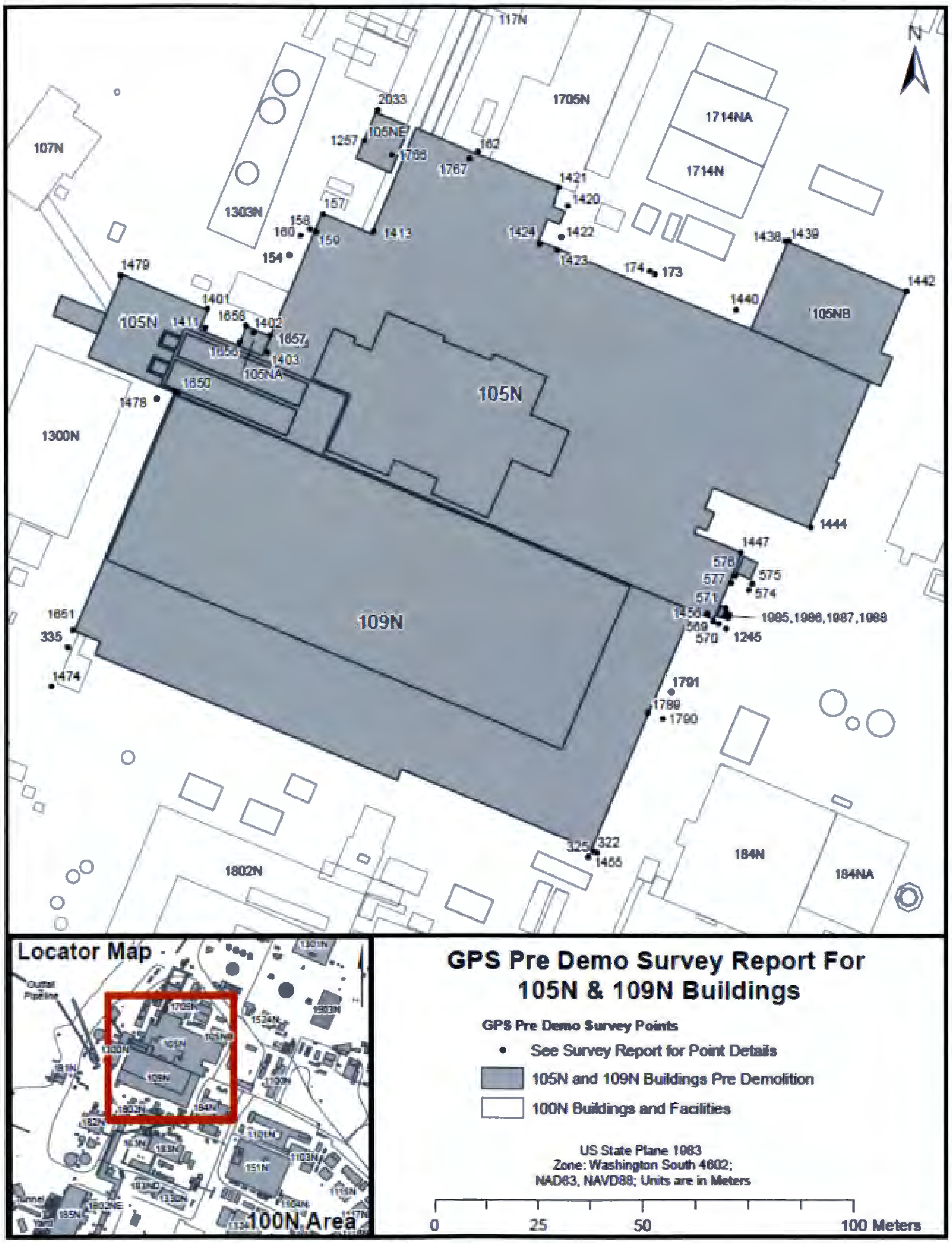
Excavations left from demolition activities were visually inspected for stains and anomalies, and surveyed for radiological contamination prior to backfill. Above and below-grade penetrations into the SSE were sealed to prevent animal and insect intrusion, and water in-leakage. Most of the material used to backfill was obtained from the nearby 100-N borrow pit. Areas backfilled at the end of D4/SSE construction activities include the south, east and north sides of the 105-N/109-N Buildings. Post-demolition photographs of the exterior of the 105-N/109-N Buildings are provided in Figures 5 and 6. The excavation that D4 activities created on the west side of the 105-N Building was not backfilled.

Areas where contamination was left outside of the SSE include:

- Mastic containing asbestos stuck to the outside of the 109-N Building's southern and eastern below-grade SSE walls as described in Attachment 1.
- Two areas where short sections of contaminated pipe remain embedded in a below-grade outer foundation on the east side of the 109-N Building as described in Attachment 1.
- Radiological contamination fixed to the outer SSE wall below grade on the east side of the 105-N Building as described in Attachment 4.
- Radiological contamination in soil underneath the former 105-N Zone I Supply Plenum as described in Attachment 5.
- An anomaly left in the soil below grade on the west side of the 105-N Building as described in Attachment 6.
- Radiological contamination fixed to below grade structures on the west side of the 105-N Building as described in Attachment 7.
- Radiological contamination left in the soil below portions of the 105-N Building that were removed north and west of the SSE as described in Attachments 6 and 7, and graphically presented in Figures 11 and 12.

Also, one other task that still needs to be performed, as agreed between DOE and Ecology (Attachment 26), is a layer of plastic needs to be spread over the soil above the former lift station (pipe tunnel and valve pit) on the west side of the 105-N Building, and sloped out and down to direct storm water away from the SSE. This task was postponed until the former FSB area can be backfilled to an elevation higher than the elevation of the material covering the lift station, thus directing storm water away from the SSE instead of toward the FSB.

Figure 8. GPS Pre Demo Survey of 105-N/109-N.



WCH: \\hgis01\gishome\maaye\ArcMap\100N\predemo-105N_109N.mxd Date: 1/15/2013

Figure 9. GPS Post Demo Survey of Northern Half of 105-N/109-N.

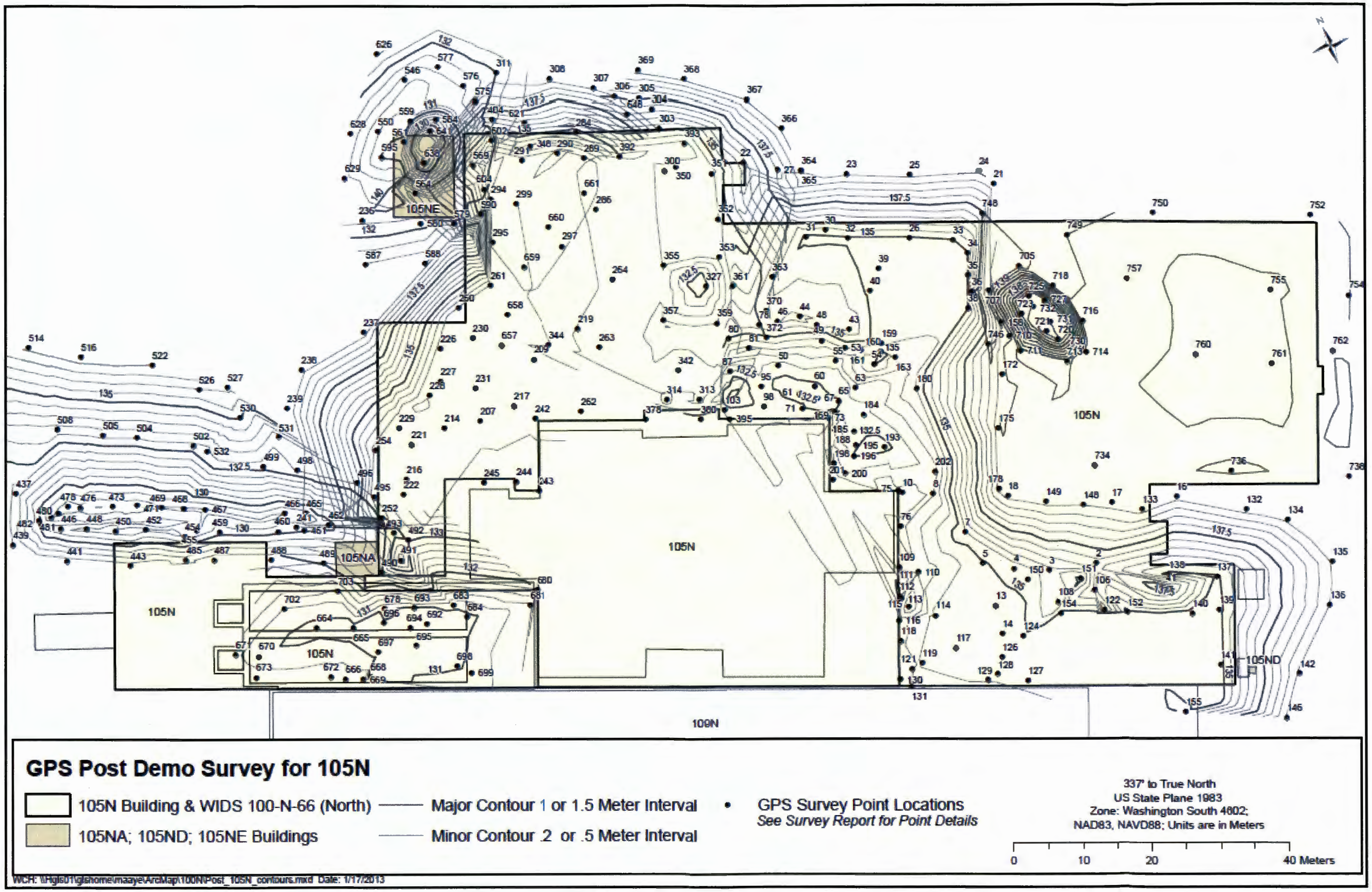


Figure 10. GPS Post Demo Survey of Southern Half of 105-N/109-N.

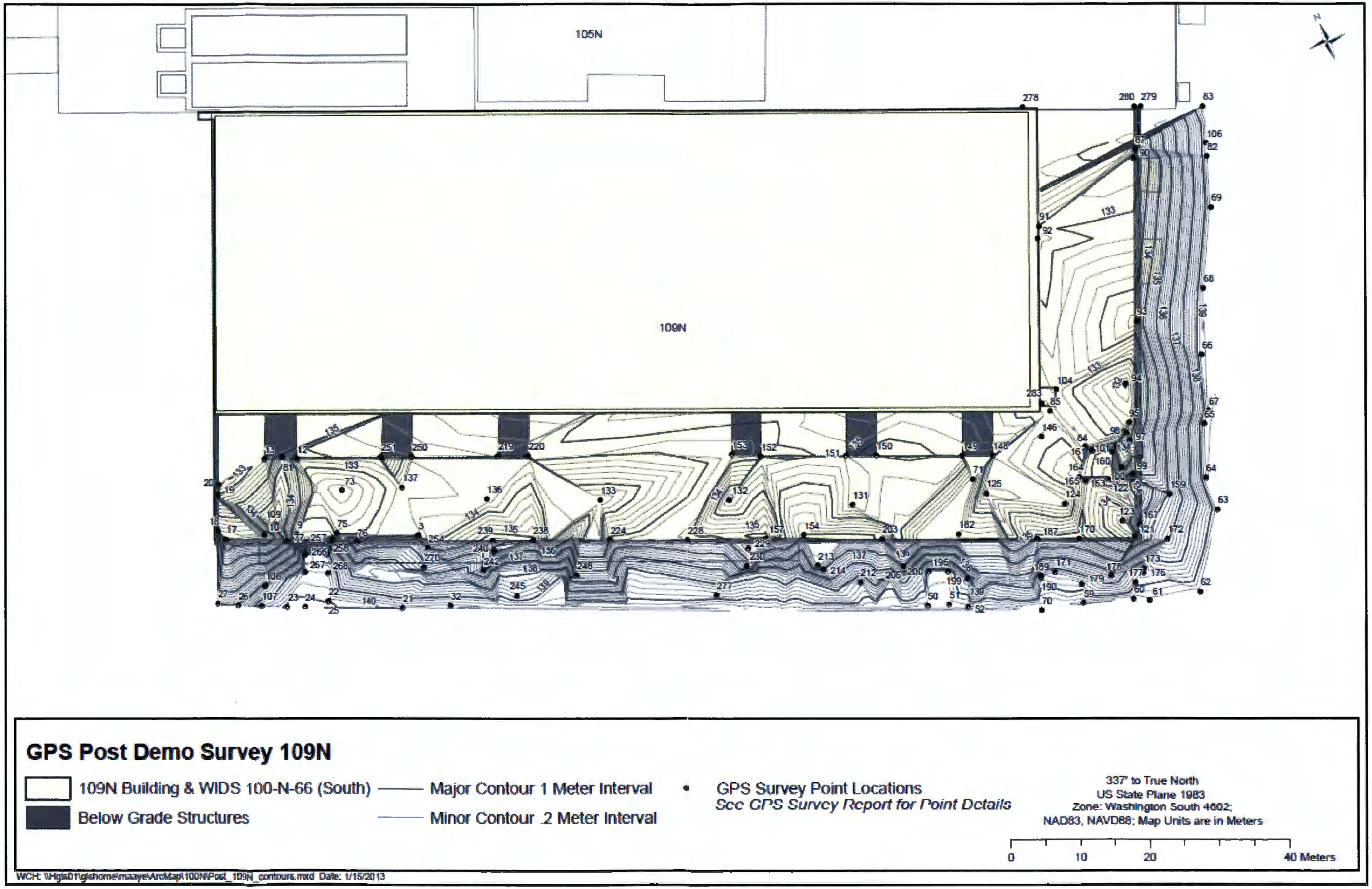


Figure 11. Composite GPERS Gamma Track Map for Northern Half of 105-N/109-N.

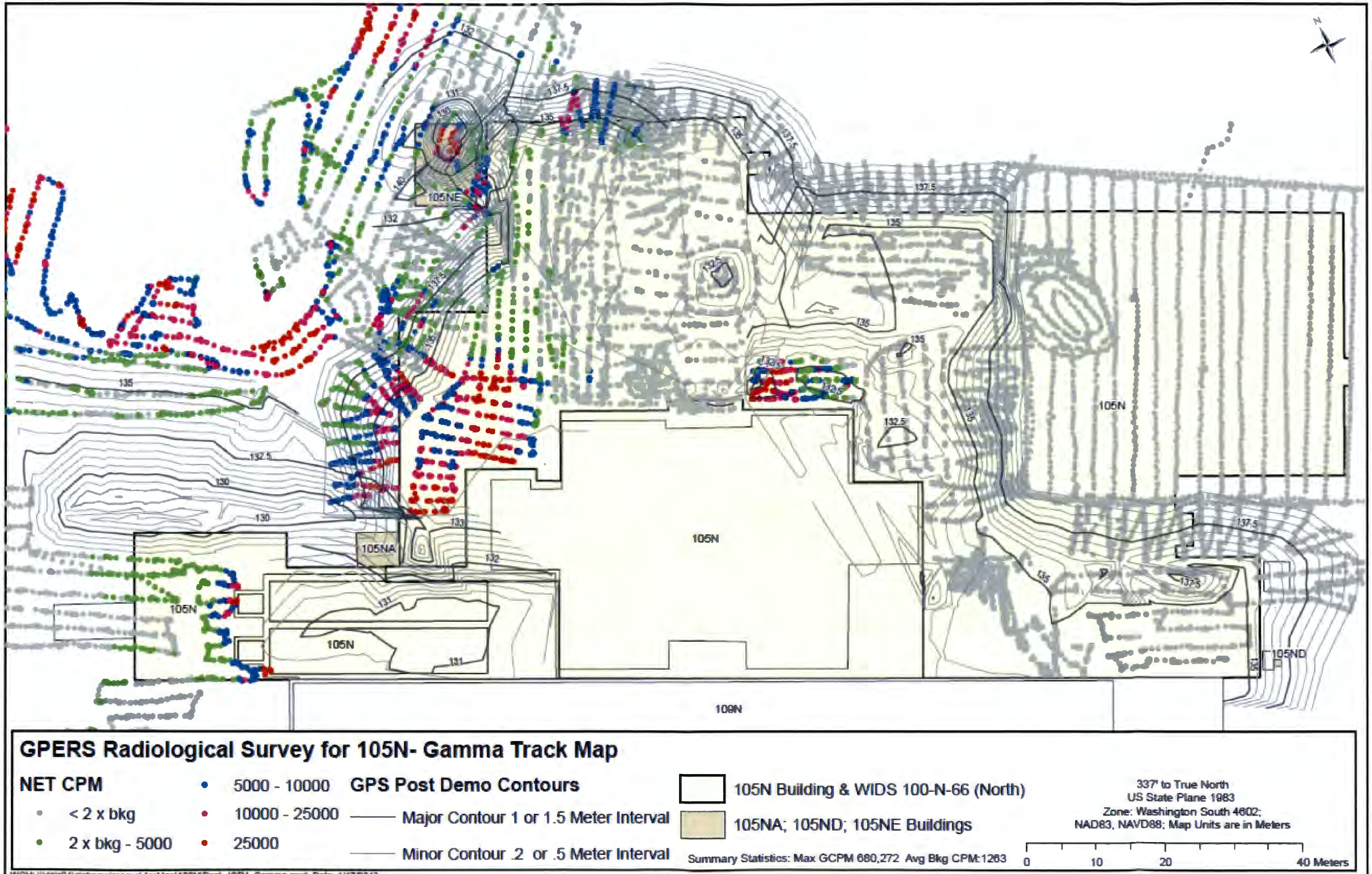


Figure 12. Composite GPERS Gamma Track Map for Southern Half of 105-N/109-N.

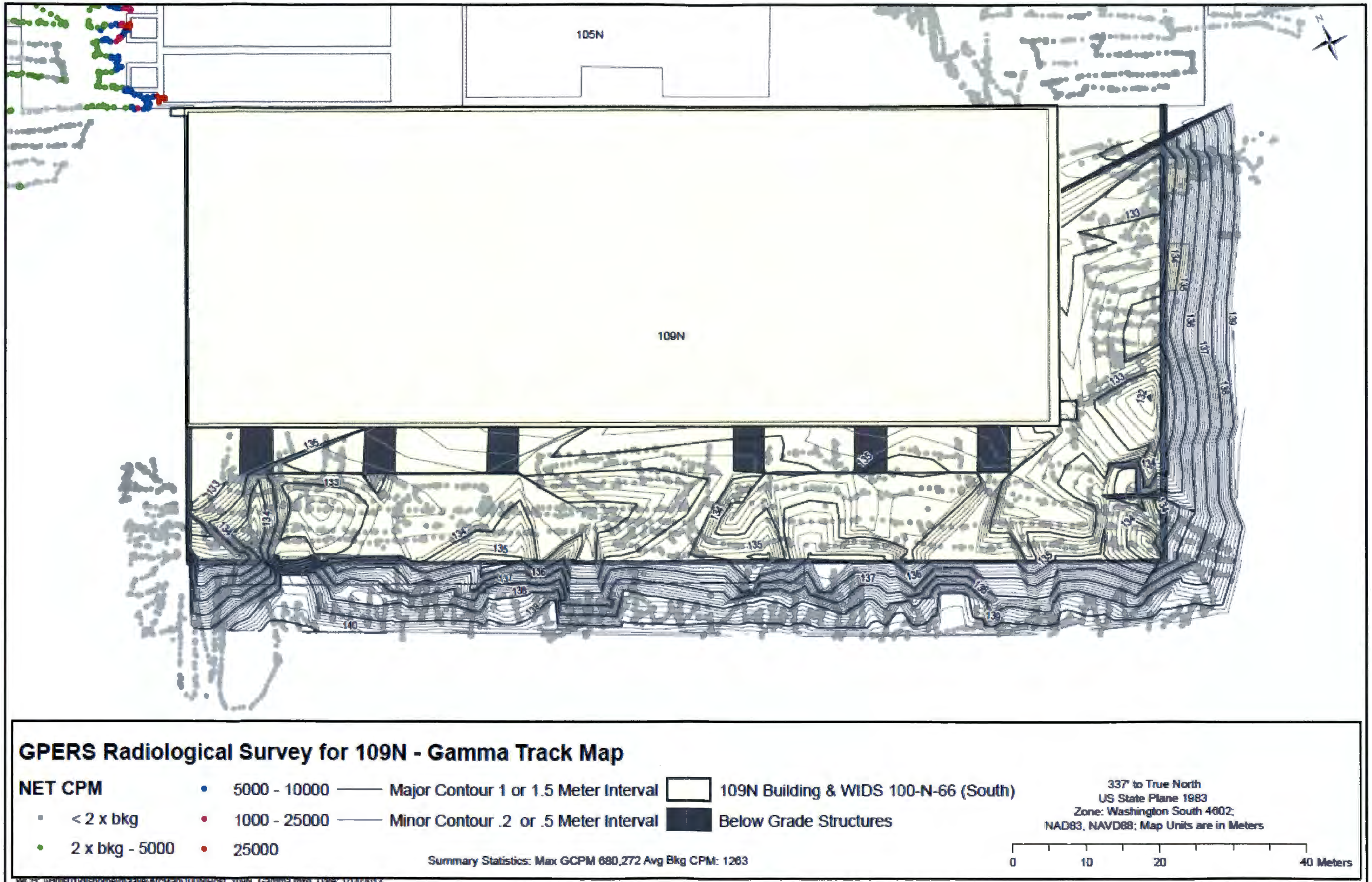


Figure 13. Composite GPERS Beta Track Map for Northern Half of 105-N/109-N.

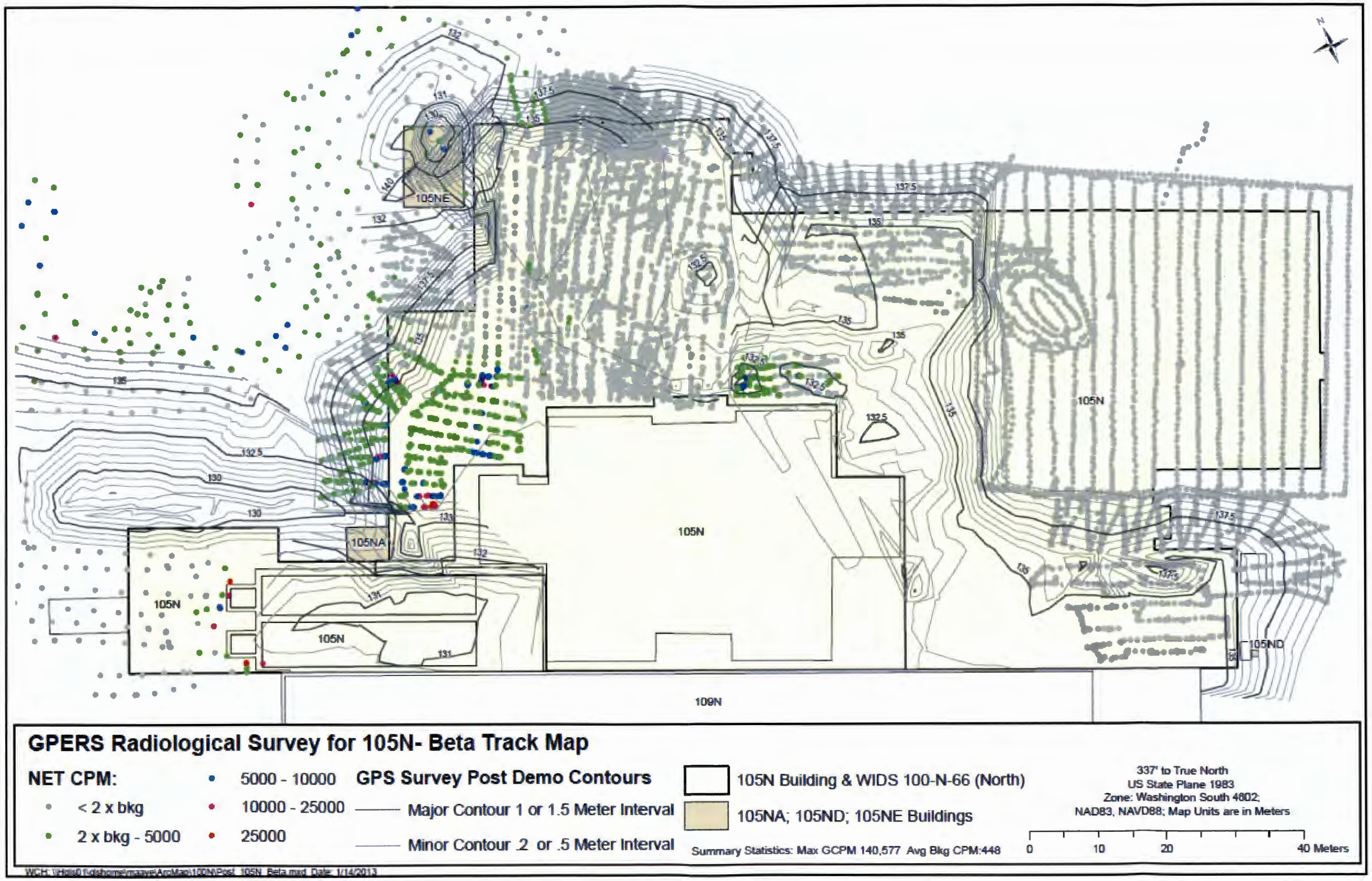
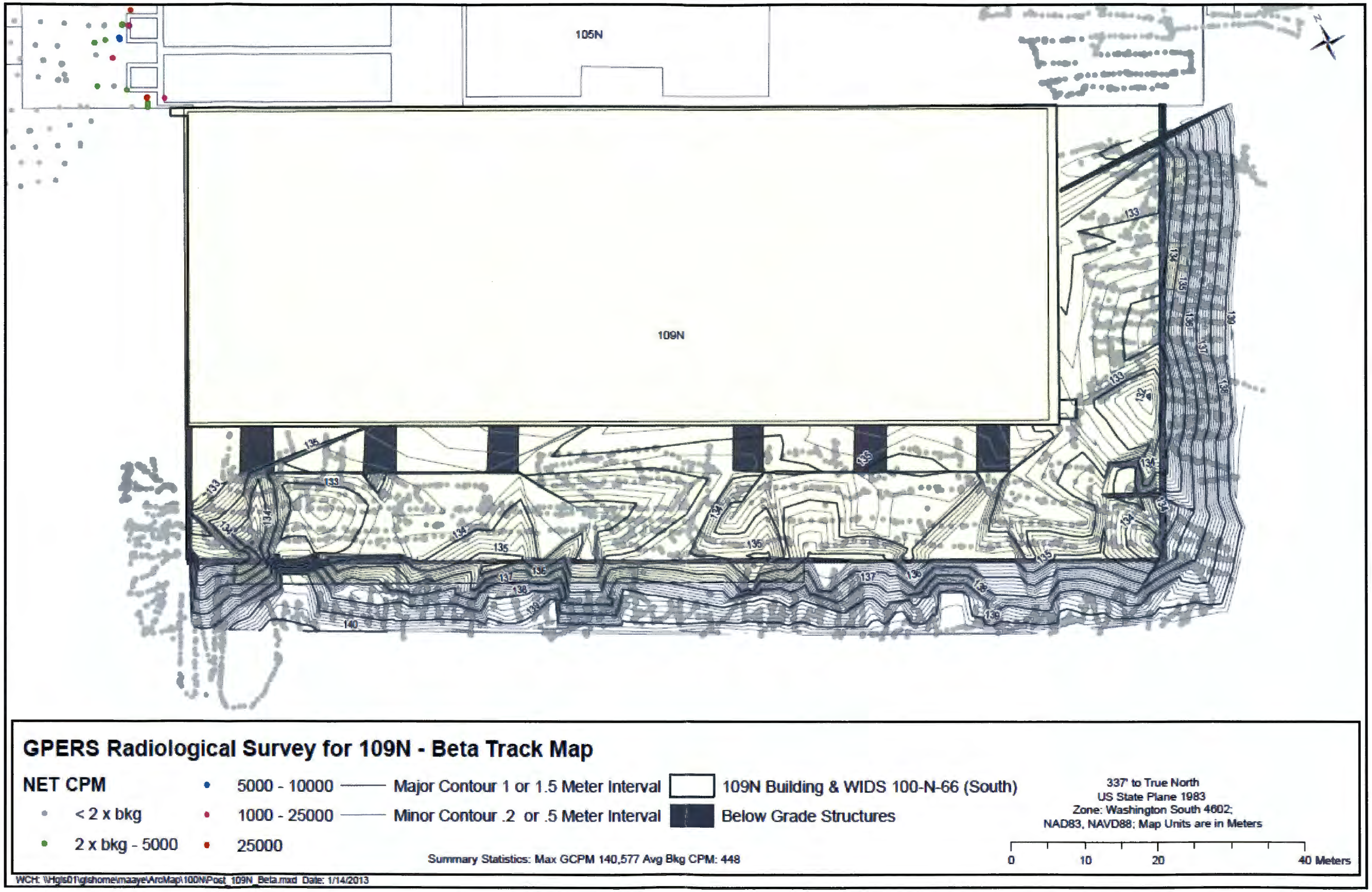


Figure 14. Composite GPERS Beta Track Map for Southern Half of 105-N/109-N.



Attachment 1

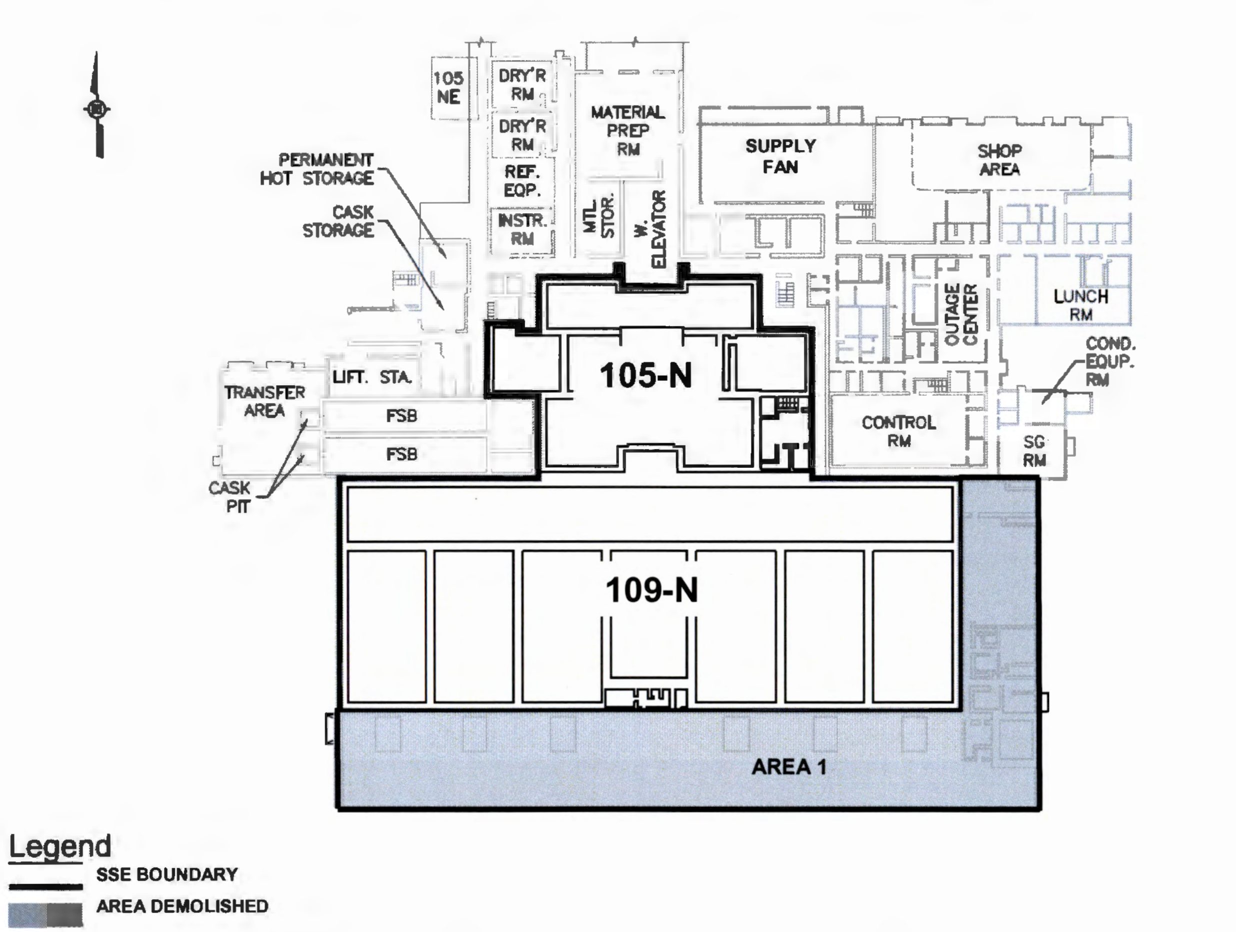
109-N Heat Exchanger Building

ATTACHMENT 1: AREA 1 (14 PAGES)

<u>109-N Heat Exchanger Building</u>

Figure 1-1 provides the general floor plan of the 109-N Building at grade. The shaded area of Figure 1-1 represents the portion of the facility, outside the steam generator shield walls, removed to facilitate the construction of the SSE. Figures 1-2 through 1-5, 1-8 through 1-11, and 1-15 provide aerial views of the 109-N Building during various stages of safe storage enclosure (SSE) construction.

Figure 1-1. 109-N Floor Plan at 0'- 0" Showing Areas Demolished.



Final decommissioning and decontamination of the 109-N Building, which began in mid-2007, was mostly complete when the July 2008 aerial photo (Figure 1-2) was taken. The 1802-N Pipe Trestle that carried steam to the former 185-N Hanford Generating Plant had also been removed. By March 2009, much of the piping and support structures had been removed from the roof (Figure 1-3). By June 2009, the above-grade and some of the below grade portions of the 109-N Building had been demolished (Figure 1-4), and, by August, below-grade work was almost complete (Figure 1-5).

In late August 2009, as below-grade demolition was nearing completion, a visual inspection of the excavation identified that cold joint material had fallen to ground from the outside walls of the SSE. The black material was sampled and the analysis indicated the mastic portion contained between 20% and 30% asbestos. Concurrence to leave this material in place below-grade was received (Attachment 16, CCN 148324, 2009, "Proposal to Leave Certain ACM Along 109-N SSE Boundary Wall," to R. L. Cathel, Washington Closure Hanford, from R. Bond, Washington State Department of Ecology, December 9).

Figure 1-2. Aerial View of 109-N in July 2008.

Figure 1-3. Aerial View of 109-N in March 2009.

Figure 1-4. Aerial View of 109-N in June 2009.

Figure 1-5. Aerial View of 109-N in August 2009.

Eight Global Positioning Environmental Radiological Surveyor (GPERS) surveys were performed on the bottoms and slopes of the excavations from May 6 through September 10, 2009, when the demolition of structures in these areas was complete. The results of the surveys were then combined to produce Composite Track Maps for gamma and beta (Figures 1-6 and 1-7, respectively). No contamination greater than two times background was detected in the south excavation or slope, but two small areas of elevated gamma contamination (not shown) were initially identified on the east side slope. GPERS measurements indicating activity greater than two times background was the level at which the Washington State Department of Ecology (Ecology) agreed additional cleanup is required (Attachment 32). These areas were subsequently cleaned up and GPERS was again performed for confirmation.

In total, GPERS surveys consisted of 11,121 measurements made over 3,803 m^2 of soil. Average background for gamma and beta was measured in a nearby area outside of the test area. The average background for gamma was 1,272 counts per minute (cpm) and average beta was 441 cpm. Excluding the small hot spots that were found and removed from the east side slope, the maximum gamma detected in the test area was 2,864 cpm and the maximum beta detected in the test area was 1,051 cpm. Both measurements, with background subtracted, are less than two times background.

Other below grade activities completed at this time included the installation of grout plugs/concrete pourbacks to seal below-grade pipes/penetrations and initiating the construction of an access room at the below-grade shield door at the southeast corner of the 109-N Building (Figure 1-8). The access room was constructed to provide an entrance into the steam generator cells, if required in the future. The excavation was also visually inspected with representatives of DOE and Ecology during this time and no unusual stains or anomalies were identified.

With the exception of a few areas, radiological surveys of the 109-N outer SSE walls, above and below grade, identified no contamination. These findings are documented in Radiological Survey Record (RSR) RSR-100ISS-09-0592, RSR-100ISS-09-0593, RSR-100ISS-09-0689, and RSR-100ISS-09-0690. Areas where contamination was identified included specific pipes penetrating walls and the concrete adjacent to those penetrations. Grout seals and concrete pourbacks, placed in these areas to seal the penetrations, also sealed the contamination as described in RSR-100ISS-09-0603 and RSR-100ISS-09-0616. The contaminated pipe identified in the sump of Room 33, and documented in RSR-100ISS-09-0528, was cut flush with the wall and sealed with grout. The floor of the sump was removed prior to backfill. Copies of these RSRs are provided in Attachment 17.

DOE and Ecology agreed to leave in place the building's below-grade outer foundation walls, six drive turbine foundations (pedestals) adjacent to the southern SSE wall, and the foundation of former rooms 33 and 34 near the southeast corner. This agreement was not formalized until July 2012 when it was identified that radiologically-contaminated pipes, embedded at two locations in the east below-grade outer foundation wall, could not be removed without undesirable intrusive action. DOE and Ecology agreed to allow removal of these pipes to be deferred to a future remedial action (Attachment 18, CCN 166796, 2012, "Agreement Between DOE-RL and Ecology for 109-N Below-Grade Structures," to C.D. McCurley, Washington Closure Hanford, and R. F. Guercia, U.S. Department of Energy, Richland Operations Office, from F. W. Bond, Washington State Department of Ecology. July 25).

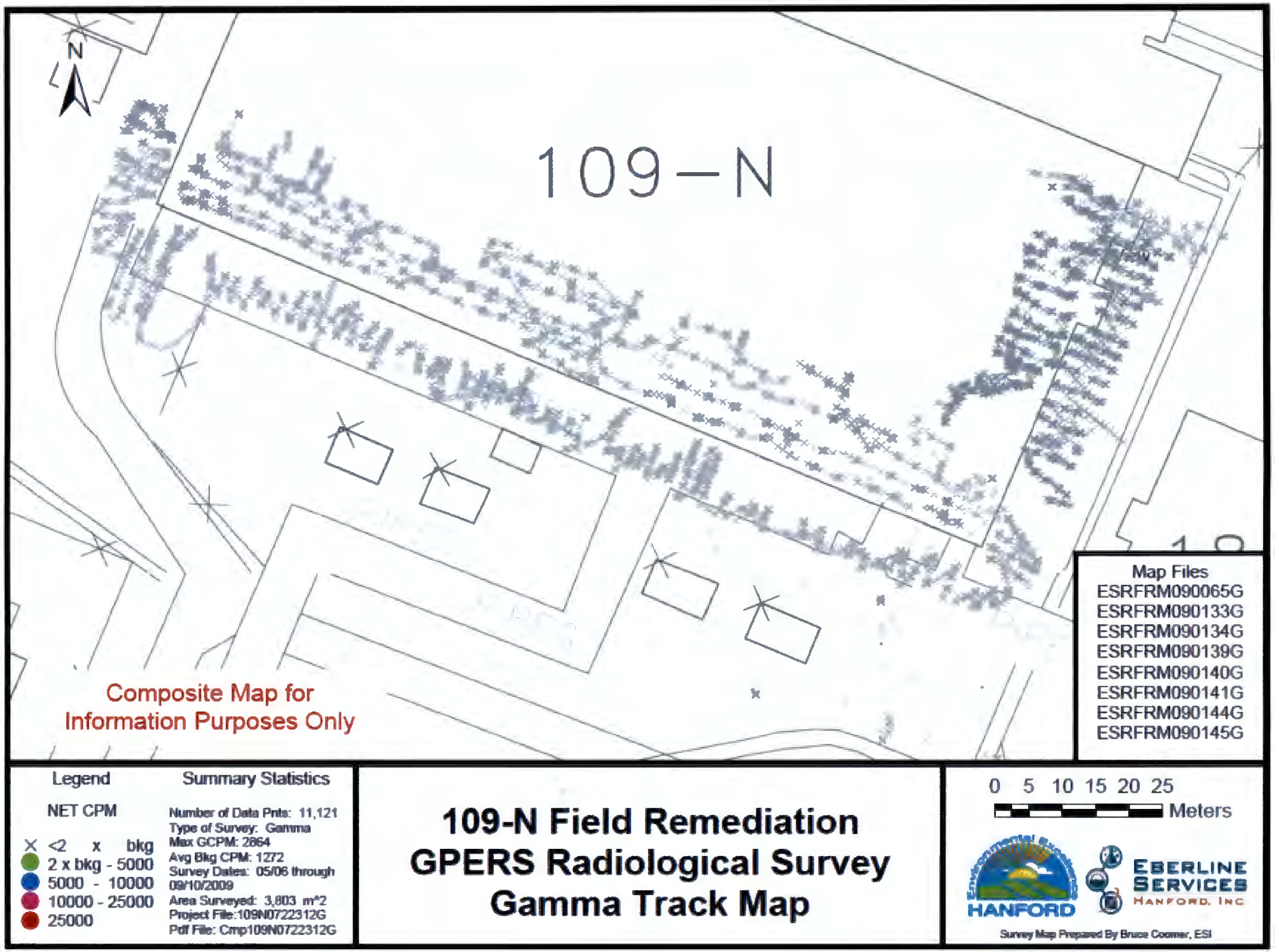


Figure 1-6. Composite GPERS Gamma Survey of 109-N Excavation and Layback.

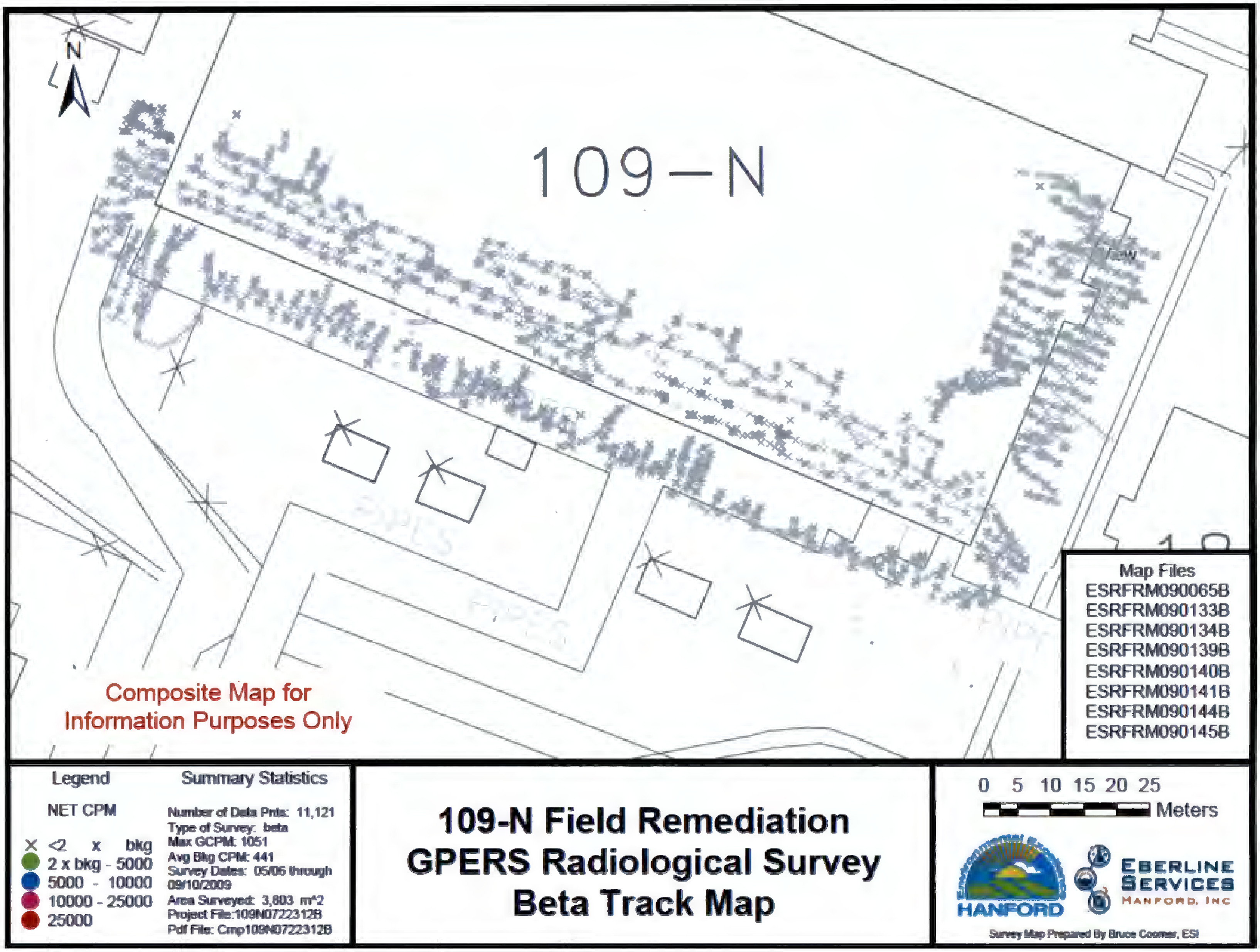


Figure 1-7. Composite GPERS Beta Survey of 109-N Excavation and Layback.

Backfill of the excavation south of 109-N, with material from the 100-N Borrow Pit, commenced in October 2009 (Figure 1-8) and was sufficiently complete by February 2010 that a crane began operating there to support SSE roof construction activities (Figure 1-9).

Figure 1-8. Aerial View of 109-N in October 2009.

Figure 1-9. Aerial View of 109-N in May 2010.

By May 2010, backfilling of the excavation was complete (Figure 1-10) and the area was being used to stage structural steel for the 109-N roof. By April 2011, the roof of the 109-N SSE was mostly complete (Figure 1-11). The crane used to support roof installation is located to the left in Figure 1-9.

Figure 1-10. Aerial View of 109-N in October 2010.

Figure 1-11. Aerial View of 109-N in April 2011.

Demolition activities were also performed on the west side of the 109-N Building. Figure 1-12 provides a photograph of the west side in early 2007, prior to beginning demolition activities. The activities included removing the metal siding and the stairs that provided direct access to the roof as shown in Figure 1-12, and removing flush with the outer SSE wall an extensive number of rebar stubs (covered by the siding in Figure 1-12) that had been installed in the early 1960s when the building was constructed. Other activities included cutting below-grade pipes near the northwest corner of the 109-N Building and placing pourbacks over openings as shown in Figure 1-13.

Figure 1-12. View of 109-N West Side in January 2007.

Figure 1-13. View of Pourbacks Being Installed on 109-N West Side in June 2012.

Radiological surveys of the west side (e.g., RSR 100ISS-12-0139) found no contamination other than some sporadic contamination among swallows nests that had fallen from a concrete ledge underneath the buildings new roof, as documented in RSR-100ISS-12-0158. By mid-July 2012, the contaminated nesting material had been cleaned up and the rebar near the base of the building had been cut flush with the outer SSE surface as shown in Figure 1-14. Copies of these RSRs are provided in Attachment 17.

By August 2012, the roof on the 109-N Building was complete, permanent lighting, power, and two temperature switches had been installed under the new 109-N SSE roof, and penetrations into the shield walls had been sealed to prevent animal, insect, and water intrusion into the SSE. The west side of the 109-N Building has been left exposed below grade, as shown in Figure 1-15, and will be backfilled when remediation activities of the former 1300-N Emergency Dump Basin (WIDS Site 116-N-4) are complete.

Figure 1-14. View of 109-N West Side (-) 21-ft. in July 2012.

Figure 1-15. Aerial View of 109-N West Side in October 2012.

Facility Status Change Form

Attachment 2

105-N Supply Fan Room

ATTACHMENT 2: AREA 2 (6 PAGES)

105-N Supply Fan Room

This area on the north side of the 105-N Building contains the supply fan room (Room 101) at elevation 0 ft 0 in. and ventilation equipment/compressor room (Room 1) at elevation (-) 16 ft 0 in. (Figure 2-1). These rooms were demolished in April and May 2009 (Figures 2-2 and 2-3).

Figure 2-1. Location of Supply Fan Room.

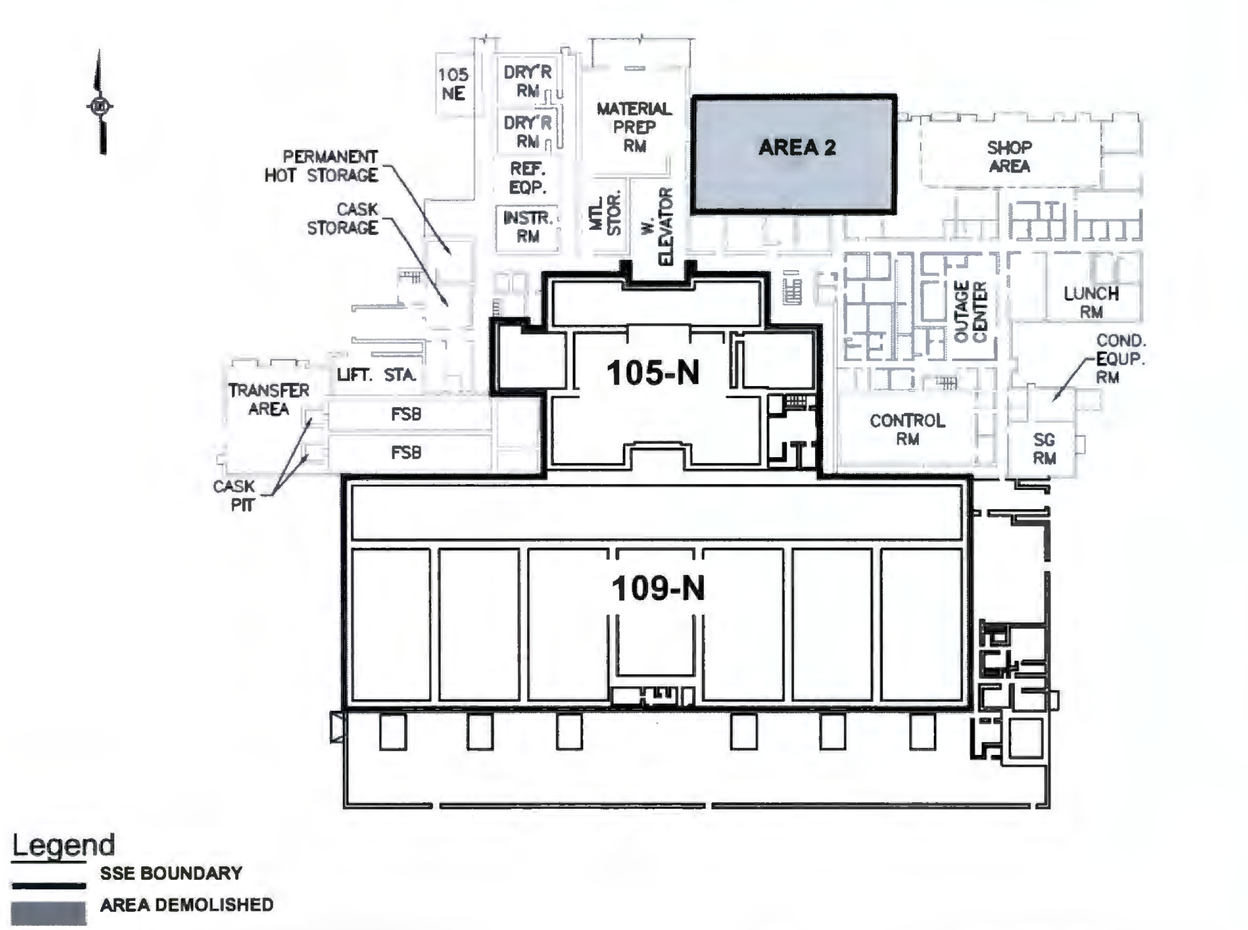


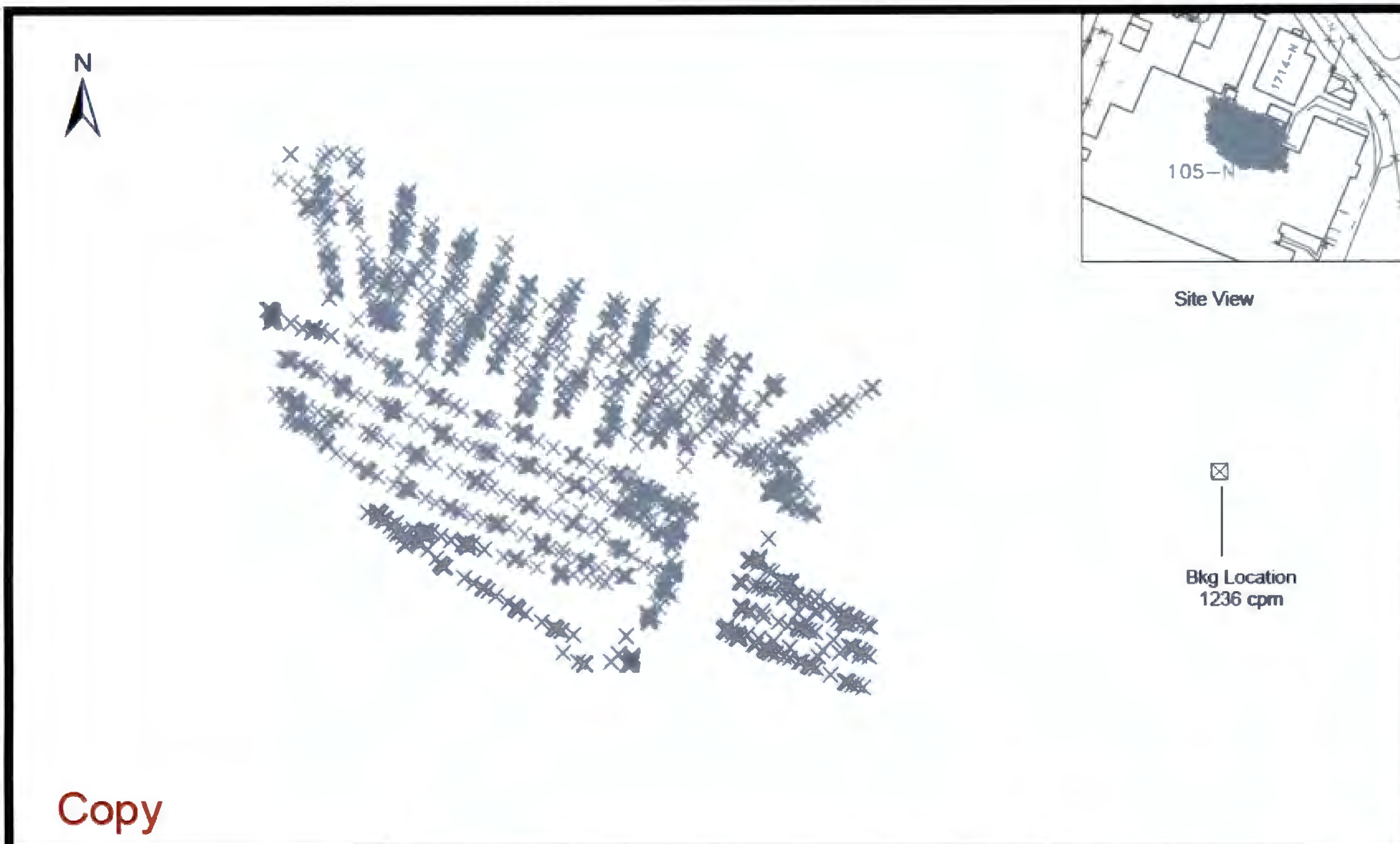
Figure 2-2. Aerial View of 105-N in April 2009 (facing south).

Figure 2-3. Aerial View of 105-N in May 2009 (facing south).

Orange stripes painted on the walls of adjacent rooms identify rooms designated for future demolition. A significant portion of the east wall was demolished with the installation of a ramp to provide equipment access to other below-grade areas adjacent to the room. The area remained open for several months during which time the north wall developed a crack, became a safety hazard, and was removed (Figure 2-4). The area was also surveyed using the Global Positioning Environmental Radiological Surveyor (GPERS) on November 18, 2009. The results of the GPERS survey are presented as Figures 2-5 and 2-6.

Figure 2-4. Supply Fan Room Floor During GPERS Survey in November 2009 (facing west).

Figure 2-5. GPERS Radiological Survey Gamma Track Map for Supply Fan Room.



Legend

NET CPM

- < 2472
- 2472 - 5000
- 5000 - 10000
- 10000 - 25000
- > 25000

Summary Statistics

Coverage File: N322
Number of Data Pnts: 2352
Type of Survey: 'Gamma'
Max GCPM: 2412
Avg Bkg CPM: 1236
Survey Date: 11/18/2009
Area Surveyed: 173 m^2
Project File: N322
Pdf File: ESRFRM090172GC

100N Field Remediation
105-N Room-1
GPERS Radiological Survey
Gamma Track Map

0 5 10 15 Meters

HANFORD

EBERLINE SERVICES HANFORD, INC

Survey Map Prepared By Bruce Coomer, ESI

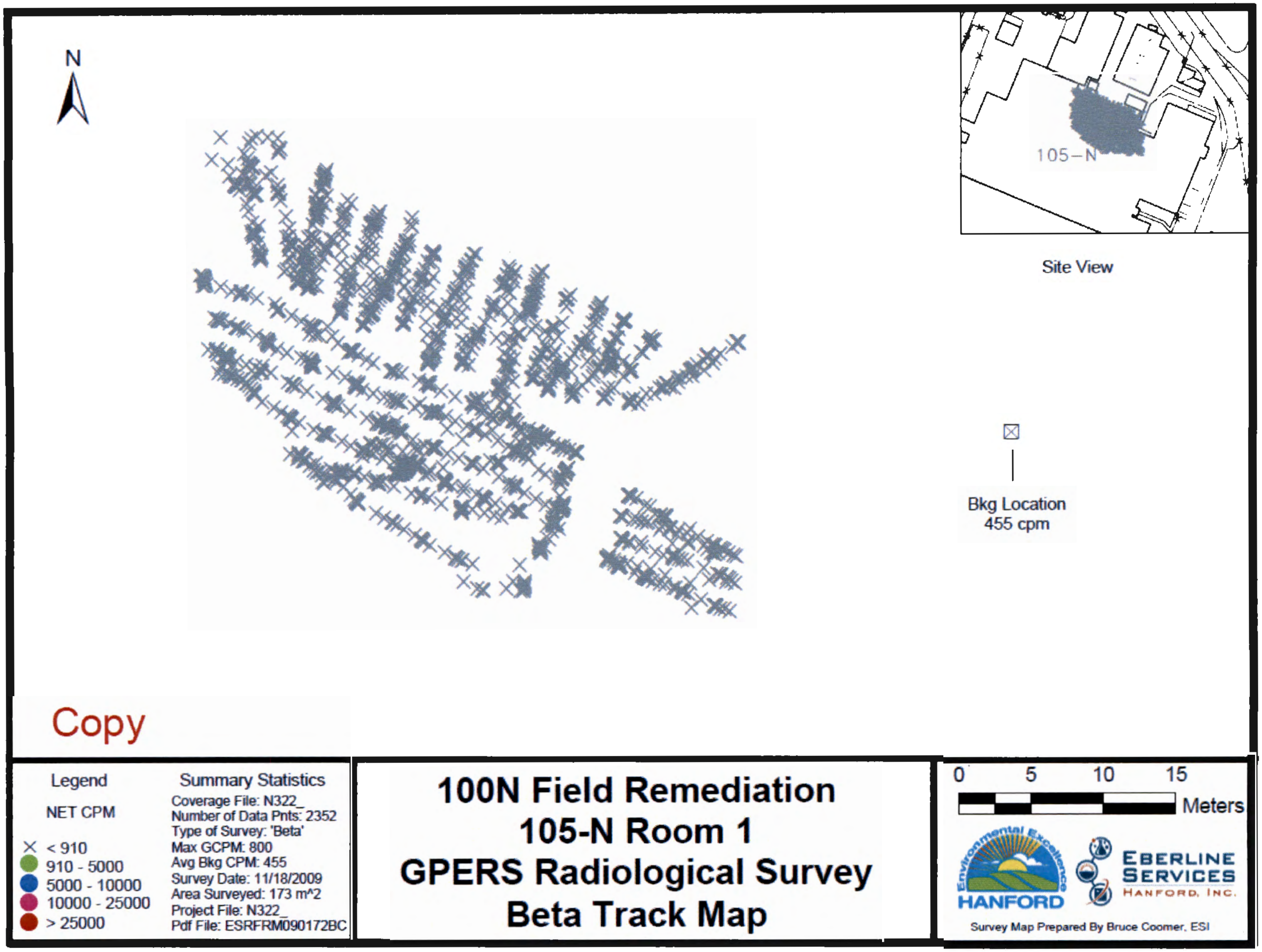


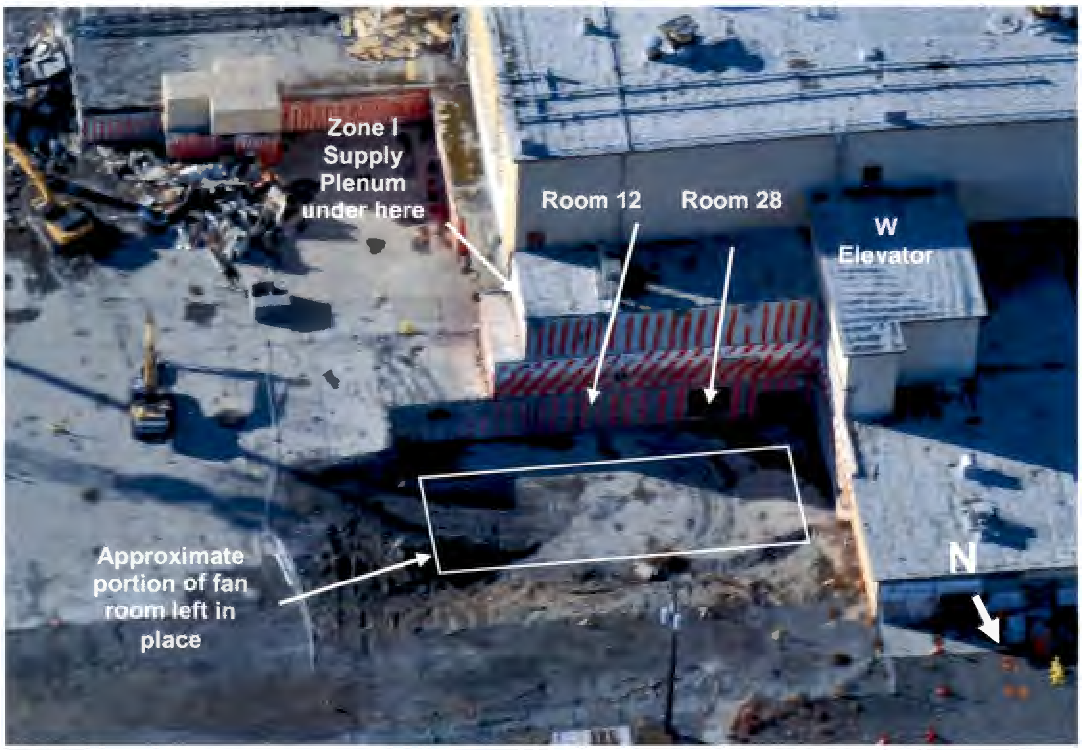
Figure 2-6. GPERS Radiological Survey Beta Track Map for Supply Fan Room.

No contamination greater than two times background was detected.

The floor was visually inspected during this time and no unusual stains or anomalies were identified. The *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities* (DOE/RL-2005-43, Rev. 1) allowed below grade structures to be left in place if the radiological screen detects no contamination and there is no staining. Since no staining was observed and radiological surveys detected no contamination, it was agreed that the floor could be left in place.

In early January 2010, the southern edge of the Supply Fan Room floor was demolished with the removal of rooms 12 and 28 (part of Area 5 demolition activities). In April 2010, a small portion of the 105-N Building's western edge was demolished with the layback created during the W Elevator demolition (part of Area 6 demolition activities). The rectangular box superimposed on the photograph in Figure 2-7 depicts an approximation of the portion of the floor that was left in place and covered with fill material from the 100-N borrow pit.

Figure 2-7. Aerial View of Supply Fan Room Floor in October 2009 (facing south).



Attachment 3

105-N Control Room

ATTACHMENT 3: AREA 3 105-N CONTROL ROOM (8 PAGES)

Figure 3-1. 105-N Control Room

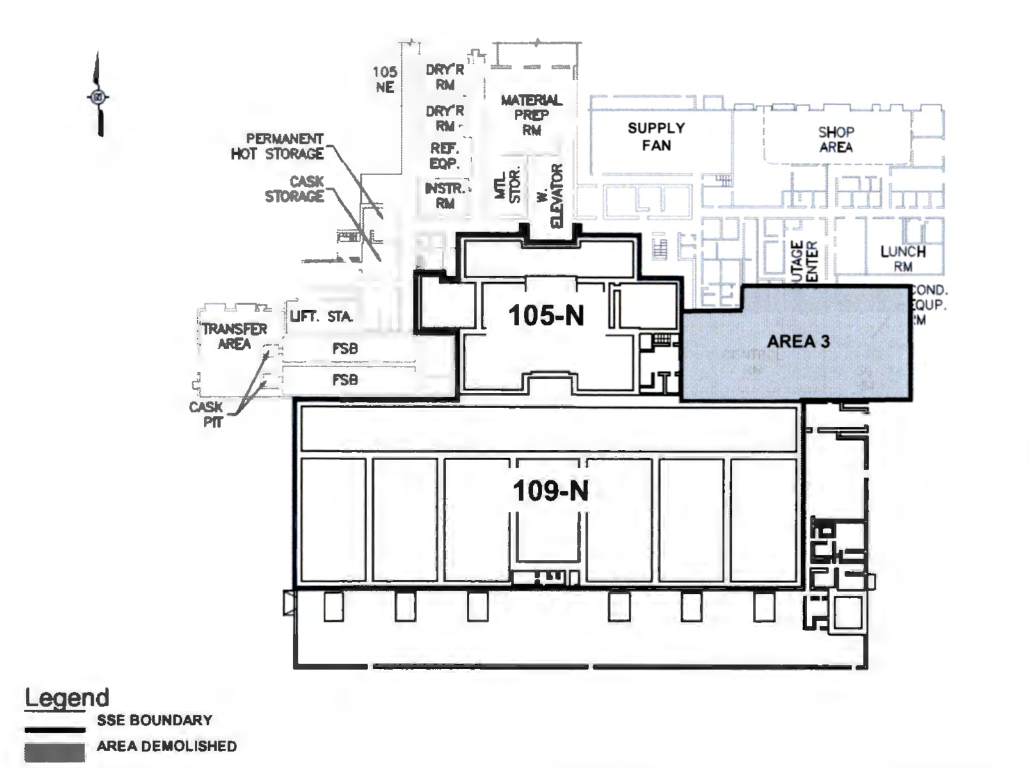
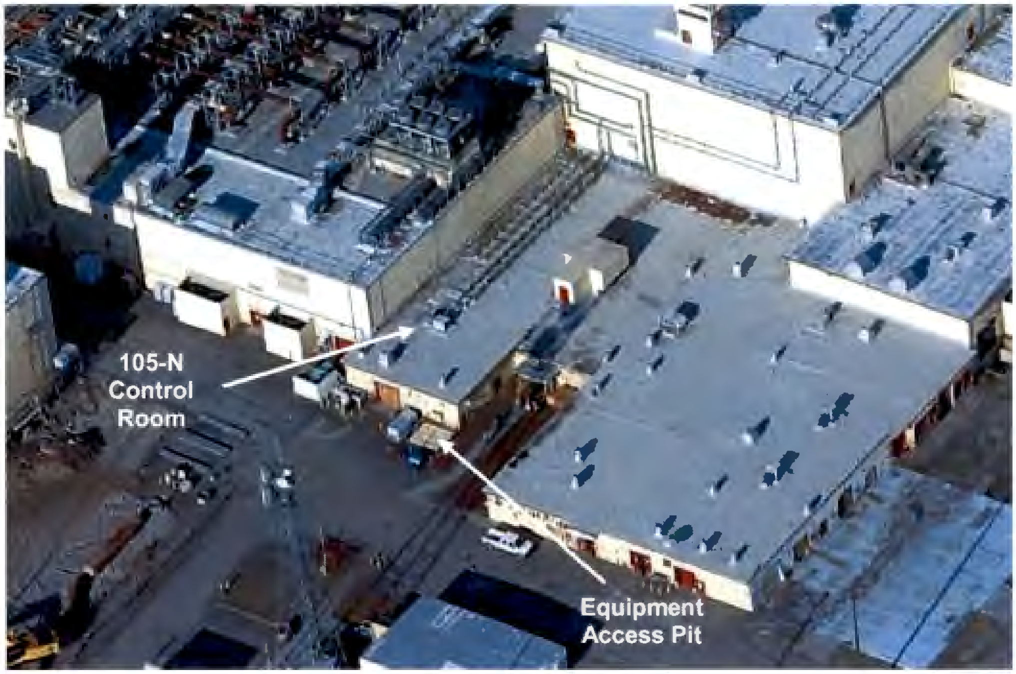


Figure 3-1 shows the location of the control room in relation to 105-N/109-N. Figure 3-2 provides an aerial photograph of the control room as it appeared in 2008. Demolition of the control room began in October 2009 and was complete in February 2010.

Figure 3-2. Aerial View of Control Room in April 2008 (facing west).



A French drain, FD-9 that was part of WIDS Site 100-N-84:4, was located at the bottom of an equipment access pit outside the east side of the control room (Figure 3-2). The French drain was a 48-in. dry well with a 4-in. cast iron floor drain. The access pit and dry well were removed in November 2009 when a ramp, excavated to approximately 11.5-ft deep at this location (see Figure 3-3), was built to facilitate the removal of below-grade debris.

The control room excavation was twice surveyed using Global Positioning Environmental Radiological Surveyor (GPERS) on November 18, 2009, and March 4, 2010 (Figure 3-4). The results were composited and are presented in Figures 3-5 and 3-6. No contamination greater than two times background for gamma and beta was identified.

In the southwest corner of this area, the north wall of 109-N Building blocked the satellite signals needed by the GPERS equipment so this triangular-shaped section was surveyed by hand (RSR-100ISS-10-0280). No contamination was detected. Other surveys of the outer safe storage enclosure (SSE) walls in this area (e.g., RSR-100ISS-09-0773, RSR-100ISS-09-0817, RSR-100ISS-10-0280, RSR-100ISS-10-1198, RSR-100ISS-11-0333, RSR-100ISS-11-0342, RSR-100ISS-11-0440, RSR-100ISS-11-0445, and RSR-100ISS-12-0005 [Attachment 17]) identified no contamination.

A visual examination of the excavation observed no stains or anomalies in late March (Figures 3-7 and 3-8) and it was reviewed with the U.S. Department of Energy and Washington State Department of Ecology. No concerns were expressed. Concrete pour backs were constructed over openings and penetrations (Figure 3-9) and the excavation was backfilled to grade with material from the 100-N borrow pit. Figure 3-10 shows the area as it appeared in September 2012.

Figure 3-3. Post Demolition Excavation Map, March 4, 2010 (see Attachment 15).

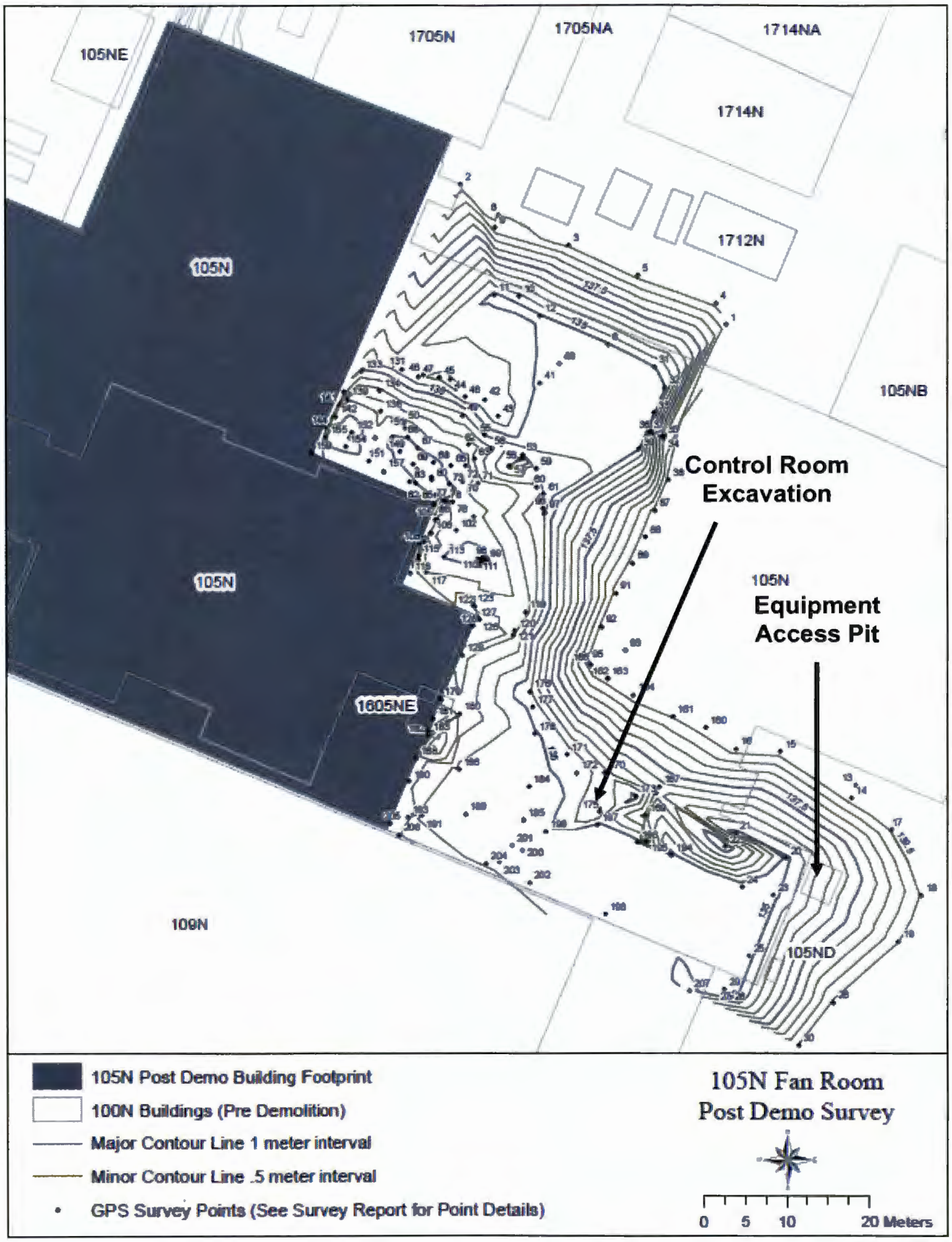


Figure 3-4. View of Control Room Excavation on March 5, 2010 (facing southwest).

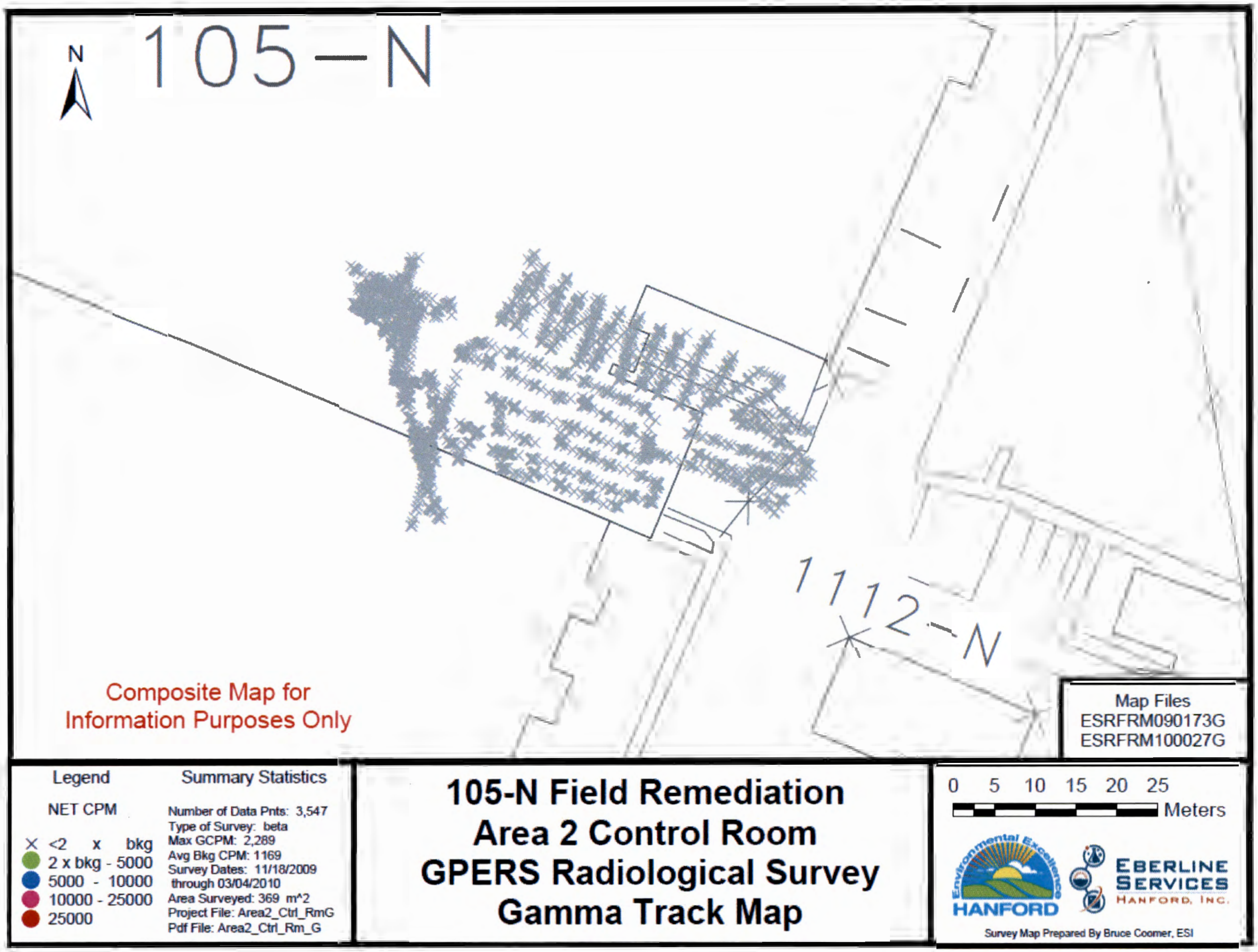


Figure 3-5. GPERS Survey of Control Room Excavation for Gamma Contamination.

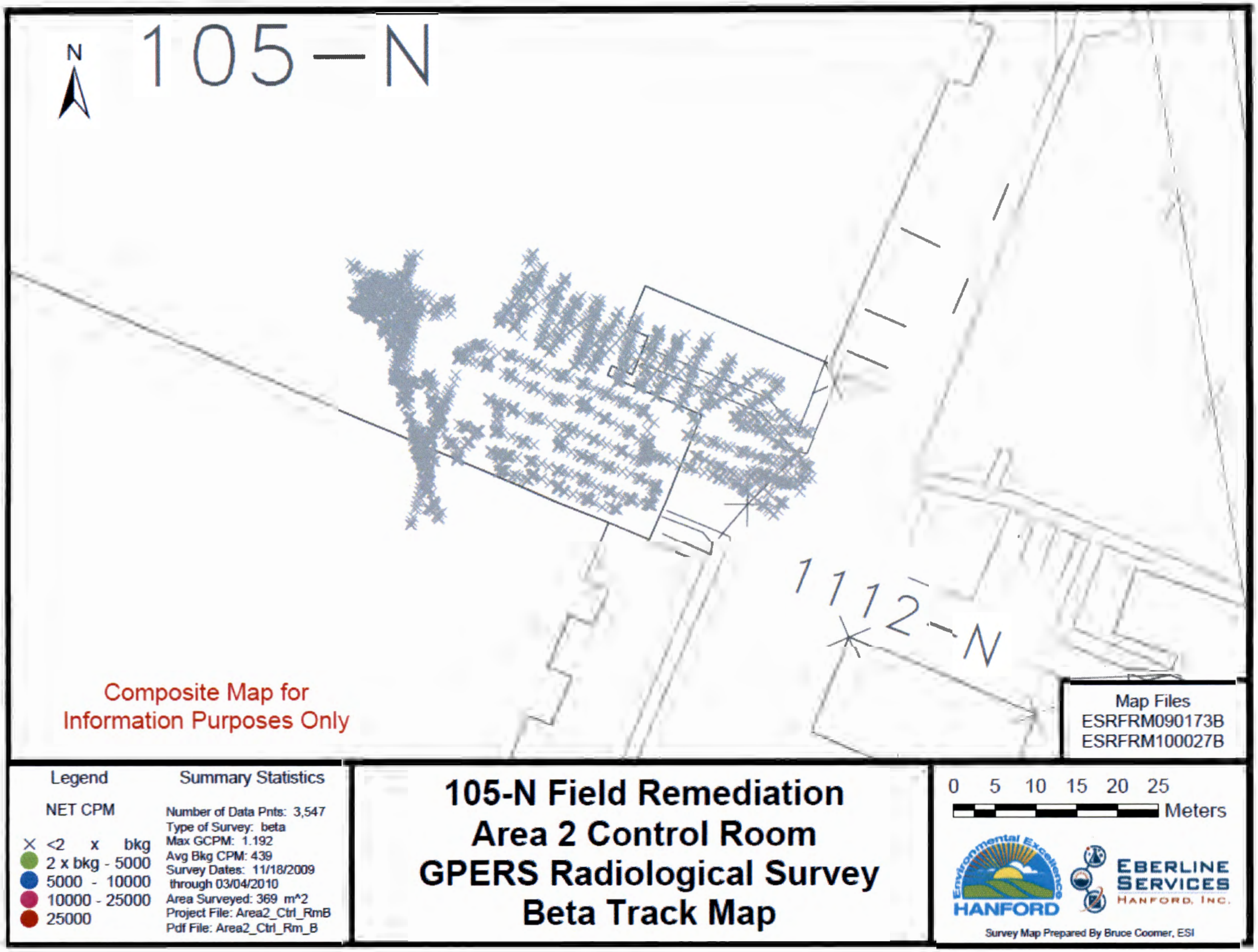


Figure 3-6. GPERS Survey of Control Room Excavation for Beta Contamination.

Figure 3-7. Control Room Excavation in Late March 2010 (facing west).

Figure 3-8. Control Room Excavation in Late March 2010 (facing northwest).

Figure 3-9. Aerial View of Control Room Excavation in July 2010 (facing west).

Figure 3-10. Aerial View of Control Room Excavation in September 2012 (facing west).

Attachment 4

105-N Stair 4 and F Elevator

ATTACHMENT 4: AREA 4 105-N STAIR 4 AND F ELEVATOR (8 PAGES)

Figure 4-1. 105-N Stair 4 and F Elevator.

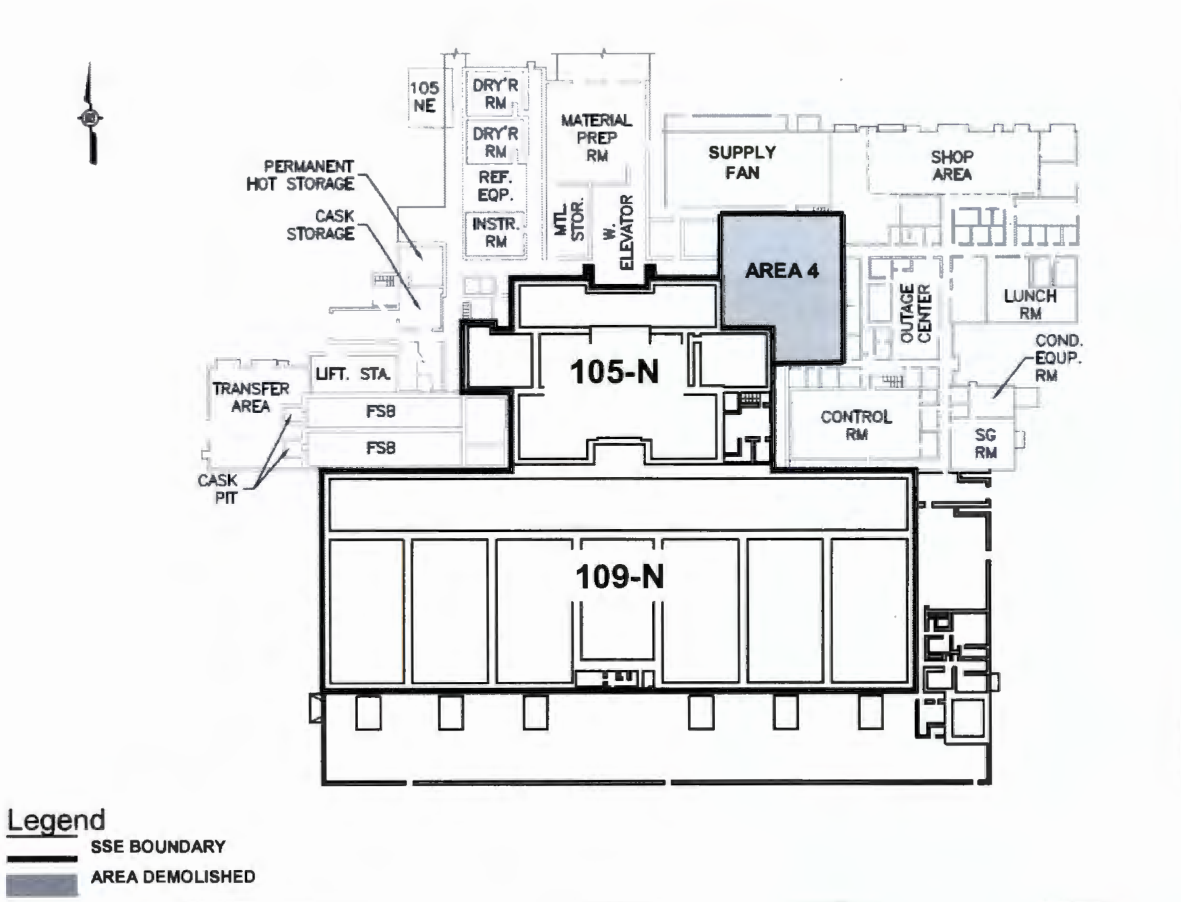


Figure 4-1 shows the area of the 105-N Building in which Stair 4 and F Elevator were located. Figure 4-2 provides an aerial photograph of the area as it appeared in 2008. Demolition of this area was conducted from January through March 2010. The 1605-NE East Observation Post was located on the roof of the 105-N building near this area (Figure 4-2). Its demolition is documented in Facility Status Change Form D4-100N-0043.

Figure 4-2. Aerial View of Stair 4 and F Elevator Location.

Figure 4-3. Aerial View of Demolition of Stair 4 Area in March 2010.

During demolition, radiological contamination was discovered on the safe storage enclosure (SSE) wall outside of the 105-N rupture monitor room 5 (Figure 4-4). The U.S. Department of Energy (DOE) and Washington State Department of Ecology (Ecology) agreed to leave the contamination in place. This agreement is documented in CCN 153078, “Agreement Between DOE and Ecology – 105-N East Side Below Grade SSE Wall Contamination” (Attachment 19). F Elevator was also demolished and its actuator was drained of oil and extracted from the caisson. DOE and Ecology agreed the caisson should be left in place. This agreement is documented in CCN 168639, “105-N Visual Examination of Stair 4 Excavation and Demolition of F Elevator” (Attachment 20). Figure 4-5 shows the location of the caisson with respect to the excavation.

Figure 4-4. View of Stair 4 Area Excavation in March 2010 (facing west).

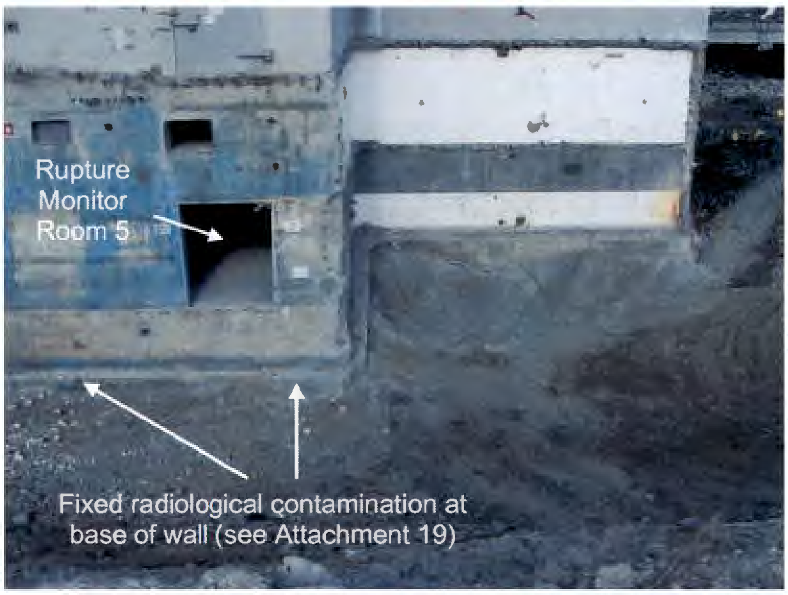
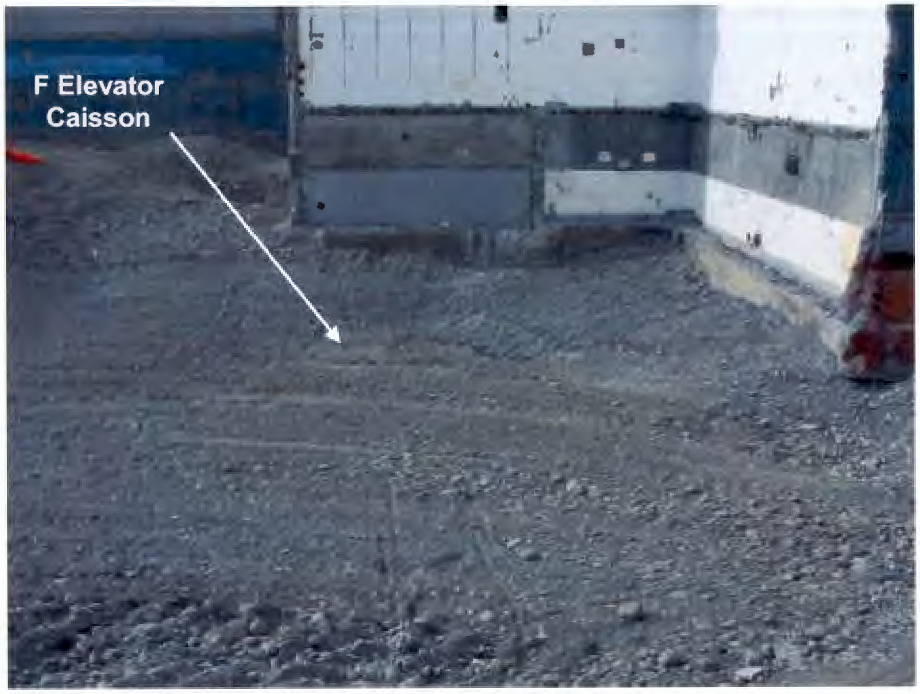
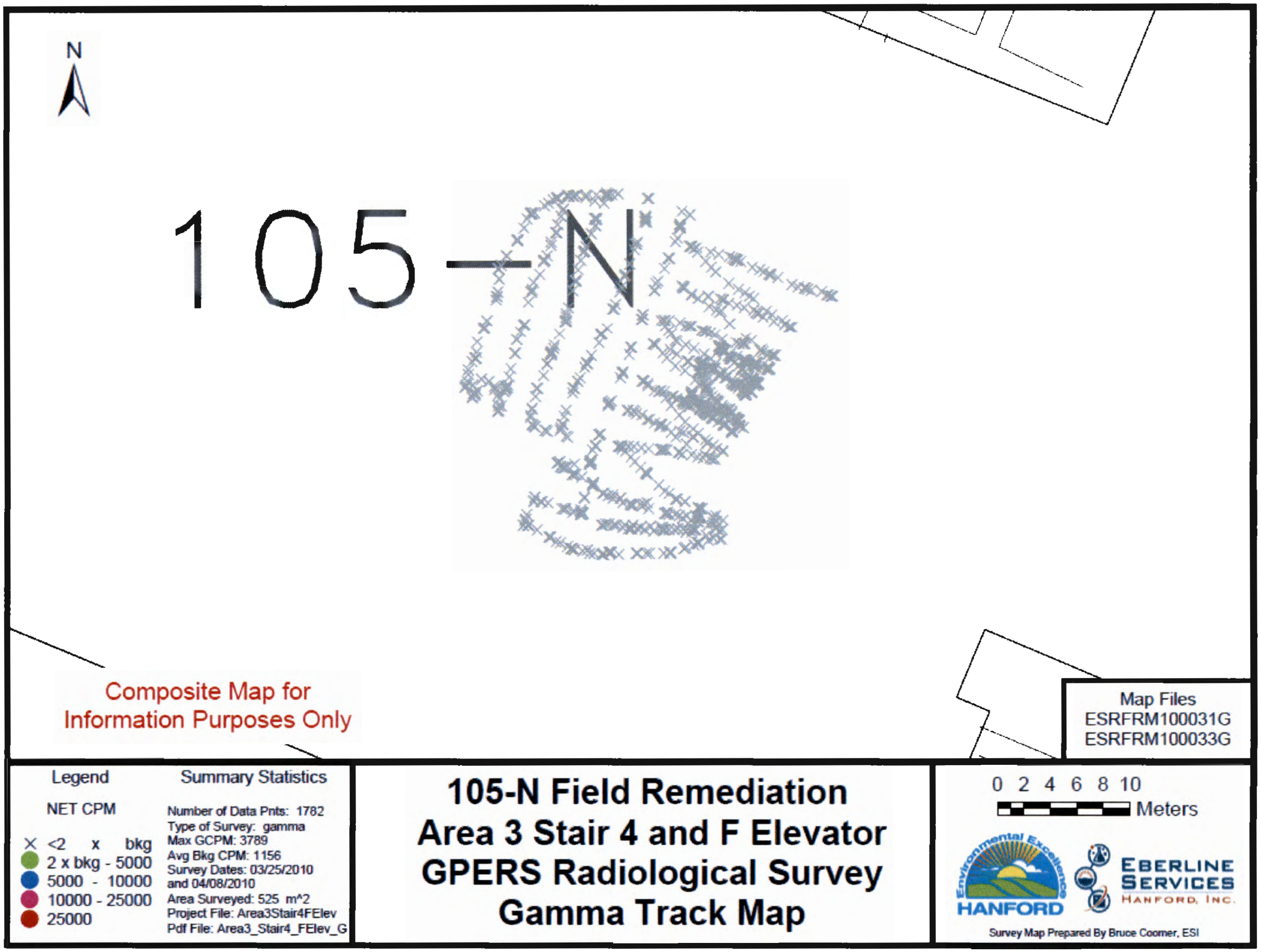


Figure 4-5. View of Stair 4 Area Excavation in March 2010 (facing south).



The excavation was twice surveyed using GPERS in March and April 2010. The results were composited and are presented in Figures 4-6 and 4-7. Two spots of gamma contamination were found on the layback area as described in CCN 168639 (Attachment 20). A focused survey of that area using direct survey equipment identified no contamination as described in RSR-100ISS-10-0300 (Attachment 17). No contamination greater than two times background for gamma and beta was identified.

Figure 4-6. GPERS Survey of Stair 4 Area Excavation for Gamma Contamination.



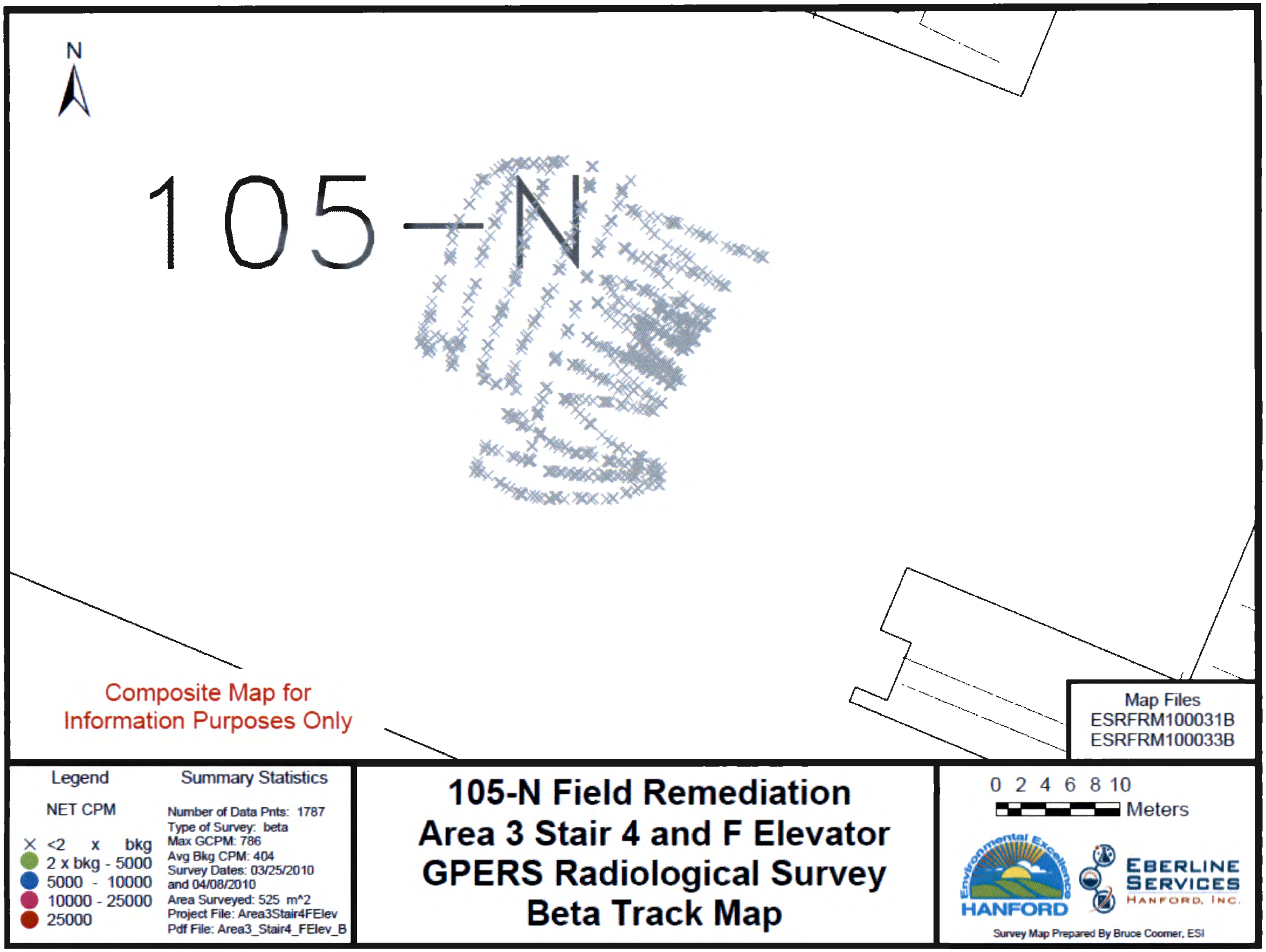


Figure 4-7. GPERS Survey of Stair 4 Area Excavation for Beta Contamination.

Radiological Surveys of the outer SSE walls in this area (e.g., RSR-100ISS-10-0265 [Attachment 17]) identified no contamination, other than the fixed contamination identified at the base of the SSE wall outside the rupture monitor room (Figure 4-4). By July 2010, a significant below-grade pour back in the adjacent control room excavation (Figure 4-8) had been completed, the door to the rupture monitor room 5 had been sealed and below-grade pour backs over other penetrations in this area, and the Area 5 Zone 1 Supply Plenum had been started. Soon after, the area was backfilled with material from the 100-N borrow pit. Figure 4-9 provides a view of the area in September 2012.

Figure 4-8. Aerial View of Stair 4 Area in July 2010.

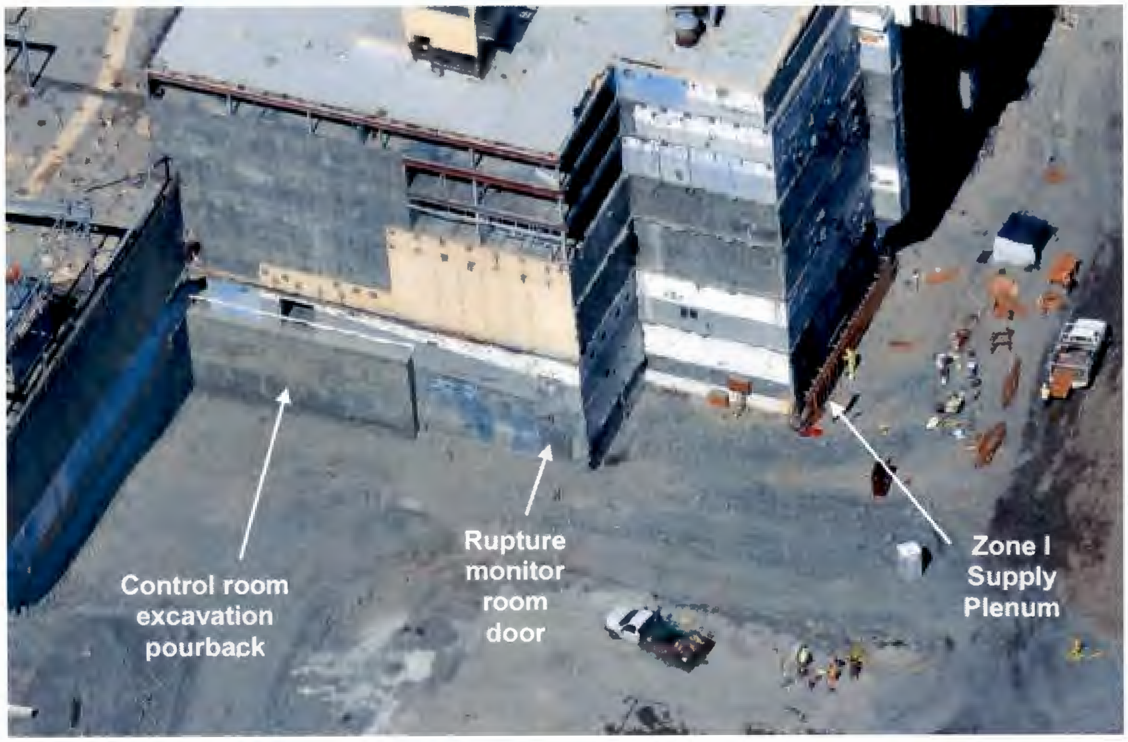


Figure 4-9. Aerial View of Northeast Corner of 105-N Building in September 2012.

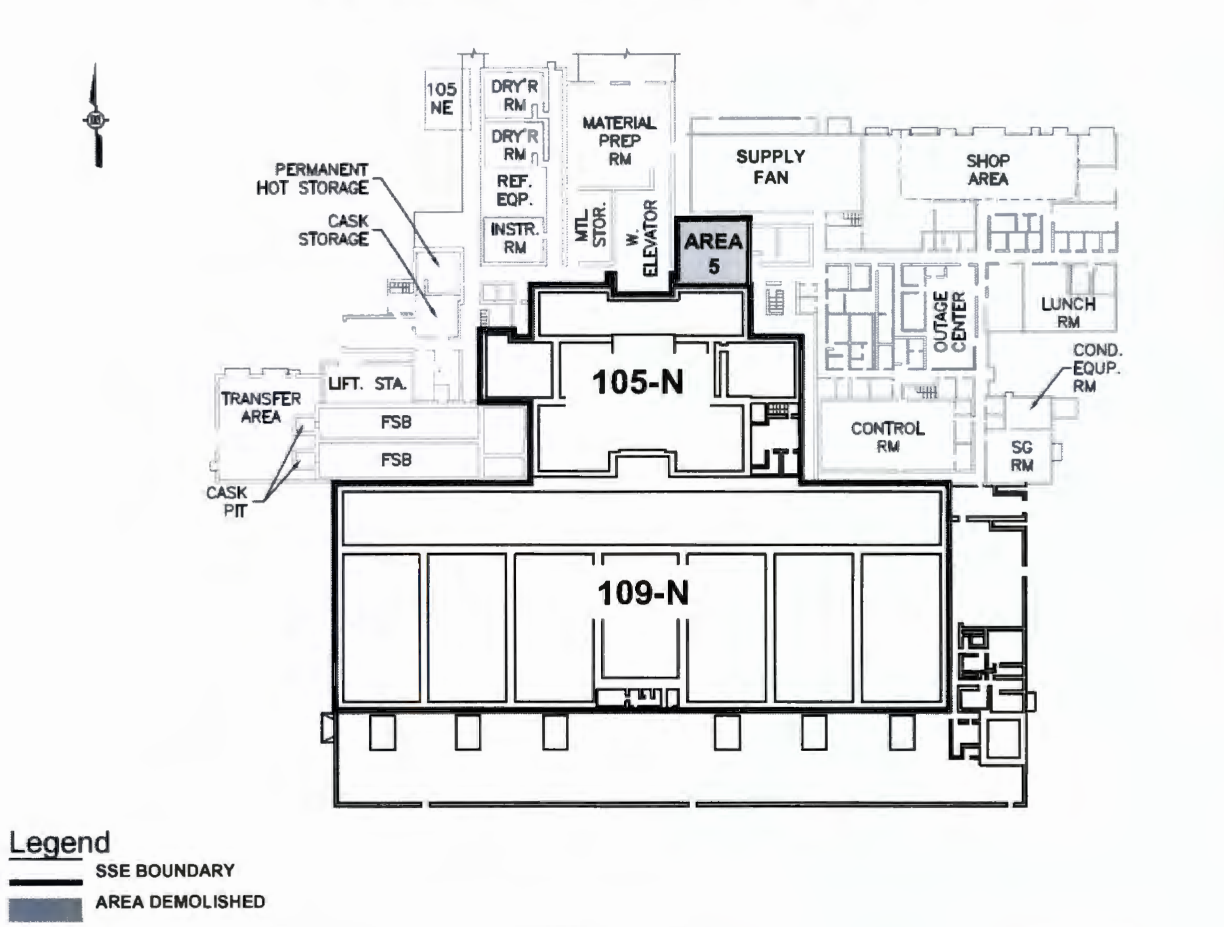
Attachment 5

105-N Zone I Supply Plenum

ATTACHMENT 5: AREA 5 105-N ZONE I SUPPLY PLENUM (6 PAGES)

The shaded area of Figure 5-1 shows the location of the Zone I Supply Plenum.

Figure 5-1. 105-N Zone I Supply Plenum.



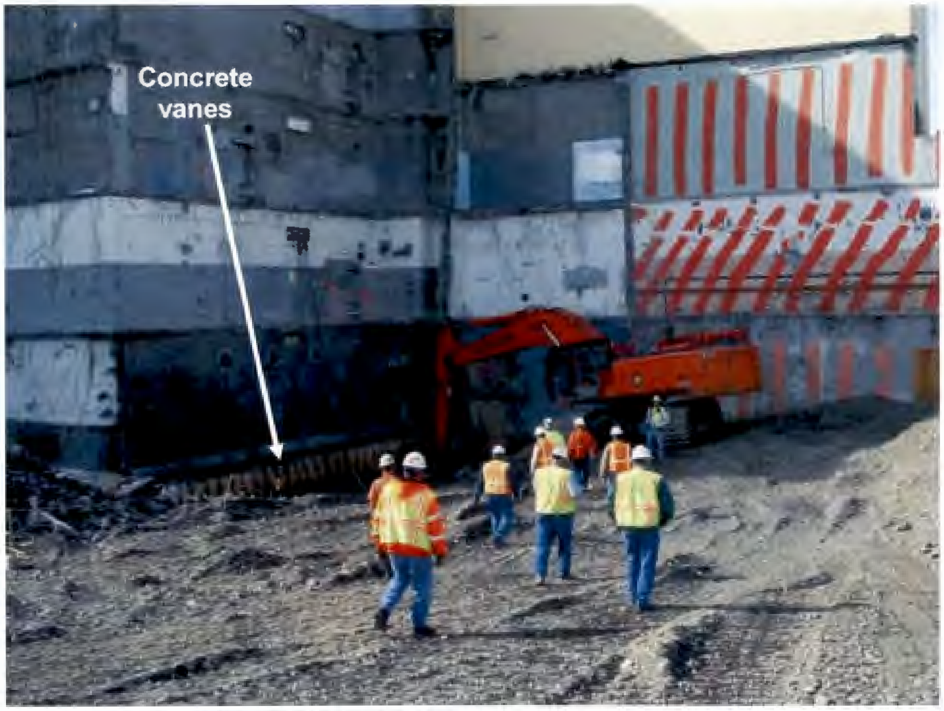
Demolition of the rooms above the plenum were almost complete when the photographs provided in Figures 5-2 and 5-3 were taken in 2010.

Figure 5-2. Aerial View of Zone I Supply Plenum Demolition in Early January 2010.

Figure 5-3. View of Zone I Supply Plenum Demolition in Late January 2010.

By late February to early March, most of the demolition debris had been cleared away exposing the concrete vanes at the plenum (Figure 5-4). Orange stripes denote future areas to be demolished.

Figure 5-4. View of Zone I Supply Plenum in early March 2010.



Radiological surveys of the vanes and the ground below and north of the vanes identified contamination (see RSR-100ISS-10-0185 and RSR-100ISS-10-0199, RSR-100ISS-10-0217 and RSR-100ISS-10-0677 in Attachment 17). Fixative was applied to the vanes to lock down the contamination. The U.S. Department of Energy (DOE) and Washington State Department of Ecology (Ecology) agreed that further (deeper) excavation could undermine the facility's structural integrity and that the contamination should be left in place for future remediation as described in CCN 167658, "105-N Soil Contamination at Zone 1 Supply Plenum" (Attachment 21). The GPERS surveys presented in Attachment 21 are repeated below in larger format as Figures 5-5 and 5-6. Additional surveys performed on the outer safe storage enclosure walls (e.g., RSR-100ISS-10-0611) indicated no contamination on the walls in this area or the concrete pour-back installed over the vanes. A copy of this survey is provided in Attachment 17.

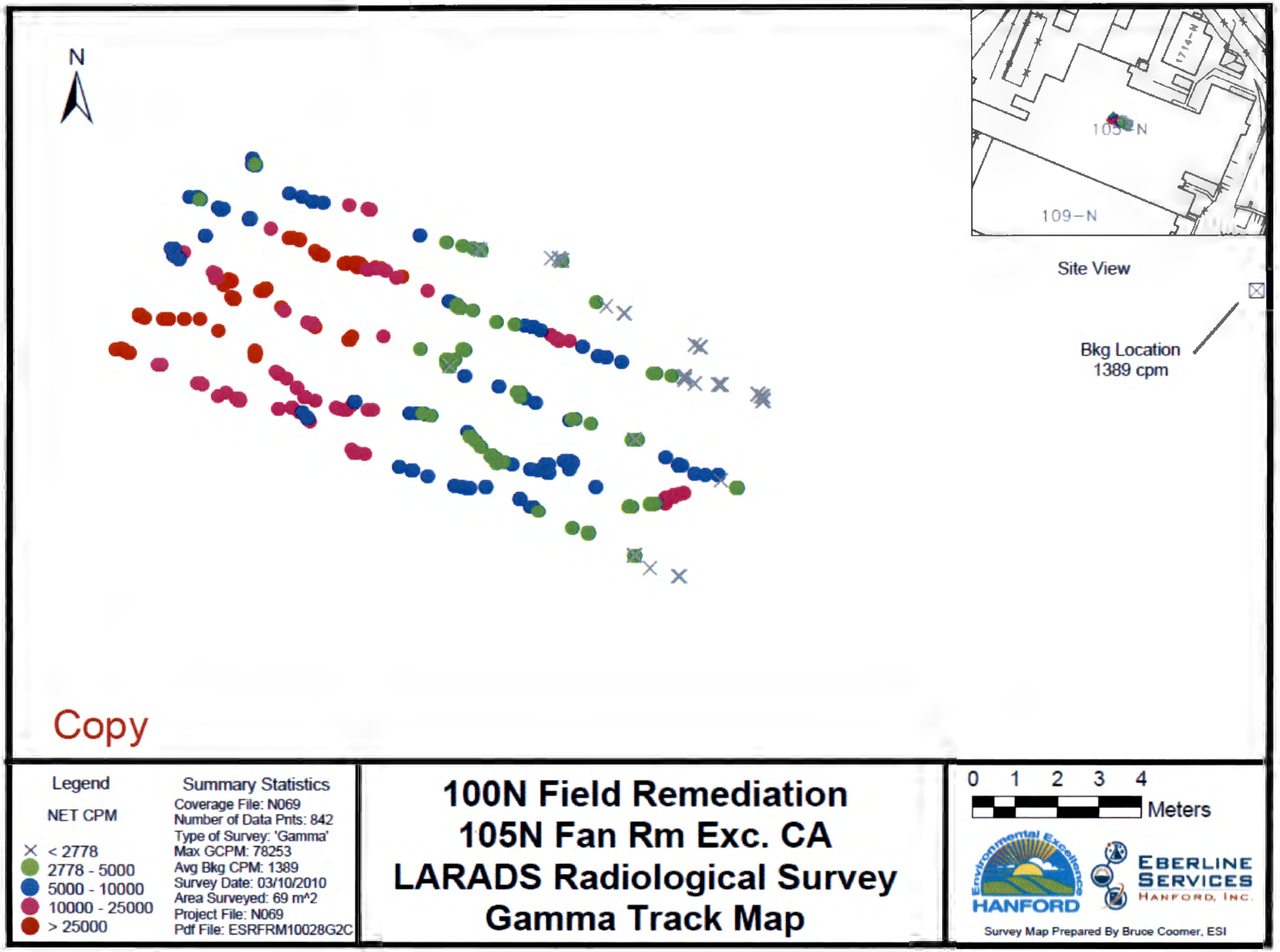
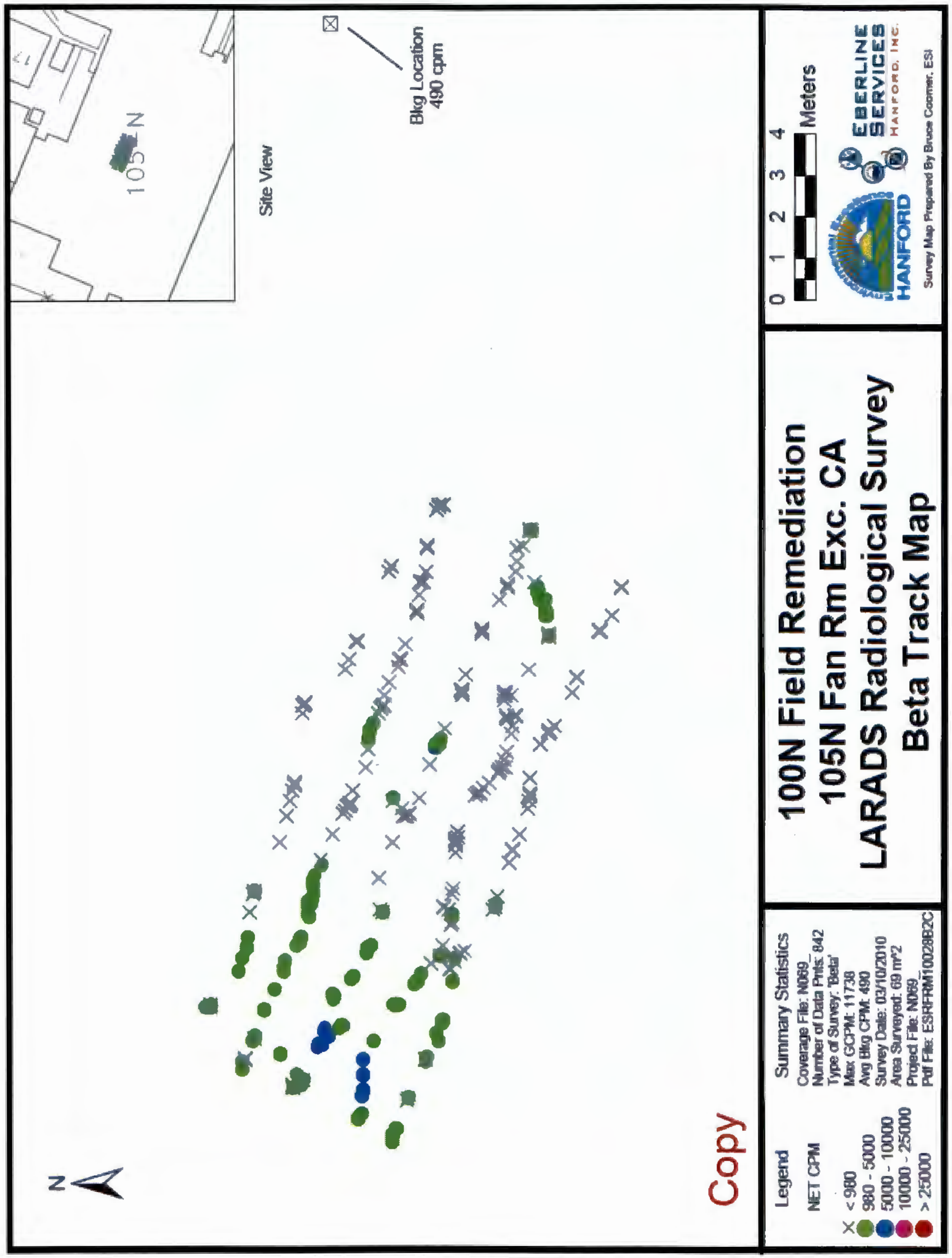


Figure 5-5. GPERS Gamma Survey of Soil at Zone I Supply Plenum in March 2010.

Figure 5-6. GPERS Beta Survey of Soil at Zone I Supply Plenum in March 2010.



Attachment 6

105-N North and West Sides

ATTACHMENT 6: AREA 6 (18 PAGES)

105-N North and West Sides

Figure 6-1 shows the areas north and west of 105-N Building that were demolished as part of the Interim Safe Storage (ISS). Figure 6-2 provides an aerial photograph of the area as it appeared in 2009.

Figure 6-1. 105-N W Elevator and Tunnels.

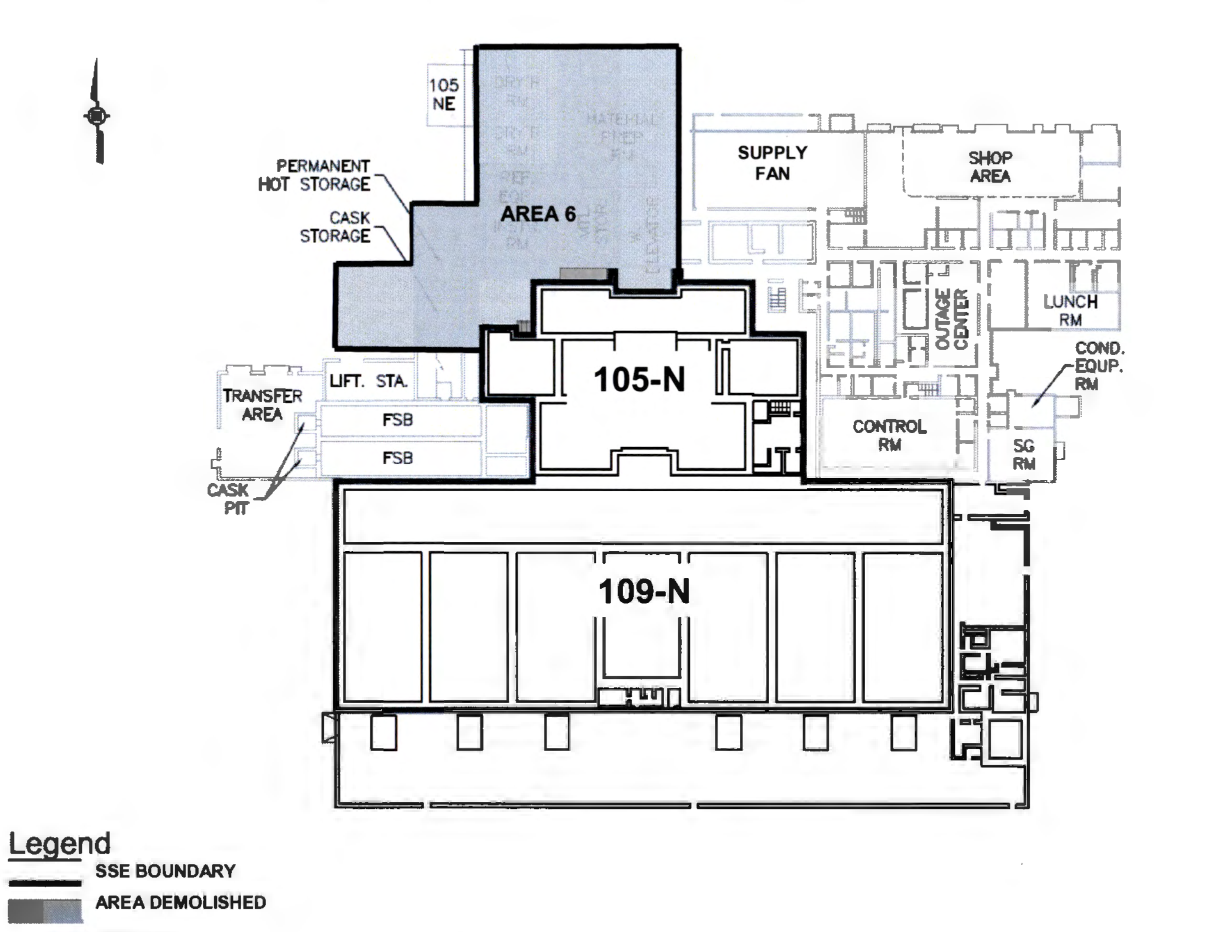
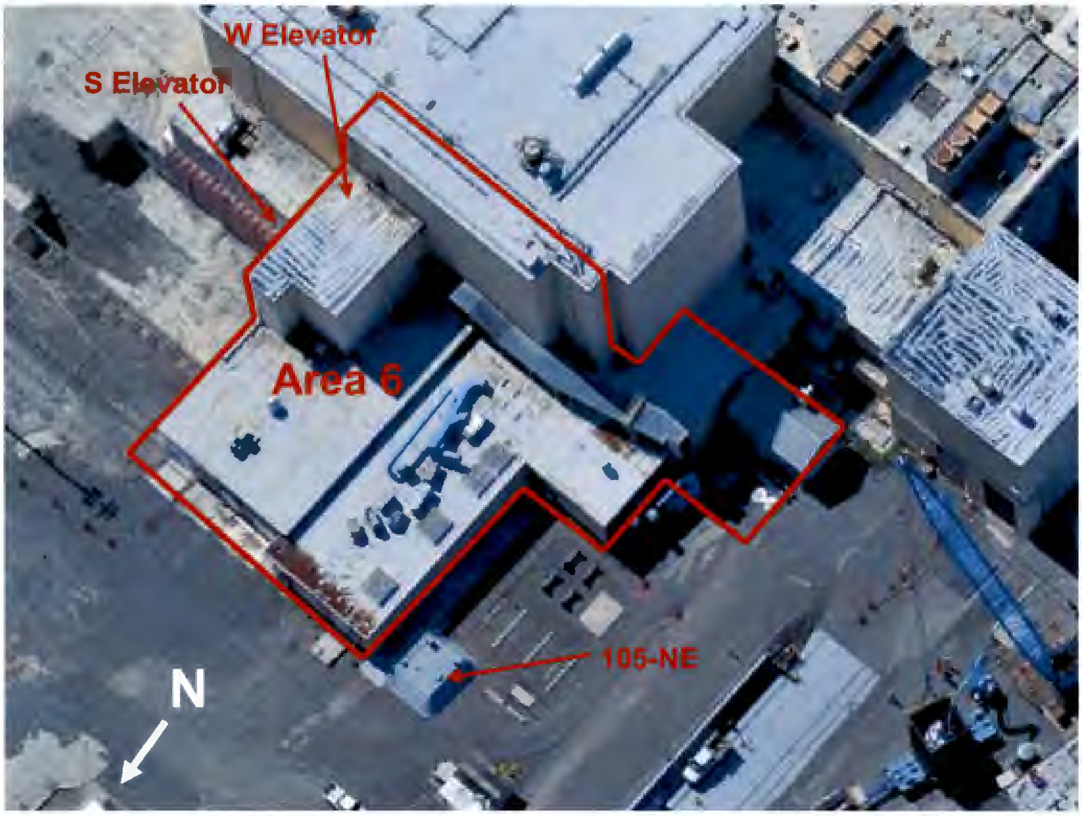


Figure 6-2. Aerial View of 105-N North and West Sides in May 2009.



North Side

The rooms on the north side of 105-N Building were demolished between April and mid-July 2010 (as shown in Figure 6-3) and included W Elevator, S Elevator, various above/below-grade rooms, and four below-grade air exhaust/pipe tunnels to the northern edge of the 105-NE Fission Products Trap (FPT).

Figure 6-3. Aerial View of Demolition Activities North of the SSE in April 2010.

Demolition of the room that housed W Elevator left four hydraulic rams (actuators), each housed in a 42-in.-diameter caisson, 30 ft deep (below floor of the room) at the bottom of the excavation. During operation, the actuators raised and lowered the elevator platform. The actuators were removed (lifted) from their respective caissons but the removal of the caissons would have required further excavation that could have jeopardized the structural integrity of the safe storage enclosure (SSE). After the actuators were removed, visually examined with the caissons, and surveyed, the U.S. Department of Energy (DOE) and the Washington State Department of Ecology (Ecology) agreed the caissons should be left in place. The agreement is documented in CCN 168948, 2010, "Agreement Between DOE and Ecology – W Elevator Caissons at 105-N," to C. D. McCurley Washington Closure Hanford, from R.F. Guercia, U.S. Department of Energy, Richland Operations Office, and F. W. Bond, Washington State Department of Ecology, April 29 (Attachment 22).

The demolition of the room that housed the W Elevator also housed the S Elevator at its northeast corner. The S Elevator was primarily a passenger elevator and provided service to the top of the W Elevator room. Its actuator was significantly longer and the caisson was significantly deeper than those in the W Elevator. After the actuator was removed, visually examined along with the caisson, and surveyed, DOE and Ecology agreed the S Elevator caisson also should be left in place. The agreement is documented in CCN 168949, 2010, "S Elevator – Potential need to Close as if Decommissioning a Well," to W. Thompson and C.D. McCurley, Washington Closure Hanford, from R. F. Guercia, U.S. Department of Energy, Richland Operations Office, and F. W. Bond, Washington State Department of Ecology, May 18 (Attachment 23).

Figure 6-4 provides an aerial view of the north side near demolition completion and Figures 6-5, 6-6, and 6-7 provide ground-level views of the excavation at completion in July 2010. The excavation was visually examined with Ecology in mid-July 2010. No stains or anomalies were observed. DOE and Ecology expressed no concerns. Various surveys conducted throughout the excavation identified small areas (e.g., small pieces of demolition debris) that required cleanup. A survey of the excavation was then performed using the Global Positioning Environmental Radiological Surveyor (GPERS). The results are presented for gamma and beta in Figures 6-8 and 6-9, respectively. No contamination greater-than two times background was detected, with the exception of one area near the FPT, as shown in Figure 6-8. It was anticipated that this contamination would be removed with the future demolition of the FPT but it was not.

Figure 6-4. Aerial View of North Side in July 2010.

Figure 6-5. View of North Side Excavation in July 2010 (facing southwest).

Figure 6-6. View of North Side Excavation in July 2010 (facing southwest).

Figure 6-7. View of North Side Excavation in July 2010 (facing west).

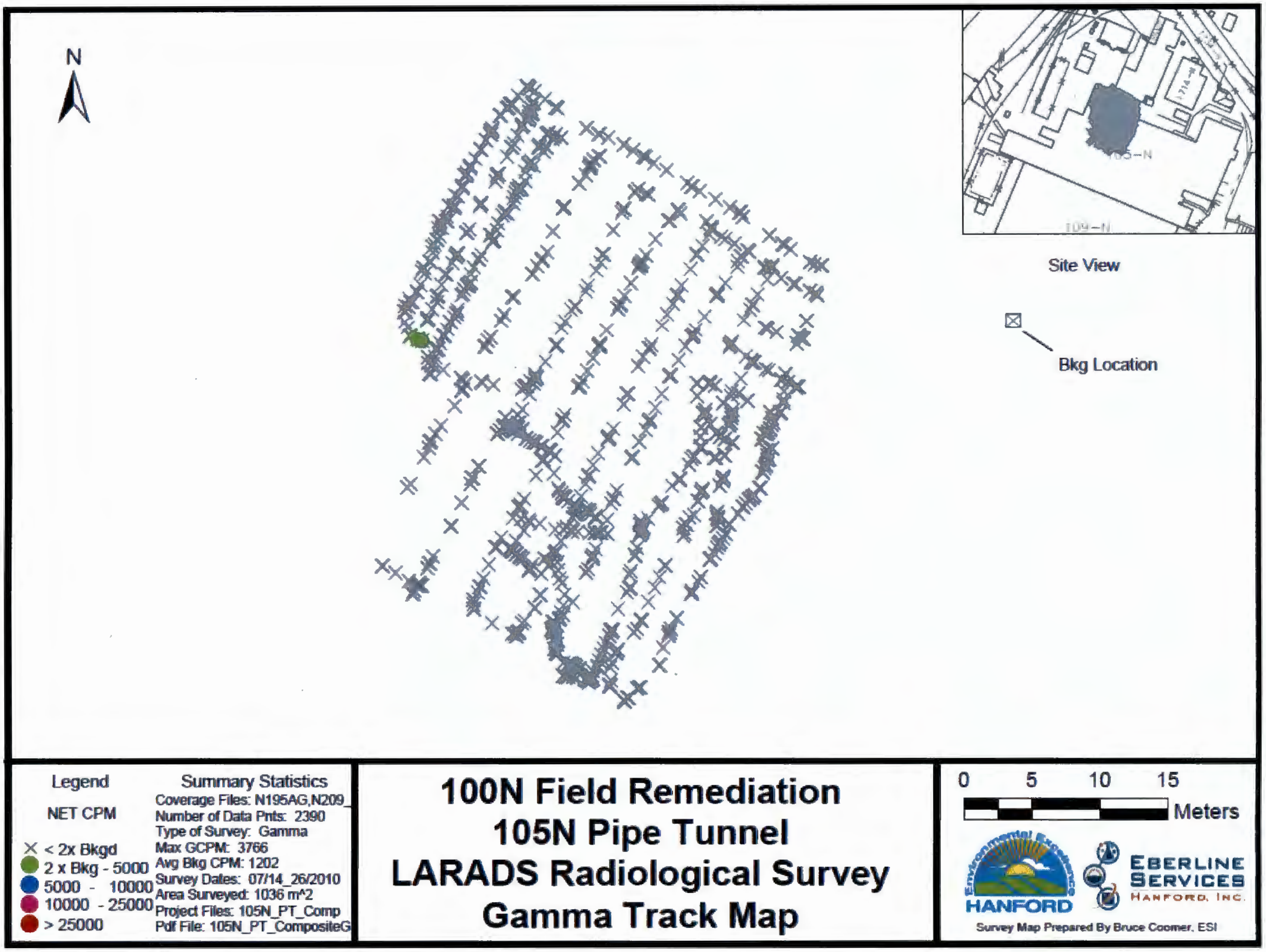


Figure 6-8. GPERS Survey of North Side Excavation for Gamma Contamination.

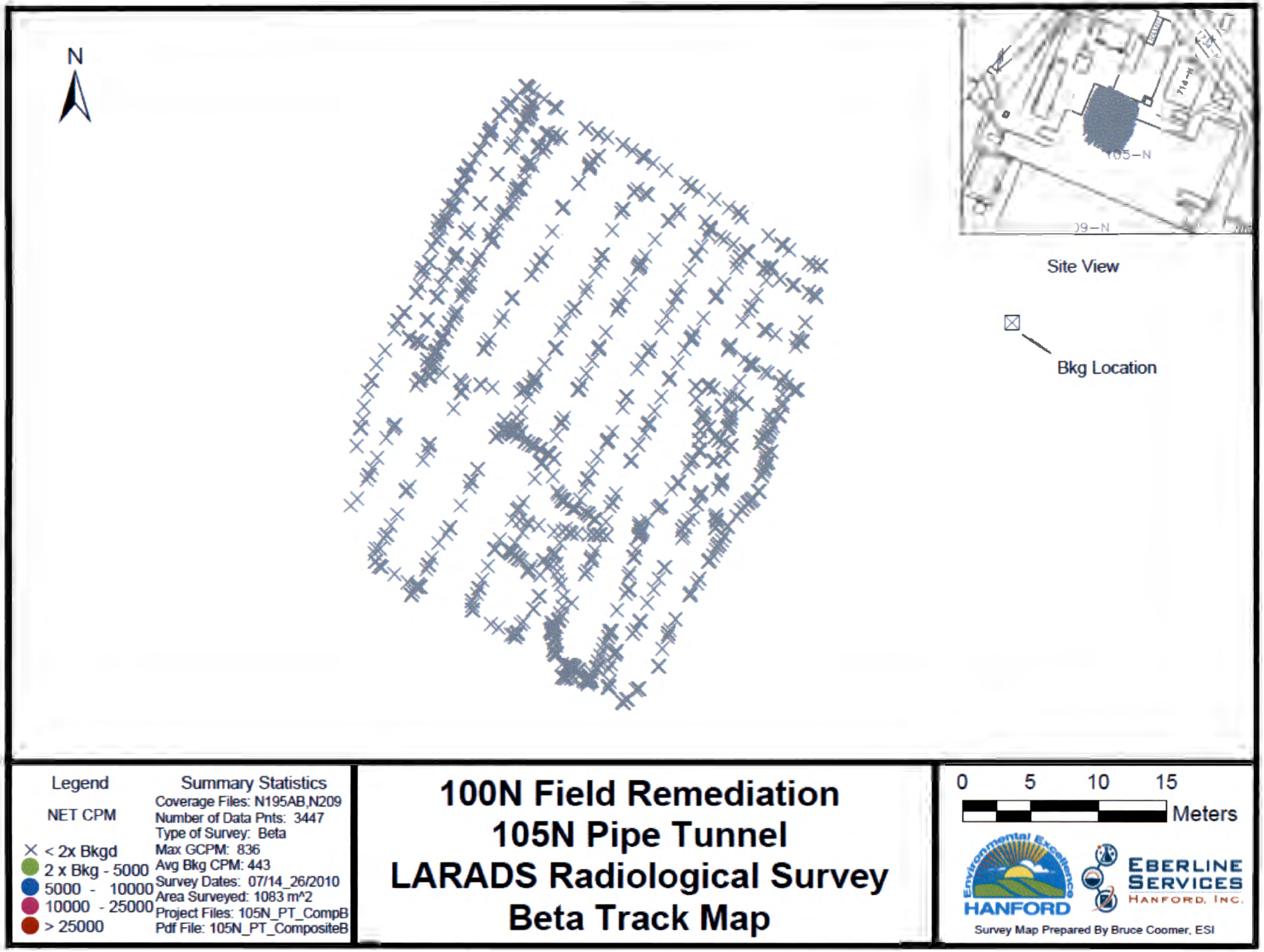


Figure 6-9. GPERS Survey of North Side Excavation for Beta Contamination.

Radiological surveys performed on the north side outer SSE walls (e.g., RSR-100ISS-10-0629 and RSR-100ISS-11-0032) identified no contamination other than a survey of an above-grade exterior doorway that had been located within the room that housed W Elevator (RSR-100ISS-10-0839). Copies of these surveys are provided in Attachment 17. Pour backs were installed on the north side of the SSE to seal below-grade penetrations/openings and the north side excavation was partially backfilled (with material from the 100-N borrow pit) so a crane could be used in the area for roof installation.

West Side

Demolition of the rooms on the west side of the 105-N building began in late July 2010 and continued through December 2010. Figures 6-10 through 6-14 provide photographs documenting the access to the below-grade areas on the west side so construction of the SSE could continue. The west side excavation between the northwest corner of the 105-N building, 105-N Lift Station, and 105-NE FPT was 21 feet below-grade and had been heavily used as an area for size-reducing and moving contaminated debris to the Environmental Restoration Disposal Facility (ERDF) cans. GPERS surveys of the area identified significant soil contamination as shown in Figures 6-15 and 6-16. Further excavation in this area had the potential to jeopardize the structural integrity of the nearby SSE; fixative was applied to the contaminated soil to allow demolition and SSE construction activities to continue.

Figure 6-10. West Side Demolition in Late July 2010 (facing south).

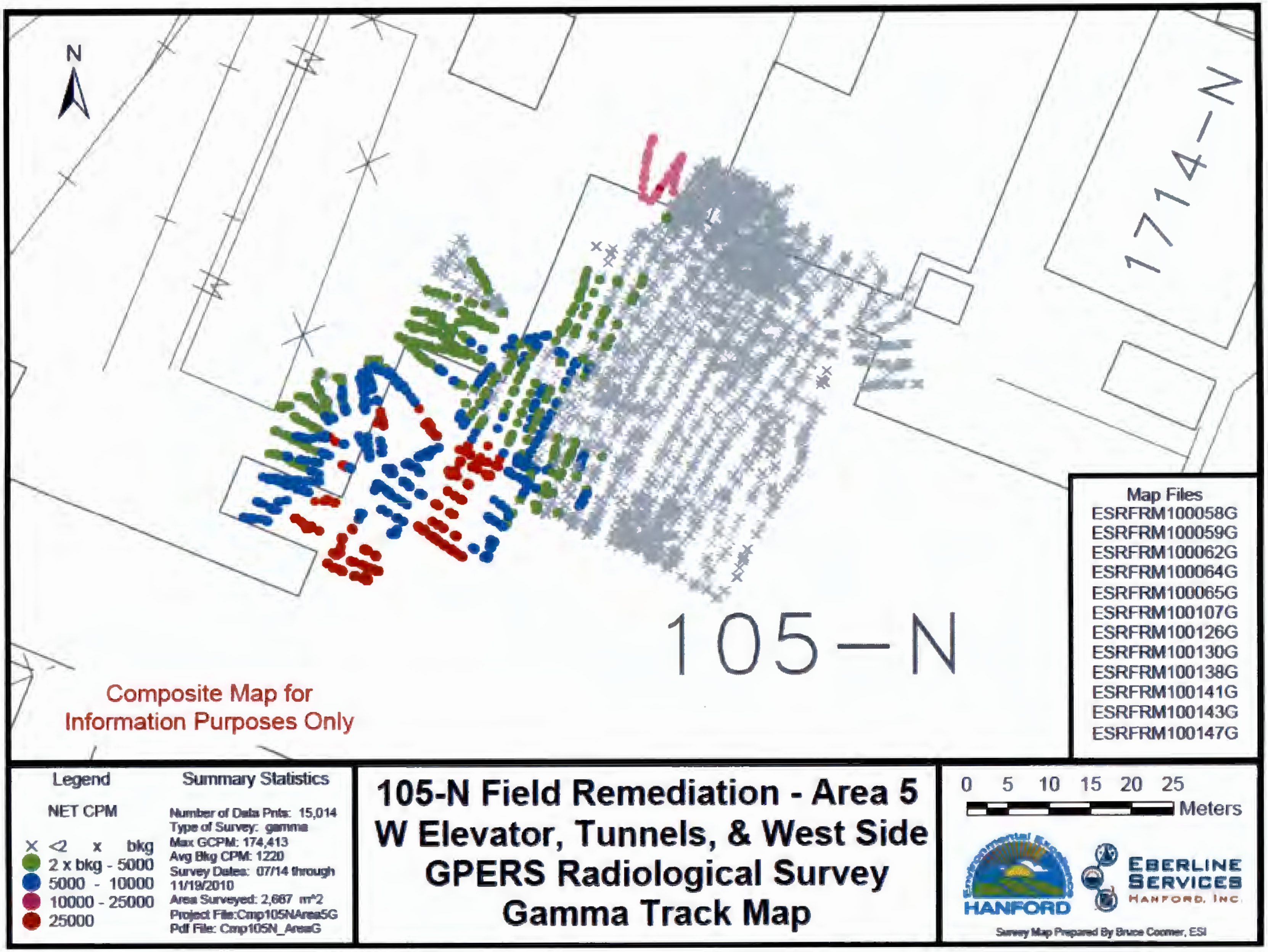
Figure 6-11. Aerial View of 105-N in Late August 2010.

Figure 6-12. West Side Below-Grade Demolition in October 2010 (facing southeast).

Figure 6-13. Form Work for West Side Below-Grade Pour Back in Late November 2010.

Figure 6-14. Aerial View of North and West Sides in December 2010.

Figure 6-15. GPERS Survey of West Side Excavation for Gamma Contamination.



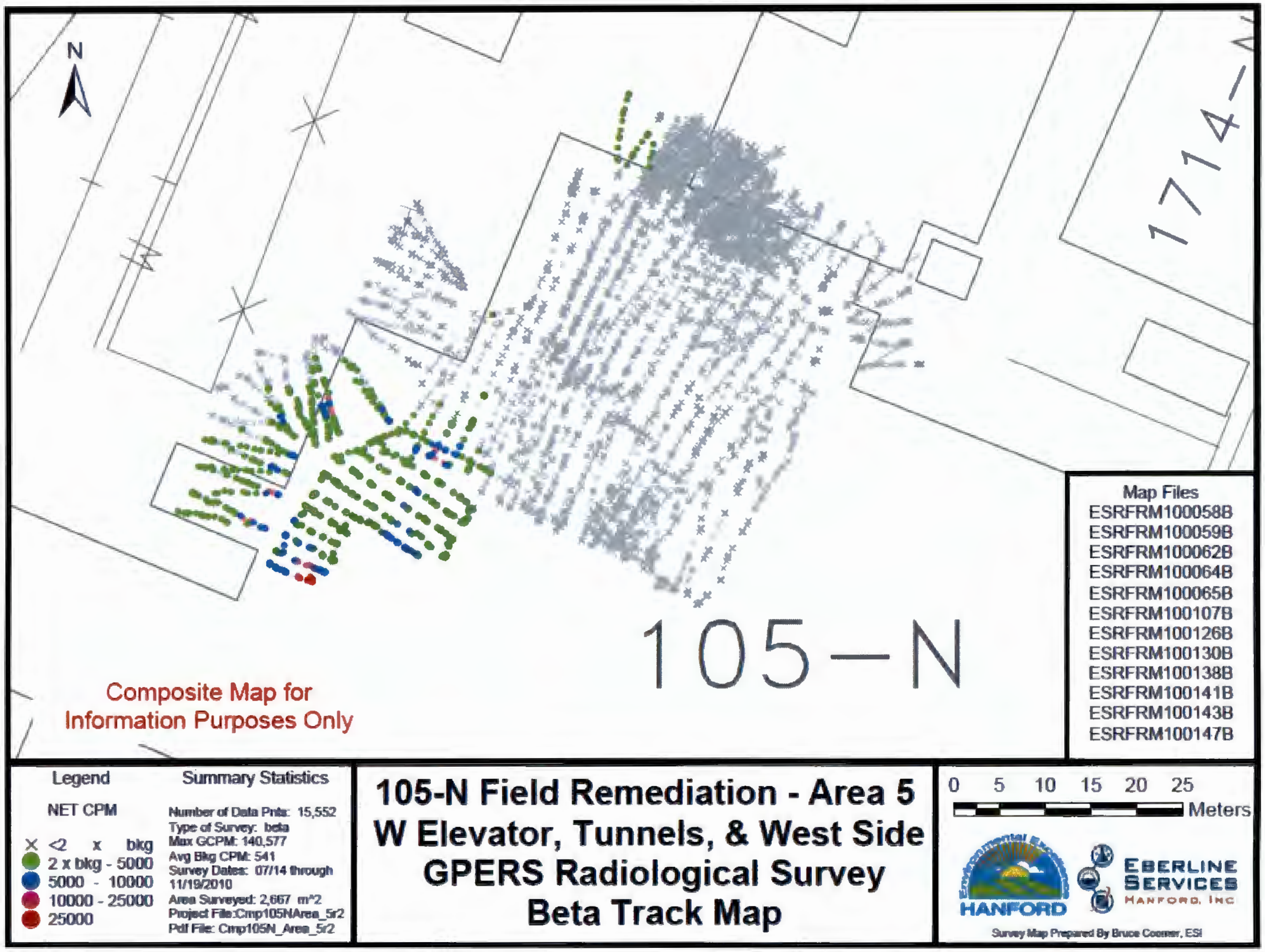


Figure 6-16. GPERS Survey of West Side Excavation for Beta Contamination.

Radiological surveys performed on the outer SSE walls in this area (e.g., RSR-100ISS-11-0002) indicated no contamination other than a few places on the below-grade footing at the base of the SSE rod room near Corridor 22, as described in RSR-100ISS-11-0025. The footing was covered with thick rubber sheeting to allow personnel to safely remove concrete forms used to construct several pour backs in that area. The footing was later covered with fill material. Copies of these Radiological Survey Records (RSRs) are provided in Attachment 17.

This excavation was maintained open for the next 2 years and significantly expanded with the demolition of the Fuel Storage Basin, lift station, 105-NE FPT, 117-N Filter Building, 105-NC Emergency Diesel Generator Building, and 1303-N Spacer Silos. The ramp, shown in Figure 6-14, was maintained throughout this period to support demolition activities.

In May 2012, the ramp was being re-graded and prepared for use by personnel and equipment for finishing the SSE when an anomaly (small area of discolored soil with an oily appearance approximately 3 ft in diameter) was observed at its base (Figure 6-17). A radiological survey of the anomaly (RSR-100ISS-12-0028) showed activity. A copy of this RSR is provided in Attachment 17. The area where the anomaly was observed is under the former Room 19 Zone II Exhaust Fan Room, 21 feet below grade, where a full removal of the structure was performed during building excavation and demolition. Time constraints to complete the SSE prevented further investigation. It was decided to return and pursue the anomaly when the SSE was complete. Approximately 2 ft of fill material was placed over the anomaly and surrounding area to prevent spread of contamination during SSE completion activities.

Personnel returned to sample the anomaly in early December 2012, however, after considerable digging and searching, the personnel were unable to locate evidence of discolored soil or elevated radiological activity. The area where the anomaly was observed in close proximity to the reactor, within the 100-N-66 WIDS site, and approximately 21 feet below grade. The activity levels associated with it are approximately half the activity level found at the Zone I Supply Plenum (Area 5) that was approved to remain with the SSE. Ecology agreed the anomaly, if still there, should remain as described in Attachment 24.

Figure 6-18 provides a view of the excavation west of the 105-N building in October 2012 near the completion of deactivation, decontamination, decommissioning, and demolition (D4) activities. By December 2012, D4 activities were complete and another survey of the west side was performed using GPERS. Results of the survey, presented in Figures 6-19 and 6-20 indicate radiological contamination remains in the 100-N-66 soil below the former rooms that were demolished on the west side of the 105-N building in 2010. To stay consistent with previous GPERS surveys around the 105-N/109-N buildings, the maps were plotted at two times the gamma and beta background levels established for that survey (Figures 6-19 and 6-20).

Figure 6-17. View of Area Where Anomaly Was Observed on West Side in Late May 2012.

Figure 6-18. Aerial View of 105-N in Mid-October 2012 (facing south).

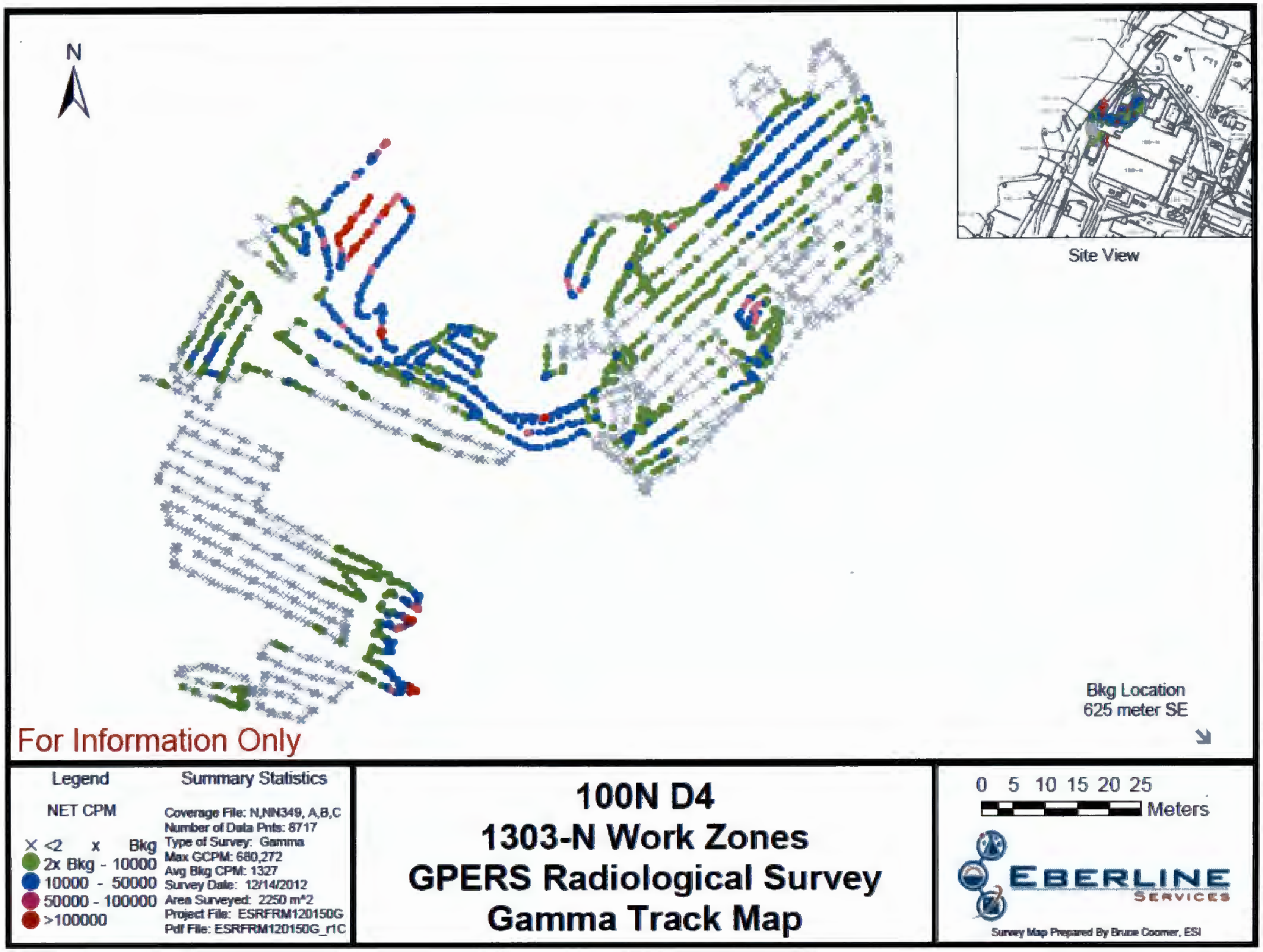


Figure 6-19. GPERS Survey of West Side Excavation for Gamma Contamination in Mid-December 2012.

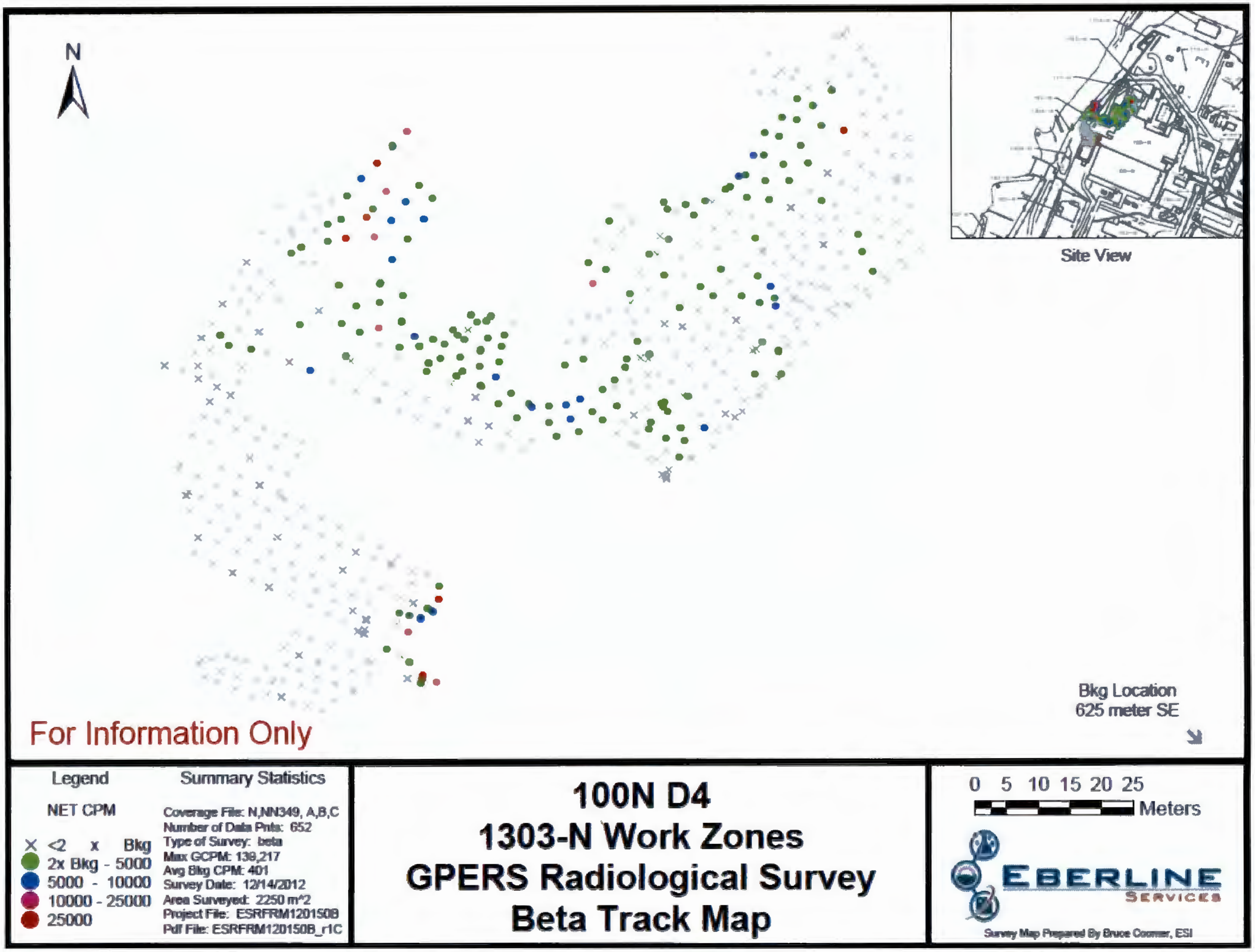


Figure 6-20. GPERS Survey of West Side Excavation for Beta Contamination in Mid-December 2012.

Facility Status Change Form

Attachment 7

105-N Fuel Storage Basin and Lift Station

ATTACHMENT 7: AREA 7 (18 PAGES)

105-N Fuel Storage Basin and Lift Station

The shaded area in Figure 7-1 shows the location of the Fuel Storage Basin (including the Transfer Area) and Lift Station (including the drain pipe tunnel) in relation to the 105-N building. Figure 7-2 provides an aerial photograph of the Fuel Storage Basin (FSB), Transfer Area (Transfer Bay), and Lift Station prior to demolition. As shown in Figure 7-3, the FSB consisted of north and south storage basins, an examination facility, a segregation area, and two cask loading pits. It was an unlined, reinforced concrete structure measuring 150 ft long, 50 ft wide, and 24 ft deep where irradiated fuel was stored to provide for radioactive decay of short-lived radionuclides prior to shipment for processing.

Figure 7-1. 105-N Fuel Storage Basin and Lift Station.

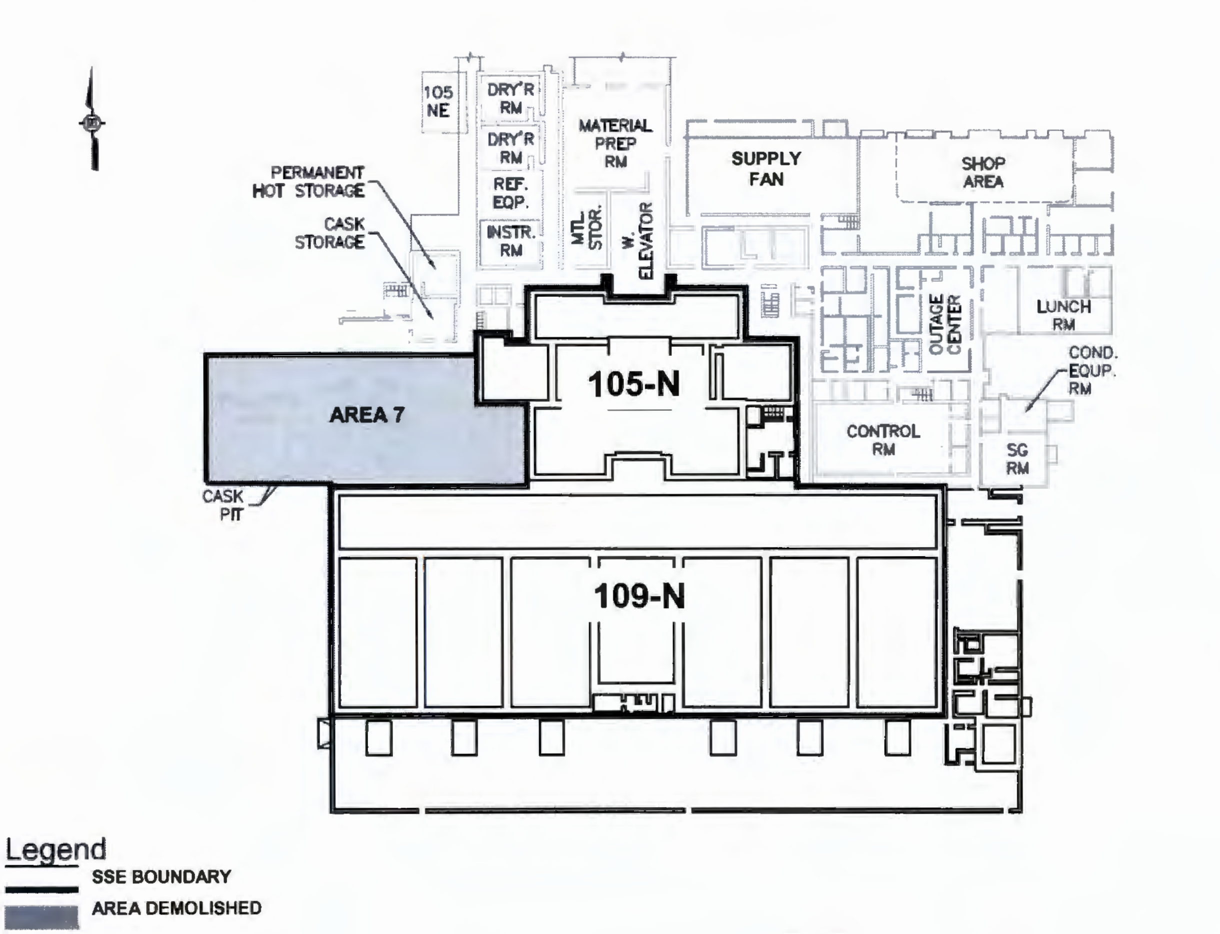


Figure 7-2. Aerial View of Fuel Storage Basin, Transfer Area and Lift Station in May 2008.

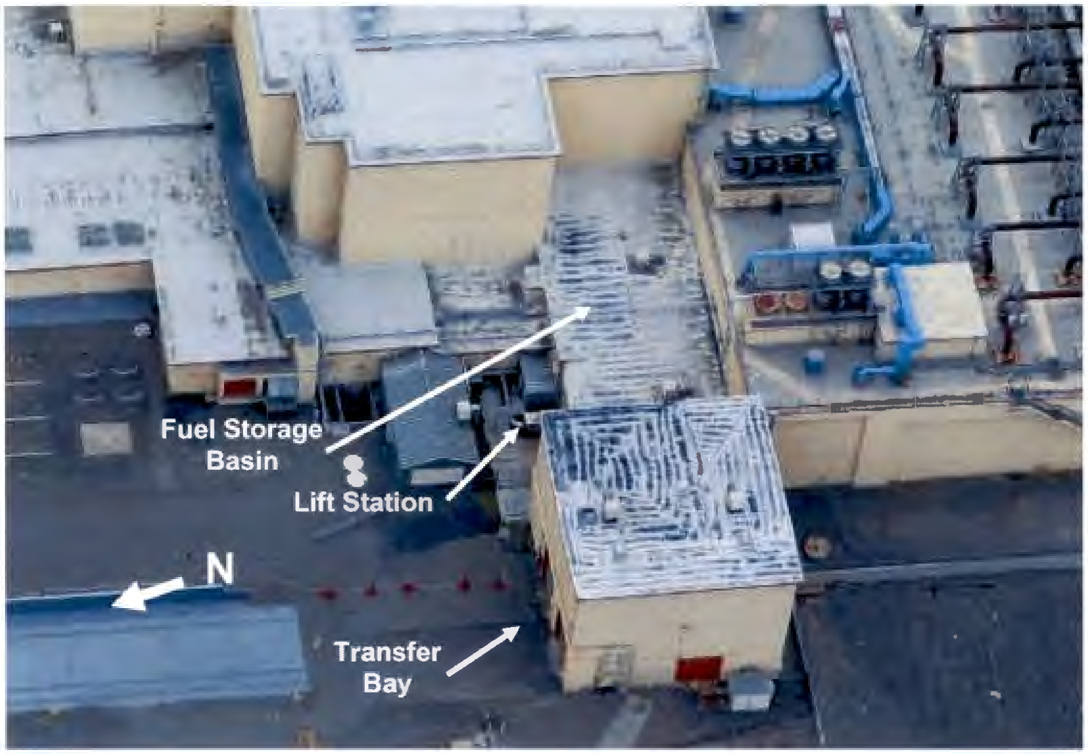
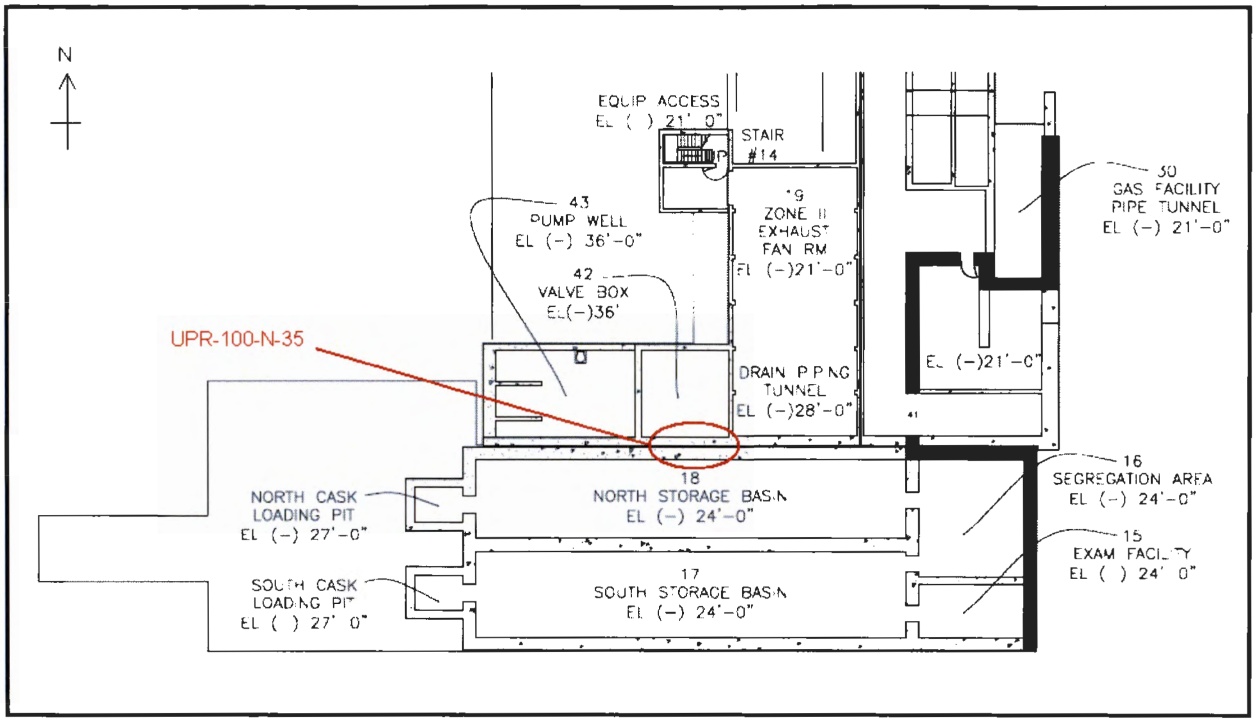


Figure 7-3. 105-N Fuel Storage Basin and Lift Station.



At the FSB's west end was a transfer area at grade where the fuel was loaded in rail cars for shipment. On the north side was the lift station that consisted of a drain piping tunnel (pipe tunnel), a valve box (valve pit), and a pump well. The pipe tunnel served as a conduit for wastewater leaving the 105-N Reactor Building to enter the lift station discharge pump well and destinations outside the 105-N Building, such as the 1301-N Disposal Crib and Trench (116-N-1 waste site). The pipe tunnel was open to the valve pit. Liquids entering the pipe tunnel would drain to the valve pit, which was 8 ft lower in elevation. Next to the valve pit was the pump well, which was separated from the valve pit by a concrete wall. The 105-N Lift Station footprint is within the Waste Information Data System (WIDS) 100-N-66.

In February 1986, an FSB overflow weir drain line cracked and started causing water to leak into the lift station pipe tunnel through a crack in the tunnel's south concrete wall at the UPR-100-N-35 location shown in Figure 7-3. An eyewitness account of this leak is documented in CCN 166302, 2012, "UPR-100-N-35 Unplanned Sub-Basin Drain Line in 105N," to T. L. Faust from D. L. Schilperoort, Washington Closure Hanford, June 20 (Attachment 25). The leak, estimated to be less than 3 gal/min, occurred only during feed and bleed events (when water was added to the fuel storage basin) from February to November 1986. The southwest FSB weir and drain line were grouted and sealed off on December 5 and 8, 1986. This unplanned release waste site is identified as the UPR-100-N-35, 100-N Fuel Basin Drainage System Leak, UN-116-N-35 and is likely a major contributor to the radiological contamination found on the floor and walls (near floor level) of the pipe tunnel and valve pit.

Below-Grade Structures Plan

Engineers designing the Safe Storage Enclosure (SSE) in early 2009 identified that the structural integrity of the 105-N building's west side could potentially be compromised if the pipe tunnel and valve pit, which are 7 ft and 15 ft, respectively, below the base of the 105-N Building were demolished and removed. As a result, it was determined that significant portions of these below-grade structures needed to remain in place.

The plan developed to mitigate potential damage to the SSE called for applying liberal amounts of fixative to the pipe tunnel floor and walls, draining all liquids from the pipes inside, and overcutting the pipes back into and underneath the SSE. The pipes would also be cut slightly into the valve pit. The dry pipe sections would then be stored on the floor of the tunnel until its roof was removed and the pipes were accessible. After the pipe tunnel is opened up (i.e., roof removed) and pipe sections removed, its south wall would be trimmed up at an angle toward the SSE between grade and the (-)21-ft elevation as shown in Figure 7-4. This would provide lateral support for the below-grade SSE during the demolition of the FSB. The tunnel's north wall would be removed down to the (-)21-ft elevation as shown in Figure 7-5.

Figure 7-4. Plan for Pipe Tunnel and Valve Pit (South Wall) Facing South.

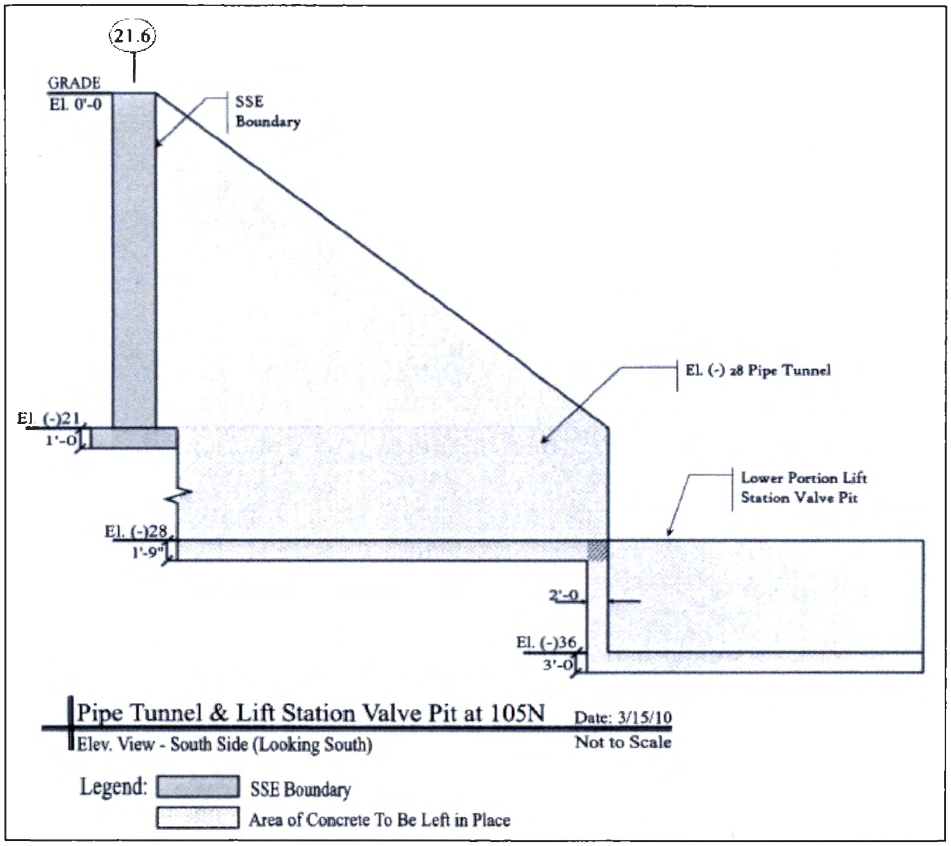
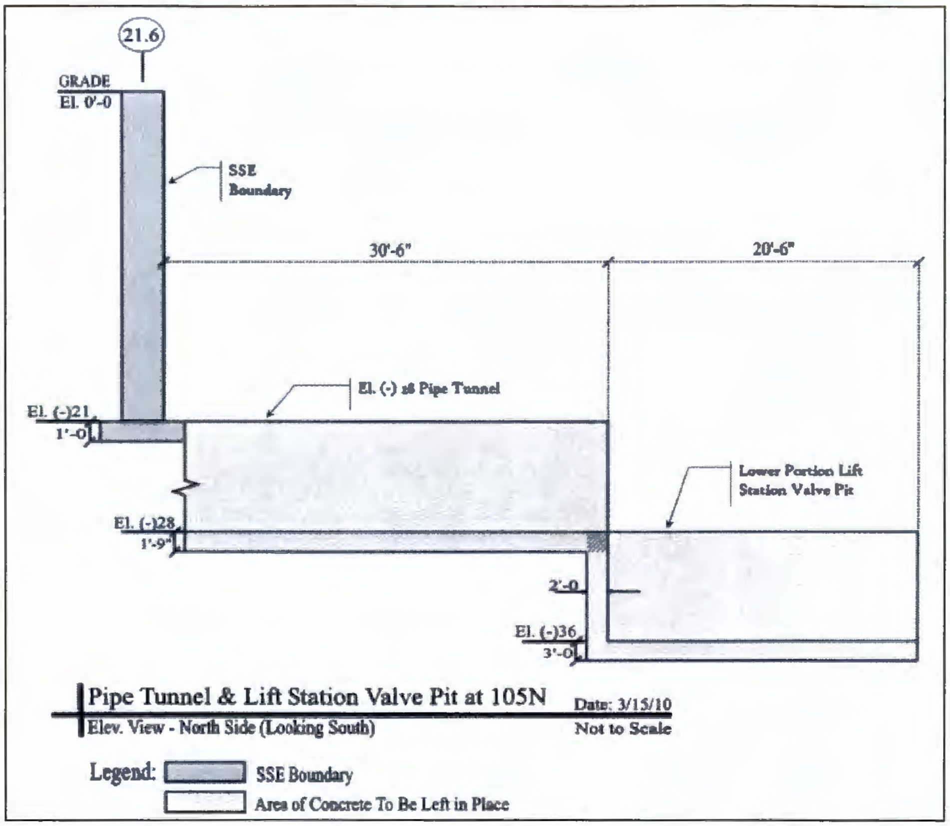


Figure 7-5. Plan for Pipe Tunnel and Valve Pit (North Wall) Facing South.



With the pipe tunnel opened and cleaned out (e.g., pipes removed), a concrete pour back would be installed at its east end (underneath the west SSE wall) and a temporary wall would be placed at its east end to shield deactivation, decontamination, decommissioning, and demolition (D4) personnel from exposure to radiological contamination inside the valve pit. Then, at a later date, the lift station would be demolished with the FSB but care would be taken to leave intact the valve pit floor and walls shown in Figures 7-4 and 7-5.

The U.S. Department of Ecology (DOE) and the Washington State Department of Ecology (Ecology) accepted the below-grade structures plan and agreed to additional conditions described in CCN 153055, 2010, "Agreement Between DOE and Ecology – 105-N West Side Below Grade Pipe Tunnel," to C. D. McCurley, Washington Closure Hanford, from R. F. Guercia, U.S. Department of Energy, Richland Operations Office, and F. W. Bond, Washington State Department of Ecology, Richland, Washington, July 8 (Attachment 26) with the exception that overburden would not be used to backfill the excavation as specified from (-) 16 ft to grade. This condition was later modified, with DOE and Ecology as described in CCN 165487, 2012, "105-N Fuel Storage Basin Excavation – Ecology Approval to Pad In," to C. D. McCurley, Washington Closure Hanford, from F. W. Bond, Washington State Department of Ecology, Richland, Washington, April 25 (Attachment 27), in favor of backfilling the fuel storage basin (which includes the pipe tunnel and lift station valve pit) with material that had been excavated from nearby areas (e.g. 1303-N silos) where radiological surveys were not showing any appreciable contamination.

By September 2010, additional fixative had been applied to the floor and walls of the pipe tunnel and the pipes had been drained, cut, and laid on the floor. The Material Safety Data Sheets (MSDSs) for the fixative are provided in Attachment 28. By October 2010, the pipe tunnel roof had been removed and debris, including the pipes, had been cleaned out. With the debris gone, the pipe tunnel was again surveyed (RSR-100ISS-10-1063) and the survey results, along with a visual evaluation of the floor for stains, were used to determine the locations for collecting the four in-process concrete samples that DOE and Ecology requested.

Sample collection was to target areas with stains and where radiological activity indicated the highest values. Because of high background radiation levels (up to 10 mrad/hr beta and 20 mR/hr gamma) in the survey area, direct radiological survey readings could not be used to identify the focused sample locations, however, removable contamination was recorded at locations selected by the radiological control technicians. These results were used to identify the concrete sample locations, acknowledging that it was unknown if these smear sample locations represented the highest contamination values that may be present. Figure 7-6 shows the concrete sample locations in relation to the smears from the radiological survey. The concrete samples were collected in early November 2010. The smear results and sample numbers are summarized in Table 7-1. Figure 7-7 shows the appearance of the pipe tunnel during sample collection.

The concrete samples were analyzed for metals, radionuclides, and polychlorinated biphenyls (PCBs). Samples were also collected for hexavalent chromium analyses but the radiological activity inherent with the samples delayed shipment and the analytical method's short holding time (i.e., 24 hours) was missed causing the samples to be invalidated. The results are summarized in Attachment 29 and indicate that elevated concentrations of radionuclides and metals exist in the pipe tunnel from the unplanned release UPR-100-N-35. These results are for information purposes only to guide future demolition of the 105-N SSE.

Figure 7-6. Drain Piping Tunnel Concrete Sample Location and Radiological Survey Map. (Diagram not to scale)

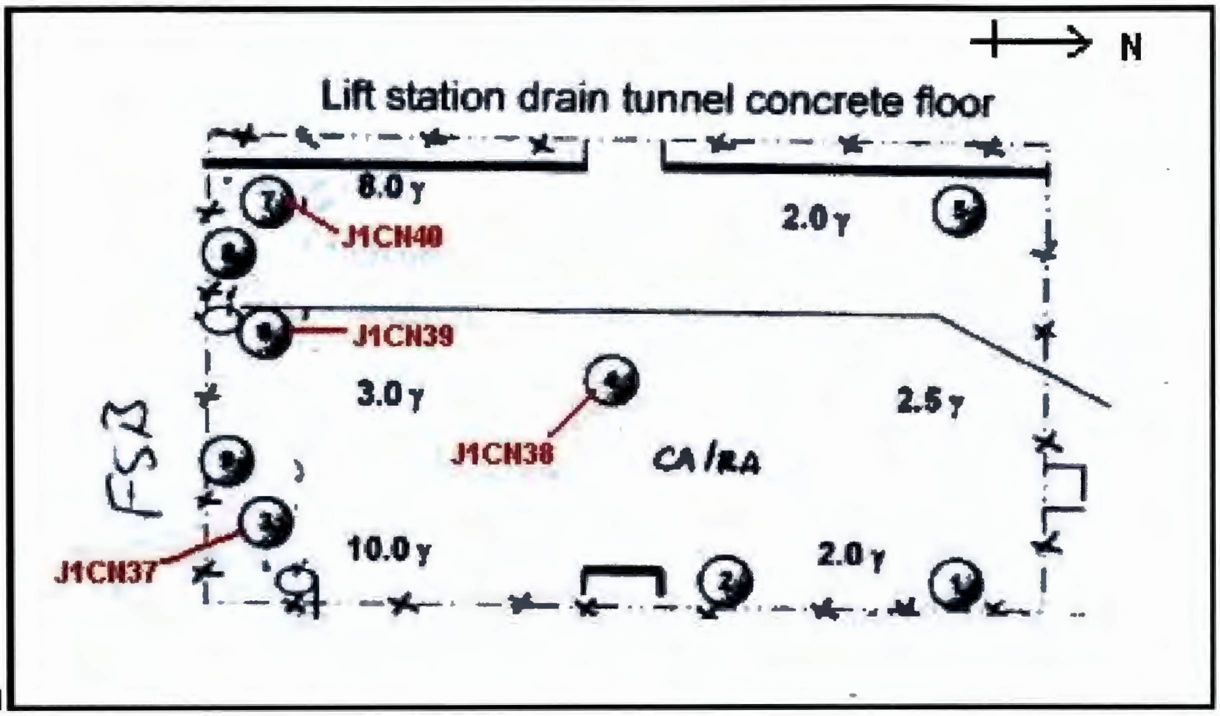


Table 7-1. Pipe Tunnel Concrete Sample and Radiological Survey Summary Table.

Sample Number	Sample Location on RSR Map	Removable (dpm/100 cm2)	
		alpha	Beta-gamma
J1CN37	3	560	80K
J1CN38	4	28	5K
J1CN39	6	210	64K
J1CN310	7	72	64K

Figure 7-7. Concrete Sample Being Collected from Pipe Tunnel in November 2010.

In addition to sampling the floor of the pipe tunnel, the water in the bottom of the lift station's valve pit was pumped to containers at grade and sampled (from the containers) in late November 2010. The results are provided in Attachment 30. The water was later shipped to the 2025-E Effluent Treatment Facility (ETF) for treatment. The sediment remaining in the bottom of the lift station's valve pit was not sampled; it was left in place, removed with the lift station/valve pit debris, and disposed of at the ERDF.

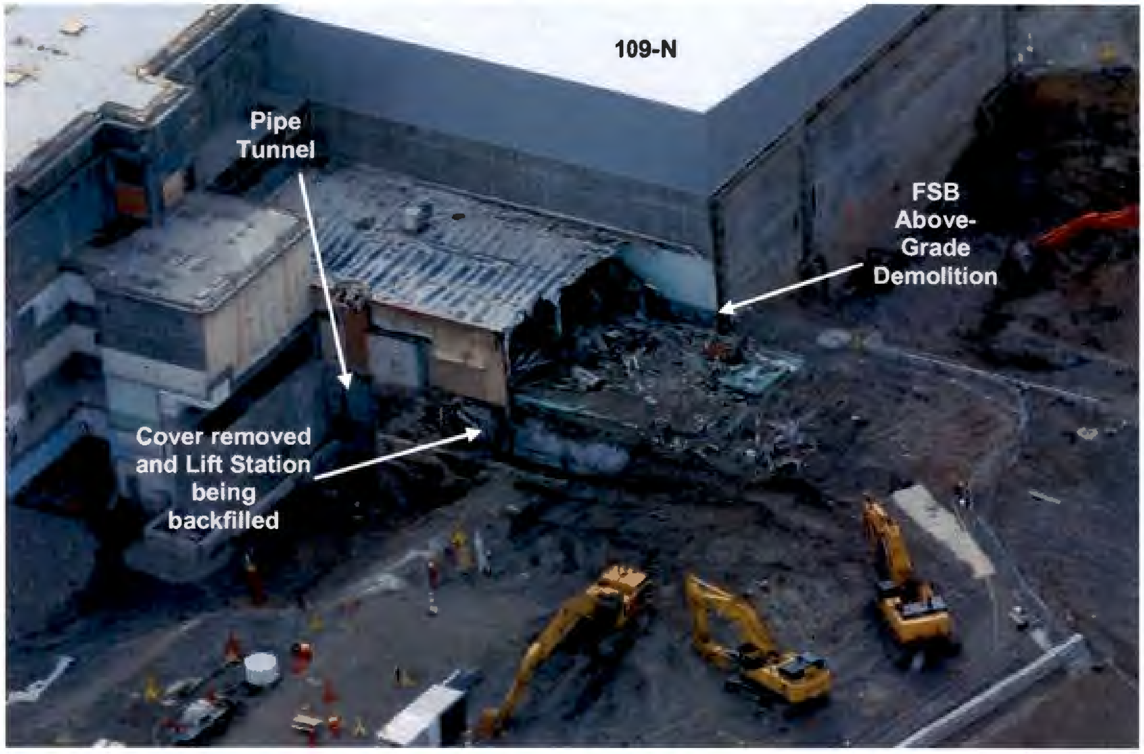
After the samples were collected, forms were set and a concrete pour back was constructed to seal the east end of the pipe tunnel. Demolition activities moved to the transfer bay, a metal building on a concrete slab at grade, in late December 2010. Beryllium contamination from an overhead gantry crane was found inside the transfer bay triggering the requirement to demolish it under beryllium controls. Figure 7-8 provides a view of the transfer bay being demolished in January 2011. By the end of February, demolition of the transfer bay was complete.

Figure 7-8. 105-N Transfer Bay Demolition in January 2011.

Demolition of the above-grade FSB started in March 2011. In accordance with the *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities* (RAWP) (DOE/RL-2005-43, Rev. 0), fixative had previously been applied inside the FSB and the below-grade area had, several months earlier, been filled with more than 8 ft of low-strength controlled density fill (grout) to stabilize contaminants and provide shielding during demolition. The FSB also housed a gantry crane and demolition would be performed under beryllium controls.

Excavators first demolished and loaded out as much of the above-grade structure as could safely be reached (Figure 7-9). The lift station on the FSB's north side presented a safety hazard because heavy equipment could not safely be operated on top of this facility so its cover was removed and it was backfilled with clean fill material. Once the lift station was filled, excavators were able to operate on top of it, reach, and demolish the FSB further in toward the SSE. With as much of the above-grade structure as possible removed, excavators then proceeded to cave in the FSB's cover plates (Figure 7-10), allowing them to fall down on top of the grout that had been placed there several months earlier. The tops of the cask pits were also caved in to the grout below.

Figure 7-9. Aerial View of FSB Demolition in March 2011.



A ramp was then excavated on the outer west side of the cask pits down to the level of the grout, approximately 16 ft below grade. From this below-grade position, excavators started demolishing the walls into the structure, from west to east, using the debris and some of the surrounding soil as shielding to keep dose rates as low as reasonably achievable (ALARA). Demolition continued east (toward the SSE) in this manner until all parts of the FSB above the grout were reduced to rubble and lying on top of the grout. Once this was complete, the rubble was size-reduced and removed in 3-ft lifts from east to west (away from the SSE) until the grout was exposed. The grout was then hammered and removed from east to west in 3-ft lifts until the entire FSB, including the floor and much of the soil below the floor, was removed.
Figure 7-11 provides an aerial photograph of the 105-N building in December 2011 as demolition was progressing down toward the FSB floor. By mid-March 2012 the FSB was fully removed along with 3 to 4 ft of soil that had been below its floor (Figure 7-12). Excavation depth at the center of the FSB was down near the level of the pipe tunnel floor, at (-)28-ft below grade, and fixative had been applied to the adjacent SSE walls. Twenty soil samples from the FSB and associated debris pile were collected in early April 2012 and analyzed for beryllium. A radiological survey of the FSB and surrounding area (RSR-100N-12-0861), performed in early April, identified significant radiological contamination. A copy of this survey is provided in Attachment 17. A radiological survey of the FSB using Global Positioning Environmental Radiological Surveyor (GPERS) could not be performed because the height of the nearby SSE walls blocked satellite signals.

Figure 7-10. FSB Demolition in April 2011 from Roof of 105-N.

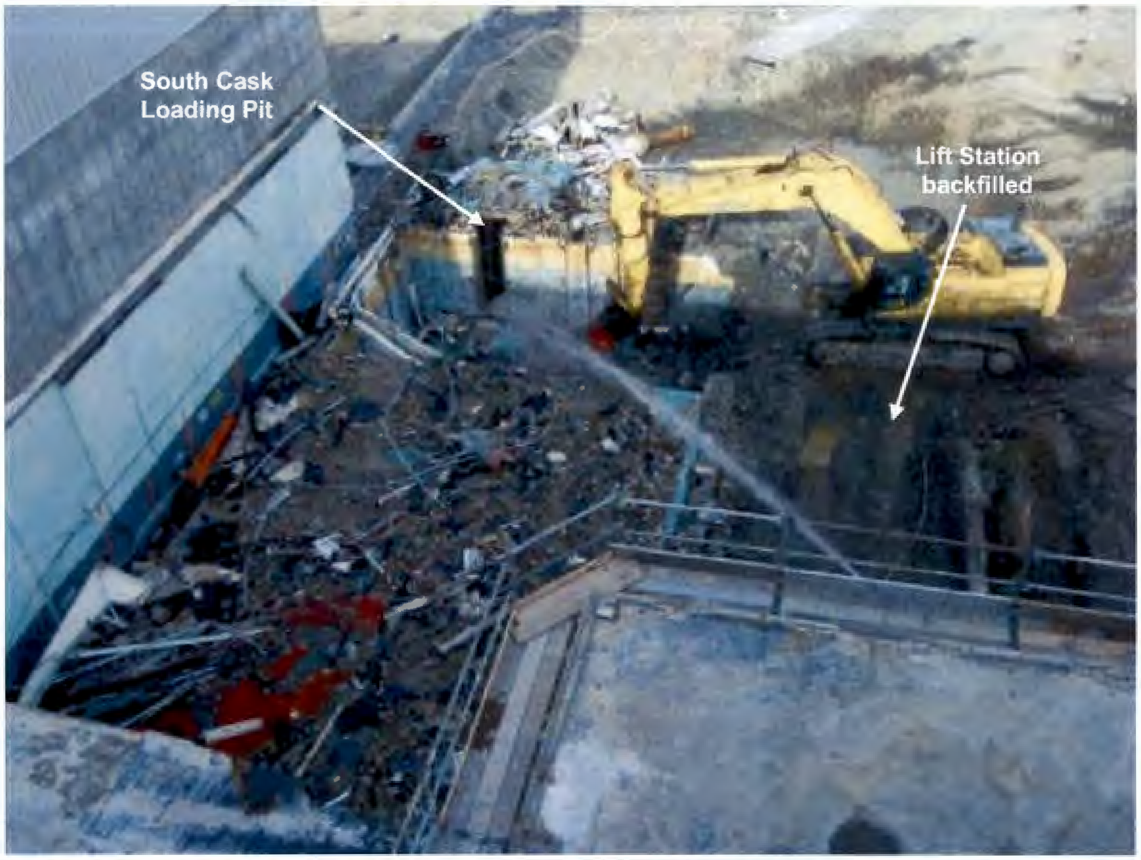
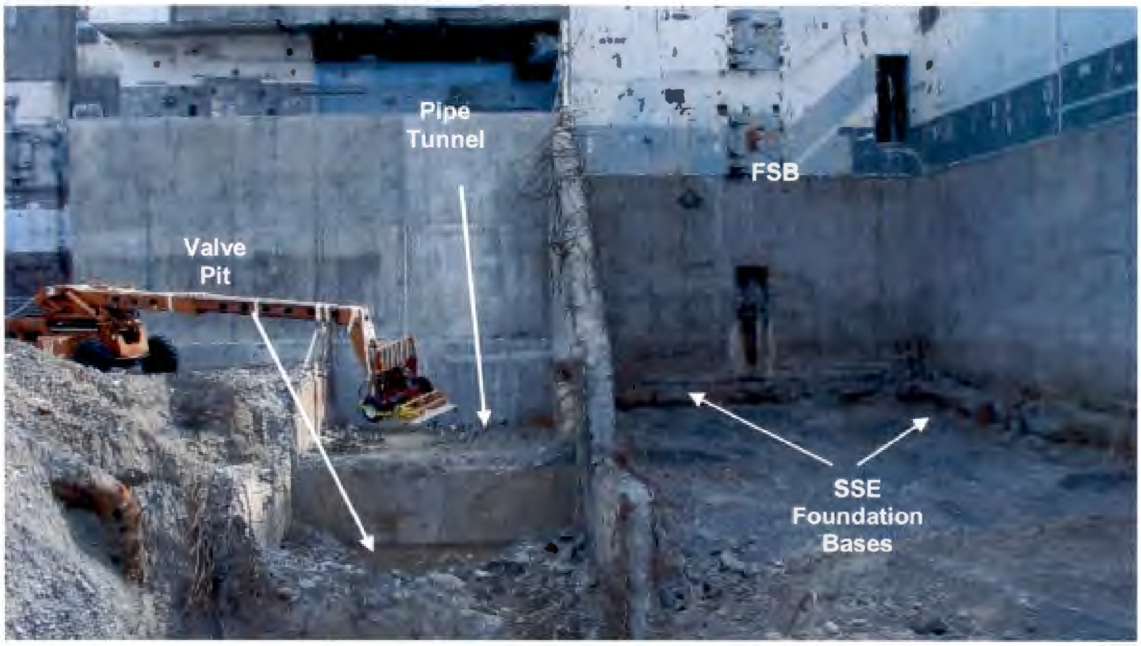


Figure 7-11. Aerial View of FSB Demolition in December 2011.

Demolition of the lift station's sump was also complete, as shown in Figure 7-12 and, as previously agreed between DOE and Ecology (Attachment 26), the floor and portions of the lift station's valve pit walls had been left in place to support the pipe tunnel that supported the SSE. It was agreed that one sample of the concrete floor would be collected and analyzed as described in CCN 153055 (Attachment 26).

Figure 7-12. Lift Station and FSB in April 2012.



Excavation, fall, and radiological hazards prevented project personnel from safely accessing the valve pit area so an excavator was used to clean (scrape away) residual debris from the floors of the pipe tunnel and valve pit. With the debris cleaned off, the excavator used its bucket to break loose (scrape) concrete from the surface of the valve pit floor. The broken pieces of concrete were scooped, moved to a lower radiological contamination area (to maintain ALARA), and composited into sample J1NPC5 for analysis. The sample was analyzed for metals, PCBs, and radionuclides and the results, presented in Attachment 29, indicate elevated concentrations of radionuclides and metals. The results are for information purposes only to guide future demolition of the 105-N SSE.

Fixative was then applied to the valve pit floor (Figure 7-13) and a radiological survey was performed (RSR-100N-12-1359). A copy is this survey is provided in Attachment 17. The height of the nearby SSE walls blocked satellite signals and prevented a survey using GPERS.

By this time (late April 2012), resources responsible for completing the SSE were mobilizing on site to begin work in early May. Beginning the SSE completion work at this time was critical to ensuring the conditions of Tri-Party Agreement Milestone M-093-020 were met. The work required full access to all areas of the former FSB, which still had significant restrictions due to radiological hazards (e.g., radiological contamination in the soil and on the walls). For the work to proceed as scheduled, the hazards required mitigation (e.g., padding in over contaminated soil, applying fixative to walls), and soil underneath the former FSB still needed to be characterized as required by the RAWP. Not all of the information needed to develop the sampling and analysis plan for the soil (i.e., number and location of samples) was available, so sampling and analysis was postponed and the project proceeded with the padding over the FSB, including the lift station, as agreed with DOE and Ecology in CCN 165487 (Attachment 27). However, prior to padding, demolition debris (e.g., rubble, fiber board) was scraped from the SSE foundation bases and the soil under the former FSB was graded flat. A layer of straw was spread across the former FSB (Figure 7-14) to form a visible interface between existing soil and soil pad in material, both of which would require characterization.

Once the straw was in place, the lift station was backfilled and a 2-ft to 3-ft-thick layer of fill material was spread over the FSB as shown in Figure 7-15.

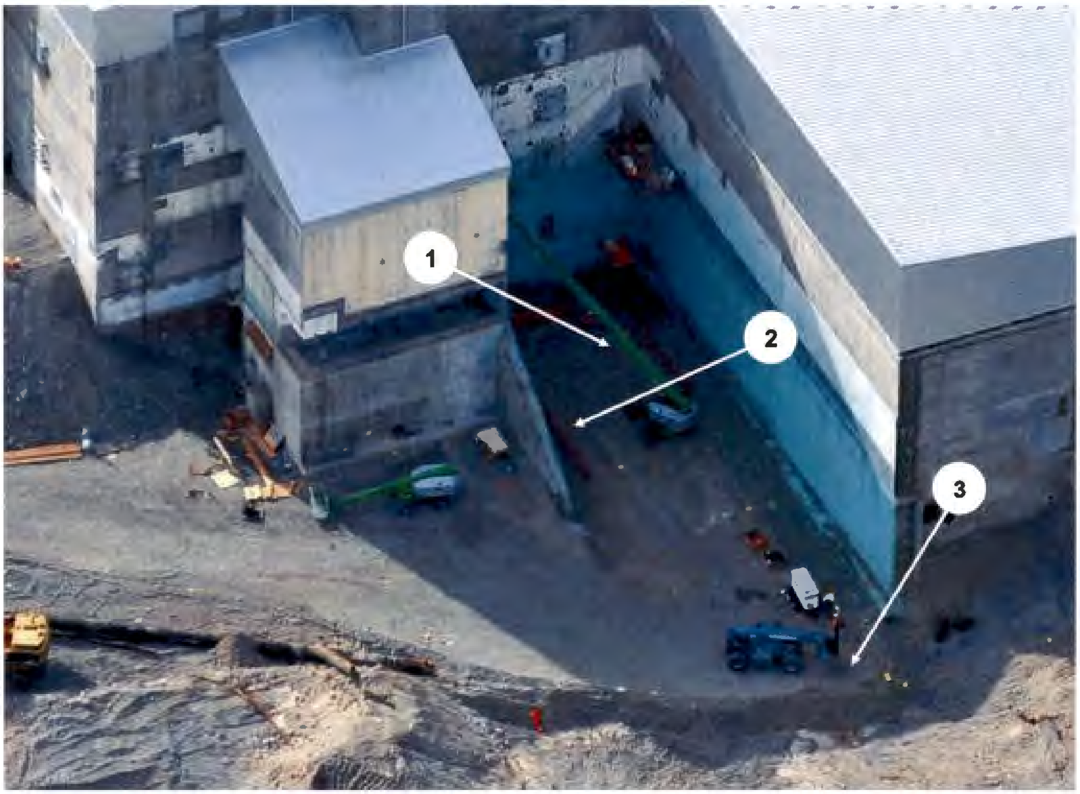
Figure 7-13. Pipe Tunnel and Valve Pit in April 2012 After Fixative Application.

Figure 7-14. View of Former FSB from Rod Room Scaffold in Late April 2012.

Figure 7-15. Aerial View of 105-N West Side in late May 2012.

With the fill material in place, activities to complete the construction of the SSE (e.g., sealing of openings and penetrations, cleaning out corridors 7 and 22) were able to resume in early May. A brief mid-August break in activities allowed soil samples to be collected from the former FSB. Three locations, shown in Figure 7-16, within the footprint of the former FSB were chosen for sample collection based on 1) the areas where radiological screening results were highest for shipping the 20 soil samples collected for beryllium analysis, and 2) the radiological survey performed in the FSB in early April (RSR-100N-12-0861).

Figure 7-16. Approximate FSB Sample Locations.



Two samples were collected at each location. The first was approximately 3 in. below the existing surface and is representative of the padding material that was placed there after FSB demolition and removal. The second was approximately 6 in. below the layer of straw that was previously spread throughout the FSB and is representative of the soil under the former FSB. Table 7-2 lists for each sample its number, location, depth at which it was collected, and the contaminants of potential concern (COPCs) for which the sample was analyzed.

The analytical results are presented in Attachment 31. Tritium, stronitum-90, and nickel-63 were found at levels that may require additional remediation in the future. Polychlorinated biphenyls (Aroclor-1254) was found to be higher in the fill material than the soil that was below the FSB. These results are for information purposes only to guide future demolition of the 105-N SSE.

Table 7-2. FSB Sample and Radiological Survey Summary Table.

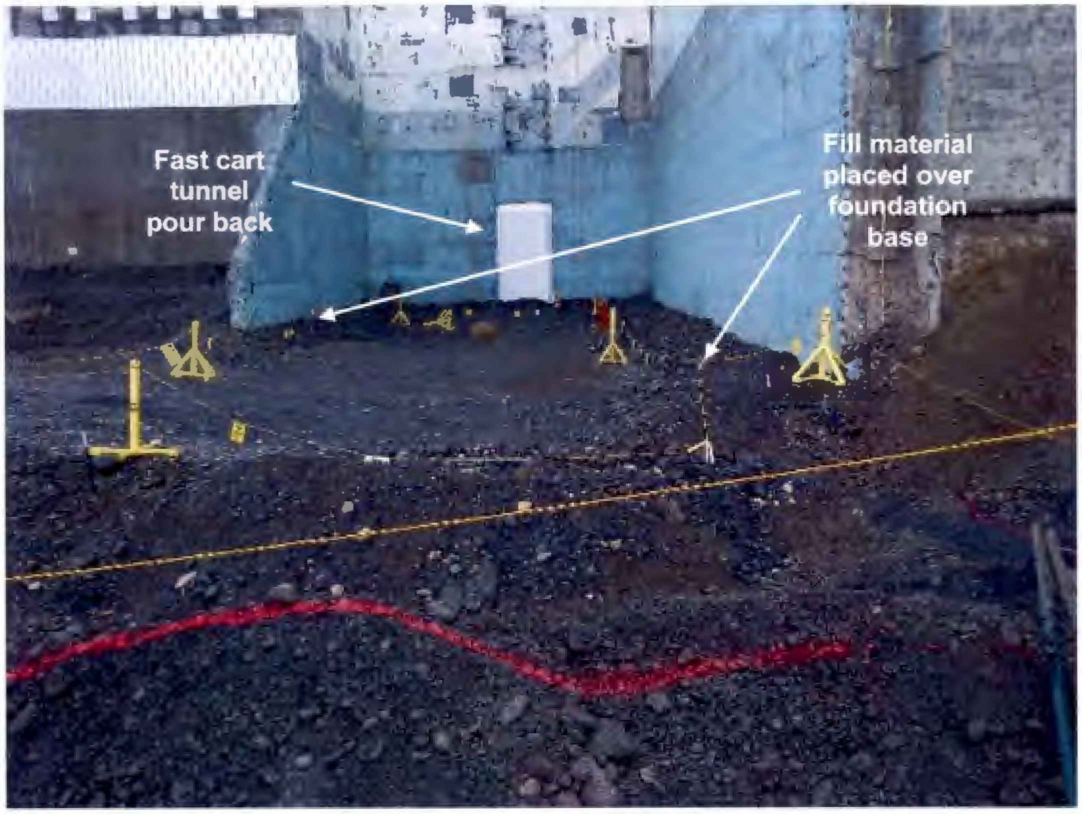
Sample Number	Sample Location	Sample Depth	COPCs
J1PXD4	1	3 inches	GEA (Am-241, Cs-137, Co-60, Eu-152, Eu-154, Eu-155), isotopic Pu, Isotopic U, Isotopic Th, tritium, C-14, Ni-63,Sr-90, Tc-99, gross alpha, gross beta, ICP metals, mercury, hexavalent chromium, PCBs
J1PXD5	2	3 inches	
J1PXD6	3	3 inches	
J1PXD7	1	3.5 feet	
J1PXD8	2	3.5 feet	
J1PXD9	3	3.5 feet	

GEA – gamma energy analysis

By late August 2012, SSE construction was complete with the exception of one concrete pour back that had been constructed to seal the FSB's fast cart tunnel. Water was visibly seeping through a hairline crack in the pour back. The crack was near the same level as the tunnel's floor. After several days of monitoring, the seep did not appear to be slowing so two borings were drilled through the crack and approximately 40 gal of trapped water was drained and containerized. The origin of the water was unclear (i.e., the fast cart tunnel had previously been confirmed dry) but the most plausible explanation is that dust suppression water had entered this part of the 105-N building through penetrations during anchor bolt installations and accumulated at the lowest point (i.e., behind the fast cart tunnel pour back). With the water drained, the pour back was repaired, sealed as shown in Figure 7-17, and extra sealant (caulking) was applied around other FSB area openings and penetrations.

Surveys performed on the outer SSE walls around the former FSB (e.g., RSR-100N-12-0861, RSR-100ISS-12-0042, RSR-100ISS-12-0093, RSR-100ISS-12-0181, RSR-100ISS-12-0195, and RSR-100N-12-2302) and a survey performed on the soil within the footprint of the former FSB (see RSR-100N-12-2224) document the presence of significant contamination. Copies of these Radiological Survey Records (RSRs) are provided in Attachment 17. Although a liberal amount of fixative was applied to the walls and foundation base around the former FSB area, background radiation (shine) from this contamination interfered with other surveys inside and outside the former FSB area. In late November 2012, additional fill material from the 100-N borrow pit was imported and placed over the SSE foundation base surrounding the former FSB (Figure 7-17) to reduce the radiological exposure rates. The fill material significantly reduced the shine to the extent that a radiological survey using GPERS was successfully performed in nearby areas west and northwest of the former FSB. The results of this survey are provided in Attachment 6, Figures 6-19 and 6-20. A GPERS survey of the former FSB was not possible because the SSE walls interfered with satellite reception.

Figure 7-17. View of Former FSB (facing east) in Mid-December 2012.



Facility Status Change Form

Attachment 8

105-N Shop and Offices

ATTACHMENT 8: AREA 8 105-N SHOP AND OFFICES (6 PAGES)

Figure 8-1. 105-N Shop and Offices.

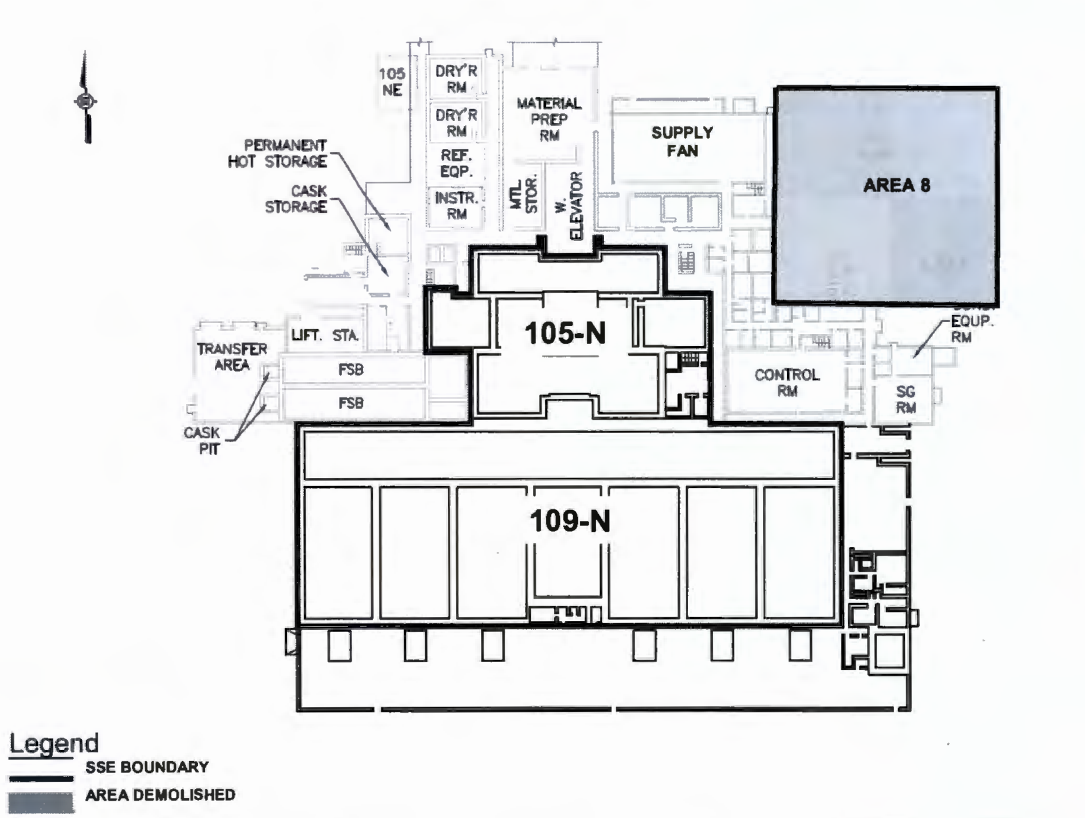


Figure 8-1 shows the location of the shop and offices area on the northeast side of the 105-N Building. Figure 8-2 provides an aerial photograph of the area as it appeared in 2008. As shown in Figures 8-3 and 8-4, the above-grade portion of the shop and offices was demolished in 2009 but the concrete slab was temporarily left in place to provide a solid working surface that facilitated demolition activities. It was maintained and used in this capacity until May 2012. By June, the slab was demolished and loaded out and all that was left was a 20-ft section of below-grade air duct (84-in. diameter) that supplied the offices with fresh air from the 105-N supply fan room (Figure 8-5). The duct was removed (Figure 8-7), the area was cleaned of residual debris, and a visual examination of the area in late July identified no unusual staining of the soil that had occurred underneath the slab. The U.S. Department of Energy and Washington State Department of Ecology had inspected the area prior to the visual inspection and expressed no concerns. A radiological survey for gamma contamination using Global Positioning Environmental Radiological Surveyor was performed in late August (Figure 8-6). A beta survey was not requested. No radiological contamination greater than 1.5 times background was identified. Figure 8-7 provides an aerial view of the shop and offices area after completion of demolition activities.

Figure 8-2. Aerial View of 105-N Shop and Offices in June 2008.

Figure 8-3. Aerial View of 105-N Shop and Offices at Start of Demolition in March 2009.

Figure 8-4. Aerial View of 105-N Shop and Offices in June 2009.

Figure 8-5. Below-grade Air Duct from Supply Fan Room in June 2012 (facing northwest).

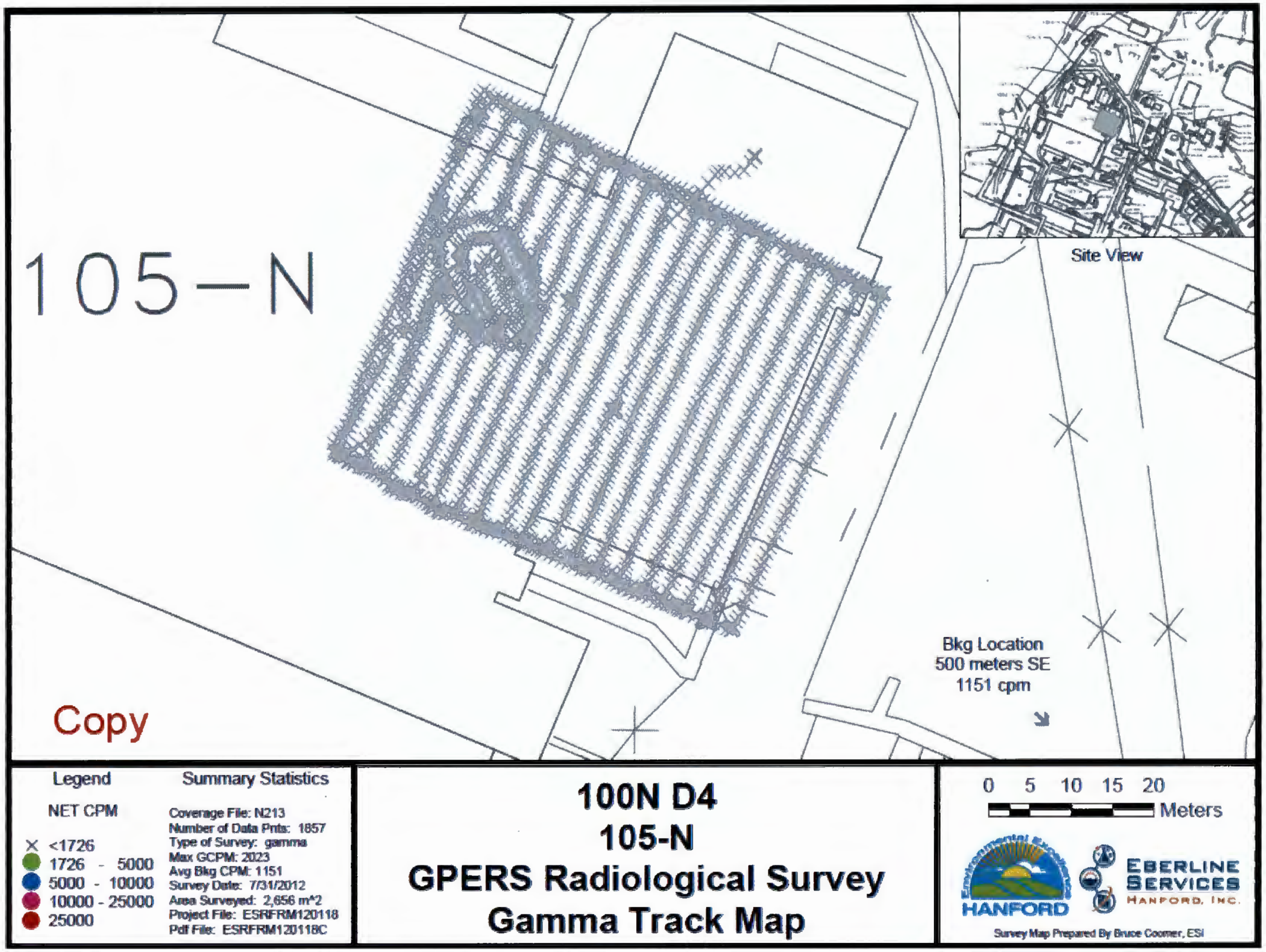


Figure 8-6. Gamma Survey of Soil at 105-N Shop and Offices in Late August 2012.

Figure 8-7. Aerial View of 105-N Shop and Offices in September 2012.

Facility Status Change Form

Attachment 9

Correspondence Providing Guidance for Finding 105-N and 109-N SSE Final Room Status Report

Guercia, Rudolph F (Rudy)

From: Childers, Heather M
Sent: Monday, December 10, 2012 8:06 AM
To: Guercia, Rudolph F (Rudy)
Subject: 105-N and 109-N Safe Storage Enclosure (SSE)

It's all there. Let me know if you have any questions. Click on the Hyperlinks to get the document.

Advanced Search Results
Displaying 1-11 of 11 records found of 76,447
While searching for: EDMC File Number eq **"1218134"**

Document Details	Document Number	Date of Document	Document Title/Description [Click to retrieve document.]
1212051121	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 3 OF 11]
1212051136	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 4 OF 11]
1212051137	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 5 OF 11]
1212051138	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 6 OF 11]
1212051139	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 7 OF 11]
1212051140	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 8 OF 11]
1212051141	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 9 OF 11]
1212051142	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 10 OF 11]
1212051143	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 11 OF 11]
1212051119	0635318	31-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 1 OF 11]
1212051120	0635318	30-Aug-2012	105-N AND 109-N SAFE STORAGE ENCLOSURE (SSE) FINAL ROOM STATUS REPORT AUGUST 2012 [SECTION 2 OF 11]

Heather Childers
Administrative Records
376-2530

Attachment 10

Post Demolition Status of Documented WIDS Sites

ATTACHMENT 10: POST DEMOLITION STATUS OF DOCUMENTED WIDS SITES (4 PAGES)

Demolition activities conducted around the 105-N/109-N buildings impacted the following Waste Information Data System (WIDS) sites as described below. The final end state of waste sites may be incomplete at the time of issuance of this Facility Status Change Form. The final end state of any waste site should be ascertained thru the Waste Information Data System data base of the Administrative Record. Reference to "by D4" and "by FR" indicate whether the waste site was remediated by plant forces (by D4) of Building Trades (by FR) and have no regulatory meaning. See page 4 (below) of this document for the locations of these WIDS sites relative to 105-N/109-N.

100-N-31, Unplanned Release on 30-in. Pipe Line (Accepted)
This unit is an open metal basin that held radioactive water. The surface area has no vegetation and is level and graveled. The site is located just off the northeast corner of the 1300-N Emergency Dump Basin at Valve FLV-858 in the 30-in. pipeline. This site was completely removed by D4.

100-N-32, Unplanned Release of 10-in. Blowdown Pipeline #3 (Accepted)
The unit is an open metal basin that held radioactive water. The surface area is level, graveled, and has no vegetation. The site is located just off the northeast side of the 1300-N Emergency Dump Basin at Valve BDV-800 in the 10-in. blow down line, between the steam generators and the basin. This site was completely removed by D4.

100-N-38, Unplanned Release at 1300-N (Accepted)
This is a steel lined, open basin that held radioactive water. The area surrounding the basin is level, graveled, and has no vegetation. The site is located just off the northeast corner of the 1300-N Emergency Dump Basin where the 10-in. blow down line connects to the basin. This site was completely removed by D4.

100-N-61, Water Treatment and Storage Facilities Underground Pipelines (Accepted)
These pipelines are located off the northwest corner of the 109-N building. They are associated with the 109-N Building. They were partially removed by D4.

100-N-62, Underground Pipelines (Accepted)
The waste is the underground pipellines from the east side of the 105-N/109-N to the 184-N Powerhouse, 100-N-23 (Resin Disposal Pit Liquid Waste Site 1) and 100-N-24 (Hydrogen Dry Well Liquid Waste Site) waste sites. This site was partially removed by D4 and fully removed by FR.

100-N-63:2, TSD Underground Pipelines, Process Drain to Outfall (Accepted)
The waste site is the pipelines located throughout the 100-N Area and are collocated with a number of other pipeline waste sites including, but not limited to, the 100-N-84, 100-N Miscellaneous Pipelines waste site. This subsite encompasses the TSD underground pipelines that transported reactor cooling water, radioactive and chemical liquid wastes from the 105-N Reactor facilities to the 116-N-1 Crib. It also includes the 36-in. process drain that emptied into the 100-N River Effluent Pipeline, 100-N-77. This site was partially removed by D4.

100-N-64, 105-N/109-N Cooling Water Effluent Underground Pipelines (Accepted)
The waste is the contaminated underground pipelines. Radionuclides from the reactor passed through the underground pipelines to the 116-N-4 (1300-N), 1304-N Emergency Dump Basin and Tank, the 107-N Filter Building and to the 1908-N Outfall Structure. Residual contaminants of some may remain in the underground pipelines. This site was partially removed by D4.

100-N-66, 105-N/109-N Reactor Building Complex (Accepted)
The waste is the 105-N/109-N Building complex, including the 105-N reactor core and 109-N steam generator cells. The 105-N and 109-N Building complex is radioactively contaminated or potentially contaminated within all confinement zones, irradiated fuel storage areas, primary and secondary coolant piping systems, and confinement ventilation systems.

100-N-68, N Basin Low Level Radioactive Water Spill (Accepted)
On February 20, 1998, the areas contaminated by the January 7, 1998 unplanned release of basin water (through a split hose) were capped. Both previously identified areas have asphalt covers on them. On January 7, 1998, N-Basin crews cleaned up the spill by directing the residual water into the basin drains which accumulate in the lift station. Calculations indicate approximately 36,000 gal were withdrawn from the basin, with approximately 34,000 gal draining into the lift station. Approximately 2,000 gal flowed outside the FSB enclosure. Additional stabilization work planned in the future may include removal and replacement of asphalt and/or painting the contaminated areas. Using current analytical data on the N Basin water, the total curies released in the spill/leak for all of the radionuclides was 0.42-Ci. Radionuclide levels did not exceed reportable quantities. Both areas were completely removed by D4.

100-N-84:1, 100-N Area Raw Water Pipelines (Accepted)
These pipelines run between the 105-N/109-N and its supporting facilities. These waste sites include low pressure water, raw water, raw water return, raw water supply, raw water supply high and low pressure, emergency raw water supply, sprinkler, vent, fire line, irrigation, fog and fish line pipelines. These sites were partially removed by D4.

100-N-84:2, 100-N Area Fuel and Foam Pipelines (Accepted)
The site includes the fuel oil and foam underground pipelines in the 100-N Area. Fuel and foam pipelines are located to the northwest and west of the 105-N Reactor Building. This site was partially removed by D4.

100-N-84:3, 100-N Area Filtered and Potable Water Pipelines (Accepted)
The 100-N Area filter and potable water pipelines include: makeup water, filter water, demineralized water, and potable water pipelines. Filtered water lines are located to the north and south of the 105-N Reactor Building, while the potable water lines are located mainly to the southwest of the 105-N Reactor Building to the 105-N support facilities. This site was partially removed by D4.

100-N-84:4, 100-N Area Steam and Condensate Pipelines (Accepted)
These pipelines run between the 105-N Reactor Building and its supporting facilities and include a 48-in. dry well with a 4-in. floor drain from an equipment access pit, and a 4-in. cast iron floor drain line from a clean office area at the 105-N Building. Approximately 10-ft of material was removal in the area of the drain. The 100-N-84:4, FD-9 is described in more detail in Attachment 3 of this document. This dry well was completely removed by D4. The 100-N-84:4 waste site pipelines include steam, condensate and injection and vacuum pump water pipelines. These pipelines were partially removed by D4.

100-N-84:5, 100-N Area Sanitary Pipelines (Accepted)
The 100-N Area sanitary pipelines include: sanitary water and sewer, storm drains, and disposal field pipelines. The feed and drainage pipelines associated with 124-N-1 through 124-N-10 waste sites are included in 100-N-84:5. This site was partially removed by D4.

100-N-84:6, 100-N Area Chemical and Process Sewer Pipelines (Accepted)
The site includes the following: Chemical waste, DMV waste, drain cold, dummy disposal line, miscellaneous chemical drain, radioactive drain, chlorine, flush, and sample pipelines. The waste site pipelines are centrally located between the 100-N Area process buildings: 105-N, 109-N, 182-N, 183-N, 184-N, and 163-N. This site was partially removed by D4.

116-N-4, 1300-N Emergency Dump Basin (Accepted)
The 116-N-4 Emergency Dump Basin is a rectangular shaped, outdoor, concrete storage basin with a 0.188-in. carbon steel liner. Sediment samples from 1995 contained radionuclides exceeding Westinghouse Hanford Company Category I limits and heavy metal concentrations below Resource Conservation and Recovery Act (RCRA) limits. Therefore, the site is radiologically contaminated but is not a mixed waste site. BHI-00731 provides radionuclide and heavy metal characterization. This site was partially removed by D4.

UPR-100-N-3, Spacer Disposal System Transport Line Leak (Accepted)
A leak developed in the dummy fuel spacer transfer line, a 3-in. reinforced plastic pipe extending from the 100-N Fuel Storage Basin to the dummy disposal pit. The leak rate was approximately 25 gal/min and occurred for an unknown period. This site was ~~completely~~ partially removed by D4.

CM 2/13/2013

UPR-100-N-7, 10-in. Radioactive Drain Return Line Leak (Accepted)
The leak was located in a section of the buried 10-in. diameter radioactive drain return pipe between the 109-N Building to the 1909-N Valve Pit. This pipe is approximately 228-ft from the bank of the Columbia River. This site was partially removed by D4.

UPR-100-N-10, Lift Station Gravity Drain Line Leak (Accepted)
Approximately 100 gal of contaminated water leaked to the ground during preparations for the removal of a check valve in the gravity drain line to the lift station on May 13, 1975. The leak occurred in the 100-N Area near the north side of the 105-N Lift Station, about 15.4-ft northeast of the 1722-N Decontamination Hot Shop, and about 528-ft from the Columbia River. This site was ~~completely~~ partially removed by D4.

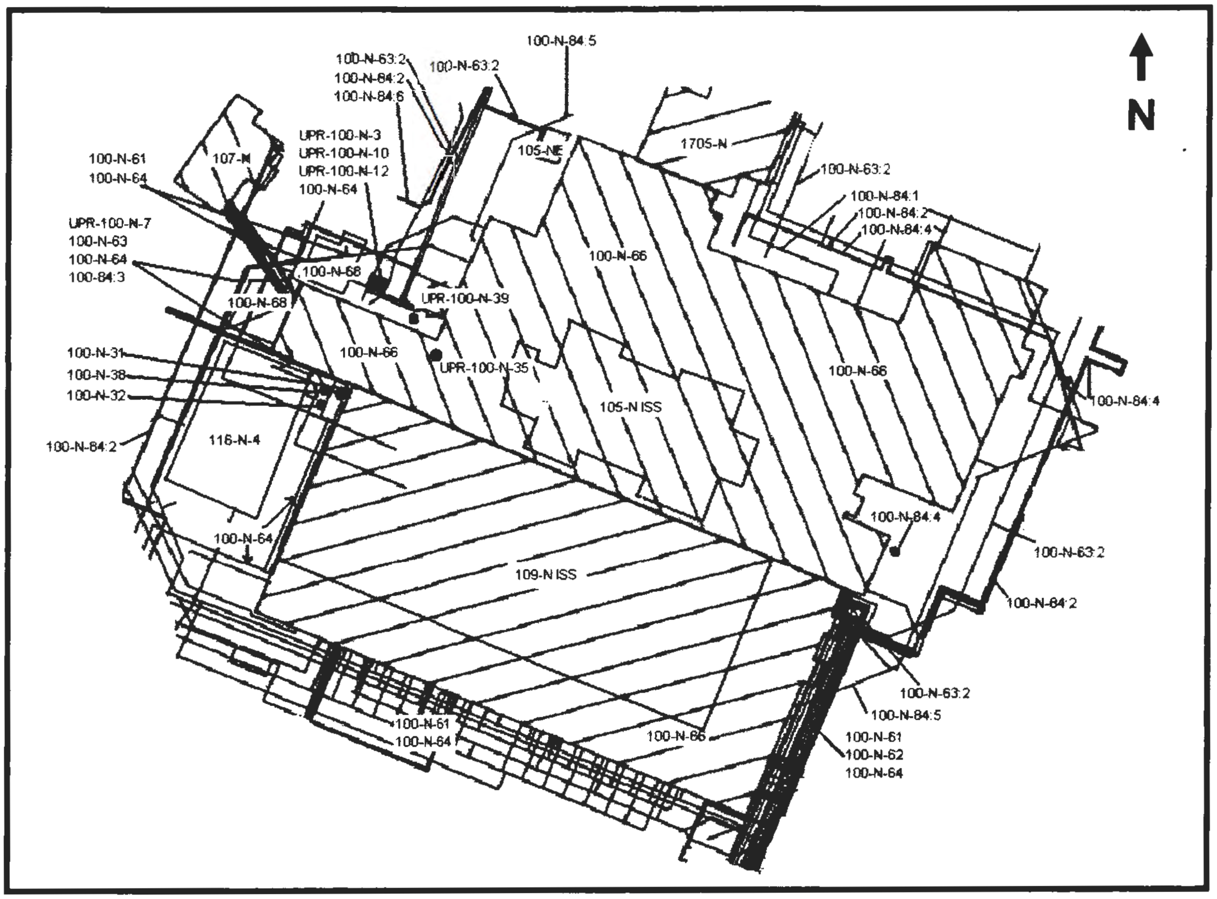
CM 2/13/2013

UPR-100-N-12, Spacer Transport Line Leak (Accepted)
A leak developed in the dummy fuel spacer transfer line, a 3-in. reinforced Bonstrand plastic pipe extending from the 100-N Fuel Storage Basin to the dummy disposal pit, on March 13, 1979. The leak rate was estimated to be 75 gal/min and occurred for an unknown period. The approximate maximum time the valve could have been open was 55 hours. This site was ~~completely~~ partially removed by D4.

CM 2/13/2013

UPR-100-N-35, 105-N Fuel Storage Basin Drainage System Leak (Accepted)
Routine sampling of the 100-N Area groundwater wells detected slightly elevated levels of iodine-131. Drawdown tests on the basin determined that the leak was not from the basin. Further tests and investigations determined the intermittent leak to be coming from a sub-basin drain line approximately 28-ft below the ground. Additional information regarding this WIDS site is provided in Attachment 7 of this document.

UPR-100-N-39, Corridor 22 Suspect Liquid Unplanned Release (Accepted)
The site consists of a concrete slab and hatch cover posted "Surface Contamination" and surrounded by gravel. In 1983/84, several hundred liters of radioactively contaminated water spilled outside Corridor 22. Scrub water from the 105-NE Fission Product Filter Trap overflowed and discharged to the ground. Workers painted over the concrete and removed an indeterminate amount of soil. This site was completely removed by D4.



Attachment 11

Completion of Tri-Party Agreement Milestone M-093-020

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

OCT 0 9 2012

12-AMRP-0168

Ms. J. A. Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton
Richland, Washington 99354

Dear Ms. Hedges:

COMPLETION OF HANFORD FEDERAL FACILITY AND CONSENT ORDER (TRI-PARTY AGREEMENT) MILESTONE M-093-020

The U.S. Department of Energy Richland Operations Office (RL) has completed its review of the physical work completion of the Interim Safe Storage of N Reactor as required by Tri-Party Agreement Milestone M-093-020, "Complete 105-N Reactor Interim Safe Storage" and Tri-Party Agreement Change Control Form TPA-CN-531. RL is declaring completion of the M-093-020 milestone. If you have questions please feel free to contact me at (509) 373-9863, or you may contact Rudy Guercia, of my staff at (509) 376-5494.

Sincerely,

Mark S. French

Mark S. French, Federal Project Director
for the River Corridor Closure Project

AMRP:RFG

cc: See Page 2

cc: G. Bohnee, NPT
F. W. Bond, Ecology
L. Buck, Wanapum
D. A. Faulk, EPA
S. Harris, CTUIR
R. Jim, YN
R. A. Kaldor, MSA
S. L. Leckband, HAB
N. M. Menard, Ecology
K. Niles, ODOE
T. W. Noland, MSA
R. E. Piippo, MSA
D. Rowland, YN
D. M. Yasek, WCH
Administrative Record
Environmental Portal

Facility Status Change Form

Document: 12-NWP-176
Document Date: 11/01/2012
Author: BOND R
Addressee: FRENCH MS

Actionee: Rudy Guercia
Due Date: NO ACTION

Title: Completion of Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestone M-93-20, Complete 105-N Reactor Interim Safe Storage

DIR	DIV	NAME	DIR	DIV	NAME
MGR			AMRP		
DEP			AMRP	CPD	
AMB			AMRP	RCD	Guercia, Rudy (Actionee)
AMB	BUD				Bryson, Dana
AMB	FIN				French, Mark
AMB	HRM				Louie, Catherine
AMB	PRO		AMSE		
AMMS			AMSE	EMD	
AMMS	SES		AMSE	OOD	
AMMS	ISI		AMSE	SED	
AMMS	PIC		OCC		Williamson, Barbara
AMMS	SSD		OCE		
			ORP		
			PNSO		
			RLCI		

Comments:

Records Schedule Information:
ENV-1.kI

Scan?: Yes Sensitive?: No Sensitive Attachments?: IDMS Folder: RL General Corr

Date RL CC Rec'd: 11/05/2012

If No Action has been assigned to this document and one is needed, please advise RL Correspondence Control.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

November 1, 2012 12-NWP-176

Mr. Mark French
U.S. Department of Energy
Richland Operations Office
P.O. Box 550,
Richland, Washington 99352

Re: Completion of Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestone M-93-20, Complete 105-N Reactor Interim Safe Storage

Dear Mr. French:

The Department of Ecology (Ecology) received your letter of October 9, 2012 notifying us that you have completed the above referenced Tri-Party Agreement (TPA) milestone which was due on September 30, 2012 and the actions required by Tri-Party Agreement Change Control Form TPA-CN-531 (June 26, 2012). Ecology agrees that the requirements of TPA Milestone M-93-20 and TPA-CN-531 have been met.

Please contact me at 372-7885 if you have any questions regarding this matter.

Sincerely,

Rick Bond

Rick Bond
Facilities Transition Project Manager
Nuclear Waste Program

jvs
cc:

Dennis Faulk, EPA
Rudy Guercia, USDOE
Reed Kaldor, MSA
Terry Noland, MSA
Donna Yasek, WCH
Stuart Harris, CTUIR
Gabriel Bohnee, NPT
Isabelle Wilder, Wanapum
Russell Jim, YN
Susan Leckband, HAB
Ken Niles, ODOE

Administrative Record, N Area, 105-N Reactor
Correspondence Control, USDOE-RL
Environmental Portal

RECEIVED
NOV 05 2012
DOE-RLCC

Facility Status Change Form

<table>
<tr><td>Control Number:

TPA-CN-531</td><td colspan="2">TPA Agreement/Change Control Form

___ Change _X_ Agreement ___ Information

Operable Unit(s): 100-NR-1, 100-N Area Removal Action</td><td>Date Submitted:
6/26/2012

Date Approved:</td></tr>
<tr><td colspan="2">Document Number/Title:
Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities, (DOE/RL-2005-43, Rev. 1)</td><td colspan="2">Date Document Last Issued:
May 2009</td></tr>
<tr><td colspan="2">Originator: R. F. Guercia</td><td colspan="2">Phone: (509) 376-5494</td></tr>
<tr><td colspan="4">Summary Discussion:
Tri Party Agreement (TPA) Milestone M-93-020 (Complete 105-N Reactor Interim Safe Storage) is applicable to Comprehensive Environmental Response Compensation and Liability Act (CERCLA) work scope governed by the subject Removal Action Work Plan (RAWP). Activities required for completion of the Milestone are not well defined in the text of the document and require further clarification. For purposes of this CERCLA removal action, completion of the M-93-020 TPA Milestone is defined as performance of the following activities:

• Decontamination and Decommissioning of portions of the facilities (including fuel storage basin removal)
• Approval of a Surveillance and Maintenance (S&M) Plan for the 105-N/109-N SSE near the end of the removal action to meet the requirements and expectations of Section 8 of the Tri Party Agreement (Ecology et al. 1989).
• Construction of a Safe Storage Enclosure (SSE) over the 105-N Reactor Block and 109-N steam generator cells and pipe gallery.

Bulleted items 1 and 2 have been completed to date. The only activity remaining for attainment of the M-93-020 TPA milestone is completion of the physical work for installation of the SSE.</td></tr>
<tr><td colspan="4">Justification and Impact of Change:
Inclusion of this change will ensure completeness of the 105-N/109-N Reactor ISS project.</td></tr>
<tr><td colspan="2">DOE Project Manager: [signature]</td><td colspan="2">Date: 6/26/12</td></tr>
<tr><td colspan="2">EPA Project Manager: N/A</td><td colspan="2">Date:</td></tr>
<tr><td colspan="2">Ecology Project Manager: [signature]</td><td colspan="2">Date: 6/26/12</td></tr>
<tr><td colspan="4">Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3</td></tr>
</table>

CC: ADMIN Record
100 NR1 OU

Facility Status Change Form

Attachment 12

Work Packages Prepared and Used for 105-N & 109-N

ATTACHMENT 12: WORK PACKAGES PREPARED AND USED FOR THE 105-N/109-N (4 PAGES)

Below is a list of the work packages prepared and used to safely perform demolition and the Safe Storage Enclosure (SSE) construction activities at the 105-N Reactor Facility and 109-N Heat Exchanger Building. A Type I Work Package is used where the work is of such a nature that detailed work instructions are required and work must be performed in a specified sequence. A Type II Work Package is used for repetitive work requiring detailed work instructions. Examples of this type of work include routine removal of asbestos-containing or hazardous material from a building. A Craft Work Package is used when the work performed is of such a nature that 1) the work is considered skill of the craft, and 2) step-by-step instructions are not necessary to accomplish safe performance of the task(s). This work may be repetitive in nature.

- ISS-07-02-20-001, Craft Work Package, 105-N, 109-N Mobilization of Support Facilities
- ISS-07-02-20-001 A, Craft Work Package, 105-N, 109-N Mobilization of Support Facilities
- RIS-07-03-05-001, Craft Work Package, Conduct Be Sampling Activities Inside the 105-N Fuel Storage Basin and Adjacent Rooms per Sampling Plan, Activities to Include Work Site Preparation and Housekeeping
- ISS-07-04-05-001, Craft Work Package, 105-N, 109-N Cleanup Asbestos Spill
- ISS-07-04-05-002, Craft Work Package, 105-N, 109-N General Housekeeping
- ISS-07-10-03-001, Craft Work Package, 105-N, 109-N Cold Weather Protection
- ISS-07-11-12-001, Craft Work Package, 105-N, 109-N General Housekeeping
- ISS-07-11-19-001, Craft Work Package, 105-N, 109-N Asbestos Spill Cleanup
- ISS-08-04-01-001, Craft Work Package, 105-N Mobilization
- ISS-08-05-07-001, Craft Work Package, 105-N Site Mobilization
- ISS-08-06-18-001, Craft Work Package, 105-N, 109-N Erection and Dismantling of Scaffolding
- ISS-08-09-11-001, Craft Work Package, 105-N Cold Weather Protection
- RIS-06-12-18-001, Type I Work Package, 105-N Office Areas and Supply Fan Room in the Northeast Corner of the 105-N Building; Hazardous Material Removal
- 100 07 10 24 001, Type I Work Package, 105-N Office and Mechanical Areas; Hazardous Waste Removal
- 100 07 10 31 002, Type I Work Package, 105-N Office and Maintenance Area and Supply Fan Room Demolition
- 100 08 01 10 006, Type I Work Package, 105-N Perform In-Basin Video Characterization
- 100-09-08-24-034, Type I Work Package, 105-N Transfer Area and Fuel Storage Basin Grouting
- 2005-09-20-002 Z, Type II Work Package, 105-N Hazardous Material Removal

Facility Status Change Form

- 2005-09-20-004 H, Type II Work Package, 105-N TSI Class II Asbestos Abatement
- D4N-06-08-02-002 A, Type II Work Package, 105-N Office Area, Corridors, and Restrooms; Class I Asbestos Abatement
- ISS-07-05-15-001 5.1, Type II Work Package, Asbestos Abatement
- ISS-07-05-15-001 5.8, Type II Work Package, Asbestos Abatement
- ISS-07-06-27-001, Type II Work Package, Hazardous Material Abatement
- ISS-07-06-27-001 A, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, 1722-NE, Hazardous Material Removal; Remove and Package for Disposal PCB Light Ballasts, Light Fixtures, and Fluorescent
- ISS-07-06-27-001 B, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, 1722-N Hazardous Material Removal; Liquid Pipe, Equipment Checks, and Removal of Chemicals
- ISS-07-06-27-001 C, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, 1722-N Hazardous Material Removal; Remove Capillary Tubes from Heating Unit
- ISS-07-06-27-001 D, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, 1722-N Hazardous Material Removal; Seal and Demarcate Shielding Pigs
- ISS-07-06-27-001 E, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, 1722-N Hazardous Material Removal; Removal of Door Actuators and Hydraulic Closers Including Draining of Hydraulic Oils
- ISS-07-06-27-001 F, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, 1722-N Removal Verification of Oils and Lubricants
- ISS-07-06-27-001 G, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, 1722-N Hazardous Material Removal; Removal of Mercury Components Including Manometers, Thermometers, and Switches
- SS-07-06-27-001 H, Type II Work Package, 105-N Hazardous Material Removal; Confirmation, Removal of Ozone Depleting Substances (ODS) from Air Conditioning and Refrigerant
- ISS-07-09-07-001, Type II Work Package, 105-N, 105-NA, 109-N, 1605-NE, and 1722-N Class I and II Asbestos Abatement
- ISS-07-09-07-001 K, Type II Work Package, 105-N Rooms 6, 143 through 157 and corridors 1, 7 and 8 Class I and II Asbestos Abatement
- ISS-07-09-07-001 L, Type II Work Package, 105-N Asbestos Abatement Areas B, C, D, E, F, and G; Class I and II Asbestos Abatement
- ISS-07-09-07-001 M, Type II Work Package, 105-N Class I and II Asbestos Abatement
- ISS-07-09-07-001 N, Type II Work Package, 105-N Class I and II Asbestos Abatement
- ISS-07-09-10-001, Type II Work Package, Scaffold Erection and Dismantling
- 100 08 07 28 002 G, Type II Work Package, 105-N Roof Removal of Class I Asbestos
- 100 12 01 31 005, Craft Work Package, 105-N/109-N Area Clean-Up and SSE Walls Preparation
- 100 12 04 04 008, Craft Work Package, 105-N/109-N Install Concrete Pourbacks

- 100 12 04 04 009, Craft Work Package, 105-N/109-N Install Steel Coverplates
- 100 12 04 04 010, Craft Work Package, 105-N/109-N Install Structural Steel and Siding
- ISS 08 09 30 001, Craft Work Package, 100-N Mobilization (Equipment, Storage, etc.)
- ISS 08 10 06 001, Craft Work Package, Trailer Mobilization
- ISS 08 10 30 001, Craft Work Package, Cold Weather Protection
- ISS 08 11 04 001, Craft Work Package, General Housekeeping
- ISS 08 11 05 001, Craft Work Package, Scaffolding
- ISS 08 11 06 001, Craft Work Package, Hoisting & Rigging / Movement of Heavy and Oversized Loads; Forklift Operations
- ISS 09 09 24 001, Craft Work Package, Cold Weather Protection and Inspections
- ISS 09 10 06 002, Craft Work Package, Non-Critical Lift – Hoisting & Rigging
- ISS 09 10 07 001, Type I Work Package, 105-N Demolition – East Side
- ISS 09 12 21 001, Craft Work Package, 105-N Penetration Pour-Backs, Concrete Walls, and General Concrete Work
- ISS 10 01 07 001, Craft Work Package, Construction: 105-N SSE (Structural Steel Erection)
- ISS 10 03 16 001, Craft Work Package, Install Temporary Scaffolding at Stair #10
- ISS 10 04 05 001, Craft Work Package, Remove Miscellaneous Items from 109-N & 105-N
- ISS 10 04 29 001, Craft Work Package, 105-N Demo Prep for Roof
- ISS 10 06 10 001, Craft Work Package, Construction: Install 105-N SSE Siding & Roofing
- ISS 10 06 15 001, Craft Work Package, Install Electrical System
- ISS 10 06 15 002, Craft Work Package, Install Control Monitoring System
- ISS 10 11 22 001, Craft Work Package, 105-N Scaffolding
- ISS 11 02 01 001, Craft Work Package, Demobilize Job Trailers
- ISS 09 03 12 001, Type I Work Package, Penetration Pour-Backs and General Work for 109-N / 105-N
- ISS 09 03 23 001, Type I Work Package, Building 105-N Demolition Preparation (Approved 6/16/09)
- ISS 09 03 23 002, Type I Work Package, Building 105-N Demolition – East Side (Approved 8/24/09)
- ISS 09 09 23 001, Type I Work Package, Building 105-N Demolition Preparation (Approved 11/16/09)
- ISS 09 10 07 001, Type I Work Package, Building 105-N Demolition – East Side (Approved 11/12/09)
- ISS 09 11 20 001, Type I Work Package, 105-N – Pipe Line Verification for Residual Liquids
- ISS 09 12 02 001, Type I Work Package, 105-N – Prepare and Demolish Stair #10 – West Side

- ISS 09 12 07 001, Type I Work Package, Building 105-N Demolition – West Side
- ISS 10 09 09 001, Type I Work Package, Install HEPA Filter in Room #607
- ISS 10 09 14 001, Type I Work Package, De-water and Grout "C" Elevator Pit
- ISS 08 10 07 003, Type II Work Package, Hazardous Material Removal
- ISS 08 11 19 001, Type II Work Package, Asbestos Class I & II Abatement
- 100 09 07 30 032, Type I Work Package, 105-N Fuel Storage Basin Demolition
- 100 09 08 17 033, Type I Work Package, 105N Transfer Area Demolition
- 100 11 11 10 035, Type I Work Package, 105-N Fuel Storage Basin and Lift Station Demolition

Attachment 13

Summary of Samples Collected from 105-N & 109-N

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J02H88	15-Feb-05	EL-1516-4	46-49	Characterization	Ball 3X room	Composite of tech smears collected from the ball dust collector
105-N	J11689	31-Jan-06	EI-1516-8	51-57	Characterization	Corridor 13	9X9 Beige
105-N	J11690	31-Jan-06	EI-1516-8	51-57	Characterization	Corridor 13	9X9 Beige, light blue streaks
105-N	J11691	31-Jan-06	EI-1516-8	51-57	Characterization	Room 131	Small 1ftX1ft tiles, white w/ holes
105-N	J11692	31-Jan-06	EI-1516-8	51-57	Characterization	Room 130	Light brown fibrous, 1.5 inches thick
105-N	J11693	31-Jan-06	EI-1516-8	51-57	Characterization	Room 130	Light brown fibrous, 1.5 inches thick
105-N	J11694	31-Jan-06	EI-1516-8	51-57	Characterization	Room 131 A	Yellow layered fibrous under white fabric
105-N	J11695	31-Jan-06	EI-1516-8	51-57	Characterization	Room 131 A	Yellow layered fibrous under green painted fabric

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J11696	31-Jan-06	EI-1516-8	51-57	Characterization	Corridor 13	Yellow layered fibrous under white fabric
105-N	J11697	31-Jan-06	EI-1516-8	51-57	Characterization	Room 131 A	Yellow layered fibrous under white fabric
105-N	J11698	31-Jan-06	EI-1516-8	51-57	Characterization	Corridor 13	Yellow layered fibrous under white fabric
105-N	J11699	31-Jan-06	EI-1516-8	51-57	Characterization	Corridor 13	Yellow layered fibrous under white fabric
105-N	J116B0	31-Jan-06	EI-1516-8	51-57	Characterization	Room 131 A	12X12 Beige, bright blue streaks
105-N	J116B1	31-Jan-06	EI-1516-8	51-57	Characterization	Corridor 13	Very soft, light yellow, fibrous material, almost stringy
105-N	J116B2	31-Jan-06	EI-1516-8	51-57	Characterization	Corridor 13	Powdery, very hard, chalky material
105-N	J116B3	31-Jan-06	EI-1516-8	51-57	Characterization	Room 132	9X9 white, w/blue and grey streaks
105-N	J116B4	31-Jan-06	EI-1516-8	51-57	Characterization	Room 132	12X12 beige w/ beige streaks

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J116B5	31-Jan-06	EI-1516-8	51-57	Characterization	Room 124	White, sheetrock-like material, powdery when smashed up, found in between metal walls, only accessible place
105-N	J116B6	31-Jan-06	EI-1516-8	51-57	Characterization	Room 133 A	2ftX4ft white, w/ small holes harder, compressed sawdust?
105-N	J116B7	31-Jan-06	EI-1516-8	51-57	Characterization	Room 130	2ftX4ft dirty white, w/ small holes
105-N	J116B8	31-Jan-06	EI-1516-8	51-57	Characterization	Room 133A	Small 1ftX1ft tiles, white w/ holes
105-N	J116P5	1-Feb-06	EI-1516-8	58	Characterization	Room 130	Olive green layered
105-N	J116P6	1-Feb-06	EI-1516-8	58	Characterization	Room 130	Fabric over ceiling tiles
105-N	J116P7	1-Feb-06	EI-1516-8	58	Characterization	Room 130	Fabric over ceiling tiles
105-N	J116P8	1-Feb-06	EI-1516-8	58	Characterization	Room 130	Fabric over ceiling tiles
105-N	J116P9	1-Feb-06	EI-1516-8	58	Characterization	Room 130	Grey plastic over soft fibrous yellow new material

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J116R0	8-Feb-06	EI-1516-8	80-87	Characterization	Hall, outside Room 120	Thin grey layer under black rubber like layer under white paint
105-N	J116R1	8-Feb-06	EI-1516-8	80-87	Characterization	Hall, outside Room 120	Thin grey layer under black rubber like layer under white paint
105-N	J116R2	8-Feb-06	EI-1516-8	80-87	Characterization	Room 121	Grey, possible Transite
105-N	J116R3	8-Feb-06	EI-1516-8	80-87	Characterization	Room 161-B	White paint over thin brown layer over sheetrock like material
105-N	J116R4	8-Feb-06	EI-1516-8	80-87	Characterization	Room 164-A	Beige paint over light brown fibrous (possible transite) over light brown fibrous over beige paint
105-N	J116R5	8-Feb-06	EI-1516-8	80-87	Characterization	Room 137-A	Thin silver layer over light yellow layered fibrous material
105-N	J116R6	8-Feb-06	EI-1516-8	80-87	Characterization	Room 137-A	White paint over thin brown layer over sheetrock like material
105-N	J116R7	8-Feb-06	EI-1516-8	80-87	Characterization	Room 137-A	Cream colored with small beige spots, black mastic
105-N	J118M8	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 144, air duct, TSI	White paper-ish wrap, yellow fibrous material

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J118M9	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 144, air duct, TSI	White paper-ish wrap, yellow fibrous material
105-N	J118N0	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 144, air duct, TSI	White paper-ish wrap, yellow fibrous material
105-N	J118N1	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 143, air duct, TSI	Heavy white wrap, brown/yellow fibrous material
105-N	J118N2	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 143, air duct, TSI	Heavy white wrap, brown/yellow fibrous material
105-N	J118N3	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 143, air duct, TSI	Heavy white wrap, brown/yellow fibrous material
105-N	J118N4	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 143, air duct, TSI	Black fabric, yellow fibrous material
105-N	J118N5	16-Feb-06	EL-1516-8	95	Asbestos Abatement	Room 172, around vertical pipe	Black spray foam like material
105-N	J118X8	22-Feb-06	EL-1516-9	2	Asbestos Abatement	room 302	Wallboard, blue paint over pressed sawdust over pink fiberglass
105-N	J118X9	22-Feb-06	EL-1516-9	2	Asbestos Abatement	room 185	TSI, <6 ft of black brown flexible, tar-like material wrapped around pipe

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J118Y0	22-Feb-06	EL-1516-9	2	Asbestos Abatement	room 110	TSI, white cloth left on elbows, heavy weave
105-N	J118Y1	22-Feb-06	EL-1516-9	2	Asbestos Abatement	room 304	Wallboard, blue paint over white paint over cardboard over white plaster-like wall
105-N	J118Y2	22-Feb-06	EL-1516-9	2	Asbestos Abatement	room 304	White paper over layered yellow fiberglass
105-N	J11KV7	15-Mar-06	EL-1516-9	39	Asbestos Abatement	105-NB very back room	White hard sheet rock like material
105-N	J11KV8	15-Mar-06	EL-1516-9	39	Asbestos Abatement	105-NB very back room	White hard sheet rock like material
105-N	J11KV9	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Light mauve paint over black tar like material over yellow fibrous material
105-N	J11KW0	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	White paint over black tar like material over yellow fibrous material
105-N	J11KW7	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	White powdery at end of structural part of Air Supply Fan No.1
105-N	J11KW8	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	In between structural part of Air Supply Fan No.1

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J11KW9	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Regular insulation on Air Supply Fan No.1-yellow fibrous
105-N	J11KX0	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Grey crumbly fibrous at joint on edge of Air Supply Fan No.1
105-N	J11KX1	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Regular insulation on Air Supply Fan No.1-yellow fibrous
105-N	J11KX2	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Regular insulation on Air Supply Fan No.1-yellow fibrous
105-N	J11KX3	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	White/grey powdery material found were regular layered fibrous insulation was expected.
105-N	J11KX4	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Grey crumbly fibrous at joint on edge of Air Supply Fan No.1
105-N	J11KX5	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Light mauve paint over black tar like material over yellow fibrous material
105-N	J11KX6	15-Mar-06	EL-1516-9	40	Asbestos Abatement	109-N supply Fan Room	Light mauve paint over black tar like material over yellow fibrous material
105-N	J11XT0	17-Apr-06	EL-1516-9	87	Asbestos Abatement	North side	N/A

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J11XT2	17-Apr-06	EL-1516-9	87	Asbestos Abatement	East entrance	N/A
105-N	J11XP6	17-Apr-06	EL-1516-9	85	Waste Designation	S elevator	N/A
105-N	J11XP7	17-Apr-06	EL-1516-9	85	Waste Designation	D elevator	N/A
105-N	J11XP8	17-Apr-06	EL-1516-9	85	Waste Designation	W elevator	N/A
105-N	J11XP9	17-Apr-06	EL-1516-9	85	Waste Designation	C elevator	N/A
105-N	J11XR0	17-Apr-06	EL-1516-9	85	Waste Designation	F elevator-room 51	N/A
105-N	J11XR1	17-Apr-06	EL-1516-9	85	Waste Designation	F elevator-leak collection	N/A
105-N	J11XR2	17-Apr-06	EL-1516-9	85	Waste Designation	room 7, R elevator	N/A
105-N	J11XR9	17-Apr-06	EL-1516-9	85	Waste Designation	S elevator	N/A

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J120J8	26-Apr-06	EL-1516-9	98	Asbestos Abatement	E. side	Off white/faded yellow over black gritty layer
105-N	J120K1	26-Apr-06	EL-1516-9	99	Asbestos Abatement	N. side	Faded red over black gritty layer
105-N	J120K2	26-Apr-06	EL-1516-9	99	Asbestos Abatement	E. side	Off white/faded yellow over black gritty layer
105-N	J120K3	26-Apr-06	EL-1516-9	99	Asbestos Abatement	NW. side	Off white/faded yellow over black gritty layer
105-N	J120K4	26-Apr-06	EL-1516-9	99	Asbestos Abatement	NW. side	Off white/faded yellow over black gritty layer
105-N	J120K5	26-Apr-06	EL-1516-9	99	Asbestos Abatement	NW. side	Off white/faded yellow over black gritty layer
105-N	J110V5	3-May-06	EL-1516-10	4	Health and Safety	Fuel storage basin	Collected by IH or Rad techs
105-N	J110V6	3-May-06	EL-1516-10	4	Health and Safety	Fuel storage basin	Collected by IH or Rad techs
105-N	J110V7	3-May-06	EL-1516-10	4	Health and Safety	Fuel storage basin	Collected by IH or Rad techs

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J110V8	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110V9	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110W0	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110W1	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110W2	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110W3	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110W4	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110W5	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110W6	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J110W7	3-May-06	EL-1516-10	4	Health and Safety	Fuel storage basin	Collected by IH or Rad techs
105-N	J110W8	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110X0	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110X1	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110X2	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110X3	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110X6	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110X7	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110X8	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J110X9	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110Y0	3-May-06	EL-1516-10	4	Health and Safety	Fuel storage basin	Collected by IH or Rad techs
105-N	J110Y1	3-May-06	EL-1516-10	4	Health and Safety	Fuel storage basin	Collected by IH or Rad techs
105-N	J110Y2	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J110Y3	3-May-06	EL-1516-10	5	Health and Safety	Fuel storage basin	Smears collected by IH or Rad techs
105-N	J12L50	5-Jun-06	EL-1516-10	22	Characterization	fission products trap air sample	Also known as RCF 14681
105-N	J12LY2	6-Jun-06	EL-1516-10	21	Waste Designation	north side corner piece, top right	Black gritty protective coating under the faded yellow paint
105-N	J12LY3	6-Jun-06	EL-1516-10	21	Waste Designation	north side corner piece, mid-left	Black gritty protective coating under the faded yellow paint
105-N	J12LY4	6-Jun-06	EL-1516-10	21	Waste Designation	north side corner piece, bottom left	Black gritty protective coating under the faded yellow paint

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J12LY5	6-Jun-06	EL-1516-10	21	Waste Designation	north side corner piece, bottom middle	Black gritty protective coating under the faded yellow paint
105-N	J12LY6	6-Jun-06	EL-1516-10	21	Waste Designation	north side corner, top left	Black gritty protective coating under the faded yellow paint
105-N	J12NC4	15-Jun-06	EL-1516-10	28	Asbestos Abatement	Room 505	White caulking/joint compound
105-N	J12NC5	15-Jun-06	EL-1516-10	28	Asbestos Abatement	Room 505	Grey crumbly fibrous
105-N	J12NC6	15-Jun-06	EL-1516-10	28	Asbestos Abatement	Room 505	Layered yellow
105-N	J12NC7	15-Jun-06	EL-1516-10	28	Asbestos Abatement	Room 505	Layered yellow
105-N	J12NC8	15-Jun-06	EL-1516-10	29	Asbestos Abatement	Room 505	Layered yellow
105-N	J12NC9	15-Jun-06	EL-1516-10	29	Asbestos Abatement	Room 505	White chalky joint compound
105-N	J12ND0	15-Jun-06	EL-1516-10	29	Asbestos Abatement	Room 505	Layered yellow

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J12ND1	15-Jun-06	EL-1516-10	29	Asbestos Abatement	Room 505	Grey crumbly fibrous
105-N	J12ND9	15-Jun-06	EL-1516-10	30	Asbestos Abatement	Room 505	Layered yellow
105-N	J12NF0	15-Jun-06	EL-1516-10	30	Asbestos Abatement	Room 505	White chalky insulation on joint
105-N	J12NF1	15-Jun-06	EL-1516-10	30	Asbestos Abatement	Room 505	White chalky insulation on joint
105-N	J12NF2	15-Jun-06	EL-1516-10	30	Asbestos Abatement	Room 505	White chalky insulation on elbow
105-N	J12NF3	15-Jun-06	EL-1516-10	30	Asbestos Abatement	Room 505	Grey/white caulking
105-N	J12PR4	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	north side, corner piece	Faded yellow paint over black gritty coating
105-N	J12PR5	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	north side, corrugated straight run	Faded yellow paint over black gritty coating
105-N	J12PR6	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	putty around pipe	Grey soft putty

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J12PR7	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	corner piece next to red roll up door, north side	Faded yellow paint over black gritty coating
105-N	J12PR8	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	corner piece near 105-NA	Faded yellow paint over black gritty coating
105-N	J12PR9	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	north side, on wall with entrance to corridor 22, straight run corrugated area	Faded yellow paint over black gritty coating
105-N	J12PT0	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	north side, on wall with entrance to corridor 22, straight run corrugated area	Faded yellow paint over black gritty coating
105-N	J12PT1	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	north side, on wall with entrance to corridor 22, straight run corrugated area	Faded yellow paint over black gritty coating
105-N	J12PT2	29-Jun-06	EL-1516-10	39-41	Asbestos Abatement	north side, on wall with entrance to corridor 22, corner piece right next to red door	Faded yellow paint over black gritty coating
105-N	J12XR9	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken on the west side of N Basin exterior	All faded yellow paint over red over black gritty material
105-N	J12XT0	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken on the west side of N Basin exterior	All faded yellow paint over red over black gritty material

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J12XT1	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken in the west side of N Basin exterior and 109 N	All faded yellow paint over red over black gritty material
105-N	J12XT2	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken on back side (river side) of 109 N	All faded yellow paint over red over black gritty material
105-N	J12XT3	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken on back side (river side) of 109 N	All faded yellow paint over red over black gritty material
105-N	J12XT4	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken on back side (river side) of 109 N	All faded yellow paint over red over black gritty material
105-N	J12XT5	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken on back side (river side) of 109 N	All faded yellow paint over red over black gritty material
105-N	J12XT6	25-Jul-06	EL-1516-10	60-61	Asbestos Abatement	taken on north west corner (river side) of 109 N	All faded yellow paint over red over black gritty material
105-N	J135H8	16-Aug-06	EL-1516-10	74	Asbestos Abatement	60 foot level in stairwell	Concrete vermiculite mix, very soft, powdery material
105-N	J135H9	16-Aug-06	EL-1516-10	74	Asbestos Abatement	` -16 foot level inside fire door	Very hard white material found inside fire door
105-N	J13HN6	2-Oct-06	EL-1516-11	2	Asbestos Abatement	Room 158, 0 Foot level, office area	Found small sections mixed in with other wallboard. Found around hot areas.

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	100ISS-07-04	22-Feb-07	N/A	N/A	Health and Safety	Airlock Corridor 22 to Basin	Tech smear of mouse droppings
105-N	J14FF1	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FF2	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FF3	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FF4	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FF5	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FF6	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FF7	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FF8	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J14FF9	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH0	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH1	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH2	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH3	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH4	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH5	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH6	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH7	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J14FH8	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J14FH9	12-Mar-07	N/A	N/A	Health and Safety	Fuel Storage Basin	I.H. samples for Be around fuels basin
105-N	J17RL4	21-Oct-08	EL-1516-14	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Mag duct shroud insulation top level South
105-N	J17RL6	21-Oct-08	EL-1516-15	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Duct insulation top level S. end
105-N	J17RL7	21-Oct-08	EL-1516-16	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Rupture tube cabinet door insulation
105-N	J17RL8	21-Oct-08	EL-1516-17	51-52	Asbestos Abatement	Room 171 Inner Rod Room	14" elbow header @ pigtails @ ceiling
105-N	J17RL9	21-Oct-08	EL-1516-18	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Valve body W. wall 3rd level SW corner
105-N	J17RM0	21-Oct-08	EL-1516-19	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Paper wrap on header top level NW corner
105-N	J17RM2	21-Oct-08	EL-1516-20	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Tube insulation on cabinet S. lower level

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J17RM3	21-Oct-08	EL-1516-21	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Black cloth rupture cabinet S. lower level
105-N	J17RM4	21-Oct-08	EL-1516-22	51-52	Asbestos Abatement	Room 171 Inner Rod Room	Tube insulation on cabinet S. lower level
105-N	J17RM9	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 170 Outer Rod Room	Hard gray elbow over sulfur block insulation
105-N	J17RN0	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 170 Outer Rod Room	Paper insulation over sulfur block
105-N	J17RN1	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 170 Outer Rod Room	Black sulfur block under J17RN0
105-N	J17RN2	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 170 Outer Rod Room	Hard gray insulation on 10" elbow
105-N	J17RN3	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 170 Outer Rod Room	Dip lag from 10" line N. end 2nd level
105-N	J17RN4	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 170 Outer Rod Room	Insulation from 10" line N. end 2nd level
105-N	J17RN5	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 170 Outer Rod Room	10" elbow top level N. center @ ceiling

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J17RN6	21-Oct-08	EL-1516-13	51-52	Asbestos Abatement	Room 171 Inner Rod Room	10" end cap top level N. center @ ceiling
105-N	J17XN5	17-Nov-08	EL-1516-13	83-85	Health and Safety	Room 610 Cable Tray	Metal saw shavings from cable tray
105-N	J18182	8-Dec-08	EL-1516-13	74	Health and Safety	Room 16 Pit	Subcontractor bio-haz sample
105-N	J18HR7	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HR8	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HR9	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT0	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT1	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT2	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J18HT4	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT5	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT6	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT7	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT8	17-Feb-09	EL-1516-14	16-21	Characterization	105-N Fan Room Roof	Asbestos roof samples
105-N	J18HT3	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples
105-N	J18HT9	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples
105-N	J18HV0	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples
105-N	J18HV1	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J18HV2	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples
105-N	J18HV3	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples
105-N	J18HV4	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples
105-N	J18HV5	18-Feb-09	EL-1516-14	22-26	Characterization	105-N Offices Roof	Asbestos roof samples
105-N	J18YB6	4-Jun-09	EL-1516-15	13-17	Characterization	100-N D4 Waste Pad	Water from 105-N chem. line
105-N	J18YD8	8-Jun-09	EL-1516-15	18-24	Characterization	North side 105-N Roof	Asphaltic black tar seal
105-N	J18YD9	8-Jun-09	EL-1516-15	18-24	Characterization	105-N Metal Prep Room Roof	Yellowish canvas type material
105-N	J18YF0	8-Jun-09	EL-1516-15	18-24	Characterization	105-N Metal Prep Room Roof-14' Level	Black asphaltic tar material
105-N	J18YF1	8-Jun-09	EL-1516-15	18-24	Characterization	West side of 105-N over dryer room 1 (183)	Black asphaltic tar sealant

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J190Y5	24-Jun-09	EL-1516-15	40-44	Characterization	105-N Room 183 (Dryer #1)	Desiccant with rock salt consistency
105-N	J190Y6	24-Jun-09	EL-1516-15	40-44	Characterization	105-N Room 184 (Dryer #2)	Desiccant with rock salt consistency, yellowish
105-N	J18YF2	22-Jul-09	EL-1516-15	64-65	Characterization	105-N Control Room roof	Black felt between wood and metal trim
105-N	J18YF3	22-Jul-09	EL-1516-15	64-65	Characterization	105-N Control Room roof	Gray speckled material on top of spray foam
105-N	J18YF4	22-Jul-09	EL-1516-15	64-65	Characterization	105-N Control Room roof	Black felt under fiberglass insulation.
105-N	J19CM3	28-Oct-09	EL-1516-16	6-May	Characterization	tarry roof material	Collected beneath polyurethane foam
105-N	J19CM4	28-Oct-09	EL-1516-16	6-May	Characterization	tarry roof material beneath polyurethane foam	Collected beneath polyurethane foam
105-N	J19CM5	28-Oct-09	EL-1516-16	6-May	Characterization	rubberized vibration dampener on roof fan	Exterior "shaving" of rubber
105-N	J19235	3-Nov-09	EL-1516-16	8-Jul	Waste Designation	105-N Gas Outlet Filter media	Room 40

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J19D19	11-Nov-09	EL-1516-16	13-Sep	Characterization	Asphaltic tar material	105-N Transfer Bay roof +48-ft level
105-N	J19D20	11-Nov-09	EL-1516-16	13-Sep	Characterization	fibrous felt/paper layer	105-N Transfer Bay roof +48-ft level
105-N	J19D21	11-Nov-09	EL-1516-16	13-Sep	Characterization	Asphaltic tar material	105-N Transfer Bay roof +48-ft level
105-N	J19D22	11-Nov-09	EL-1516-16	13-Sep	Characterization	crumbly concrete layer	105-N Fuel Storage Basin roof +16-ft level
105-N	J19D23	11-Nov-09	EL-1516-16	13-Sep	Characterization	1st layer of fibrous friable felt/paper	105-N Fuel Storage Basin roof +16-ft level
105-N	J19D24	11-Nov-09	EL-1516-16	13-Sep	Characterization	2nd layer of fibrous friable felt/paper	105-N Fuel Storage Basin roof +16-ft level
105-N	J19JB5	27-Jan-10	EL-1516-16	18-19	Characterization	Upstream of reactor outlet filter	Room 40
105-N	J19JC0	27-Jan-10	EL-1516-16	18-19	Characterization	Upstream of both dryers	Room 32 Pipe Tunnel
105-N	J19KB6	27-Jan-10	EL-1516-16	18-19	Characterization	Downstream of reactor outlet filter	Room 40

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J19KB7	27-Jan-10	EL-1516-16	18-19	Characterization	Downstream of reactor inlet filter	Room 40
105-N	J19KB8	27-Jan-10	EL-1516-16	18-19	Characterization	Upstream of reactor inlet filter	Room 40
105-N	J19KB9	27-Jan-10	EL-1516-16	18-19	Characterization	Downstream of both dryers	Room 32 Pipe Tunnel
105-N	J19LC4	10-Mar-10	EL-1516-16	23-24	Characterization	105-N Fan Room Excavation (inlet plenum)	Soil collected approximately 4-inchs below grade
105-N	J19LC5	10-Mar-10	EL-1516-16	23-24	Characterization	105-N Fan Room Excavation (inlet plenum)	Soil collected approximately 4-inchs below grade
105-N	J19LC6	10-Mar-10	EL-1516-16	23-24	Characterization	105-N Fan Room Excavation (inlet plenum)	Soil collected approximately 4-inchs below grade
105-N	J19LC7	10-Mar-10	EL-1516-16	23-24	Characterization	105-N Fan Room Excavation (inlet plenum)	Soil collected approximately 4-inchs below grade
105-N	J19LC8	10-Mar-10	EL-1516-16	23-24	Characterization	105-N Fan Room Excavation (inlet plenum)	Soil collected approximately 4-inchs below grade
105-N	J19WT3	14-Apr-10	EL-1516-16	31	Characterization	Fuel Storage Basin	Brown water from carboy marked 4"

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J19WT4	14-Apr-10	EL-1516-16	31	Characterization	Fuel Storage Basin	Clear water from carboy marked 8" Fiberglass Southwest Corner
105-N	J19WW3	14-Apr-10	EL-1516-16	31	Characterization	Fuel Storage Basin	3-in diameter coupon from bag marked NW Fiberglass 10"
105-N	J19WW4	14-Apr-10	EL-1516-16	31	Characterization	Fuel Storage Basin	3-in diameter coupon from bag marked North 10" Fiberglass Pipe
105-N	J19WW5	14-Apr-10	EL-1516-16	31	Characterization	Fuel Storage Basin	3-in diameter coupon from bag marked NW 4"
105-N	J19WW6	14-Apr-10	EL-1516-16	31	Characterization	Fuel Storage Basin	3-in diameter coupon from bag marked South 10" Steel Pipe
105-N	J19WW7	14-Apr-10	EL-1516-16	31	Characterization	Fuel Storage Basin	3-in diameter coupon from bag marked 6" Fresh Water
105-N	J19WT2	20-Apr-10	EL-1516-16	32	Characterization	Control Room excavation, eastern facing wall beneath Corridor 3	Concrete
105-N	J1B5F1	1-Jun-10	EL-1516-16	39	Characterization	105 N WMD Tunnel-1	4" CD Drain Line-Low Point
105-N	J1B5F2	1-Jun-10	EL-1516-16	39	Characterization	105 N WMD Tunnel-1	3" CD 0.0 Line - Coupon #5

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J1B5F3	1-Jun-10	EL-1516-16	39	Characterization	105 N WMD Tunnel-1	36" CD 0.2 Line- Coupon #1
105-N	J1B5F4	1-Jun-10	EL-1516-16	39	Characterization	105 N WMD Tunnel-1	8" CD 0.0 Line - Coupon #4
105-N	J1B704	2-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #9 12"pipe, west end 3' from S. tunnel entrance
105-N	J1B705	2-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #9 12" pipe, 27' from S. tunnel entrance
105-N	J1B706	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #1 36" pipe, 30' from N. tunnel entrance
105-N	J1B707	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #2 4" pipe, 27' from N. tunnel entrance
105-N	J1B708	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #3 10" pipe, 27' into N. tunnel entry
105-N	J1B709	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #4 8" pipe, 27' into N. tunnel entry
105-N	J1B710	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #5 8" pipe, 27' into N. tunnel entry

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J1B711	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #6 12" pipe, 27' from N. tunnel entry
105-N	J1B712	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #7 4" pipe 27' from S. tunnel entry
105-N	J1B713	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #8 4" pipe, 27' from S. tunnel entry
105-N	J1B714	7-Jun-10	EL-1516-16	42-43	Waste Designation	105 N WMD Tunnel-2	Coupon #10 18" pipe, 27' from S tunnel entry
105-N	J1B736	9-Jun-10	EL-1516-16	44	Waste Designation	105 N WMD Tunnel	No sludge found - rusty water - sample not analyzed
105-N	J1B948	10-Jun-10	EL-1516-16	48	Waste Designation	105N WMD Tunnel - 3	Coupon #11 36" pipe, 2' from S. tunnel entry
105-N	J1B949	14-Jun-10	EL-1516-16	48	Waste Designation	105N WMD Tunnel - 3	Coupon #12 6" pipe 1' from S. tunnel entry
105-N	J1B901	16-Jun-10	EL-1516-16	46-47	Waste Designation	Waste Pad Satellite 1500-gal tank 100N-10-2714	Water from 105N lift station approx 1200 gallons
105-N	J1B902	16-Jun-10	EL-1516-16	46-47	Waste Designation	Waste Pad Satellite 1200-gal tank 100N-10-1761	Water from 105N W elevator caisson/lift station, 1100g

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J1B903	16-Jun-10	EL-1516-16	46-47	Waste Designation	Waste Pad Satellite 1500-gal tank 100N-10-2715	Water from 105N lift station, approx 1200 gallons
105-N	J1BJF5	20-Jul-10	EL-1516-16	51-52	Characterization	Soil from previous sample location J19LC5	Sampled approx 4-feet below existing grade
105-N	J1BJF6	20-Jul-10	EL-1516-16	51-52	Characterization	Soil from 3' below previous sample location J19LC5	Sampled approx 7-feet below existing grade
105-N	J1BJF7	20-Jul-10	EL-1516-16	51-52	Characterization	Soil from 6' below previous sample location J19LC5	Sampled approx 10-feet below existing grade
105-N	J196X7	3-Aug-10	EL-1516-16	56	Characterization	West corner of 105N and 109N	Insulation on the wall at the corner
105-N	J19703	5-Oct-10	EL-1516-16	72-73	Waste Designation	C elevator drain pipe water	Clear water from carboy marked 8" Fiberglass Southwest Corner
105-N	J1CFK7	27-Oct-10	EL-1516-16	78-79	Characterization	105N NNW Dickson Excavation	Location #2 N149543.854m, E571179.914m, 135.500
105-N	J1CFK8	27-Oct-10	EL-1516-16	78-79	Characterization	105N NNW Dickson Excavation	Location #1 N149538.173m, E 571179.914m, 133.098
105-N	J1CFK9	27-Oct-10	EL-1516-16	78-79	Characterization	105N NNW Dickson Excavation	Location #3 N149552.933m, E571184.242m, 133.195

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J1B8W5	3-Nov-10	EL-1516-16	85	Characterization	From 105N C Elevator Drain Pipe	Tanks 100N-10-5422 & -5598
105-N	J1CN37	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location #3
105-N	J1CN38	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location #4
105-N	J1CN39	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location # 6
105-N	J1CN40	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location # 7
105-N	J1CN41	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location # 3 RCF and CR-6
105-N	J1CN42	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location #4 RCF and CR-6
105-N	J1CN43	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location # 6 RCF and CR-6
105-N	J1CN44	4-Nov-10	EL-1516-16	87-89	Characterization	105N Lift Station Tunnel floor slab concrete	RSR 1--ISS-10-1063 Location # 7 RCF and CR-6

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J19BY6	29-Nov-10	EL-1516-16	99	Characterization	Lift Station Valve Box water stored in tanks in 1120N	Stored in Tanks 100N-10-6575, 6576, 6577, 6578
105-N	J1F121	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area path to water cannon 0 to 4"	Sample screened with # 10 screen
105-N	J1F122	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area path to water cannon 0 to 4"	Sample screened with # 10 screen
105-N	J1F123	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area path to water cannon 0 to 4"	Sample screened with # 10 screen
105-N	J1F124	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area along wall 0 to 4"	Sample screened with # 10 screen
105-N	J1F125	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area along wall 0 to 4"	Sample screened with # 10 screen
105-N	J1F126	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area along wall 0 to 4"	Sample screened with # 10 screen
105-N	J1F127	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area adjacent to NW Corner of 109N 0 to 4 "	Sample screened with # 10 screen
105-N	J1F128	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area adjacent to NW Corner of 109N 0 to 4 "	Sample screened with # 10 screen

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J1F129	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area adjacent to NW Corner of 109N 0 to 4 "	Sample screened with # 10 screen
105-N	J1F130	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area adjacent to NW Corner of 109N 0 to 4 "	Sample screened with # 10 screen
105-N	J1F131	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area adjacent to NW Corner of 109N 0 to 4 "	Sample screened with # 10 screen
105-N	J1F132	10-Feb-11	EL-1516-17	22-23	Health and Safety	Area adjacent to NW Corner of 109N 0 to 4 "	Sample screened with # 10 screen
105-N	J1F154	10-Feb-11	EL-1516-17	22-23	Health and Safety	RCF Sample = composite of all 12 locations	Full folder of photos
105-N	J1JWH9	24-Jun-11	EL-1516-17	56	Waste Designation	"C" Elevator Pit	In-line filter and any solids from C Elevator pit water
105-N	J1JWJ0	24-Jun-11	EL-1516-17	56	Waste Designation	"C" Elevator Pit	In-line filter and any solids from C Elevator pit water
105-N	J1JWJ2	28-Jun-11	EL-1516-17	56	Waste Designation	"C" Elevator Pit	Undisturbed water from C Elevator pit,
105-N	J1JWJ3	28-Jun-11	EL-1516-17	56	Waste Designation	"C" Elevator Pit	Water sample from bottom of pit not analyzed

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
105-N	J1KM68	27-Jul-11	EL-1516-18	11	Waste Designation	105N, Room 173, Lead Waste Storage Room (see J1J4P3, above)	Piranha 8 paint sludge and plastic bags; TCLP
105-N	J12669	N/A	EL-1516-10	11	Waste Designation	fission products trap	Sample separated at 222-S lab
105-N	J1J4P3	N/A	EL-1516-17	34	Waste Designation	105N, Room 173 (see J1KM68, below)	Paint sludge removed using Piranha 8 (pH = 14) product
109-N	J10640	26-Oct-05			health and safety	S. rail middle	I.H. Sampling to detect Be on crane rails
109-N	J10641	26-Oct-05			health and safety	S. rail at E. end	I.H. Sampling to detect Be on crane rails
109-N	J11XT1	17-Apr-06	EL-1516-9	87	asbestos abatement	East side	
109-N	J120J9	26-Apr-06	EL-1516-9	99	asbestos abatement	E. side	off white/faded yellow over black gritty layer
109-N	J120K0	26-Apr-06	EL-1516-9	99	asbestos abatement	E. side	faded red over black gritty layer
109-N	J120K9	26-Apr-06	EL-1516-9	100	asbestos abatement	S. side	off white/faded yellow over black gritty layer

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
109-N	J120L0	26-Apr-06	EL-1516-9	100	asbestos abatement	S. side	faded red over black gritty layer
109-N	J12PC6	28-Jun-06	EL-1516-10	36	asbestos abatement	109 Turbine room	expansion joint material, black and ashy, brittle, breakable, consistancy of pressed saw dust
109-N	J12PC7	28-Jun-06	EL-1516-10	36	waste designation	109 Turbine room	expansion joint material, black and ashy, brittle, breakable, consistancy of pressed saw dust
109-N	J12PC8	28-Jun-06	EL-1516-10	35	waste designation	Decon cell sump debris	dry sandy dirt
109-N	J12PD0	28-Jun-06	EL-1516-10	35	waste designation	Decon cell sump debris	dry sandy dirt
109-N	J16D87	27-Feb-08	EL-1516-12	66-67	asbestos abatement	Room 115 Zone 1 ducting	Light grey fibrous insul. w/pink duct wrap
109-N	J189D5	10-Feb-09	EL-1516-14	9-13	waste designation	109-N Freight Elevator Pit	Representative sample from 5 gal. bucket
109-N	J18JT3	25-Feb-09	EL-1516-14	27-31	characterization	109-N Roof	Asbestos roof samples
109-N	J18JT4	25-Feb-09	EL-1516-14	27-31	characterization	109-N Roof	Asbestos roof samples

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
109-N	J18JT5	25-Feb-09	EL-1516-14	27-31	characterization	109-N Roof	Asbestos roof samples
109-N	J18JT6	25-Feb-09	EL-1516-14	27-31	characterization	109-N Roof	Asbestos roof samples
109-N	J18JT7	25-Feb-09	EL-1516-14	27-31	characterization	109-N Roof	Asbestos roof samples
109-N	J18JT8	25-Feb-09	EL-1516-14	27-31	characterization	109-N Roof	Asbestos roof samples
109-N	J18JT9	25-Feb-09	EL-1516-14	27-31	characterization	109-N Roof	Asbestos roof samples
109-N	J18LX5	25-Mar-09	EL-1516-14	90	characterization	Various 109-N	Composite RCT Air Samples from 109-N
109-N	J18R18	4-May-09	EL-1516-15	2-12	characterization	RCRA Pipe trench West end by 109-N	RCRA TSD underlying soils
109-N	J18R19	4-May-09	EL-1516-15	2-12	characterization	RCRA Pipe trench East end by 105-ND	RCRA TSD underlying soils
109-N	J18R27	4-May-09	EL-1516-15	2-12	characterization	RCRA Pipe trench East end by 105-ND	RCRA TSD liquid in pipe

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
109-N	J18R20	4-May-09	EL-1516-15	2-12	regulator splits	RCRA Pipe trench West end by 109-N	Ecology Split of J18R18
109-N	J18R21	4-May-09	EL-1516-15	2-12	regulator splits	RCRA Pipe trench East end by 105-ND	Ecology Split of J18R19
109-N	J18R33	4-May-09	EL-1516-15	2-12	regulator splits	RCRA Pipe trench East end by 105-ND	Ecology Split of J18R27 & J18R28
109-N	J18R28	5-May-09	EL-1516-15	2-12	characterization	RCRA Pipe trench East end by 105-ND	RCRA TSD liquid in pipe
109-N	J18YB7	4-Jun-09	EL-1516-15	13-17	characterization	100-N D4 Waste Pad	Water from 109-N IX Tank
109-N	J19543	25-Aug-09	EL-1516-15	82-83	waste designation	WW/COND from S Excavation 12-in UG lines	Collected from poly tank
109-N	J19544	25-Aug-09	EL-1516-15	82-83	waste designation	RWS/RWR from S Excavation 20-in UG lines	Collected from poly tank
109-N	J19545	25-Aug-09	EL-1516-15	82-83	waste designation	"Clean" chem line water from E Excavation UG line	Collected from poly tank
109-N	JA9586	25-Aug-09	EL-1516-15	82-83	waste designation	Split of above	CrVI split of J19545

Summary of Samples Collected from 105-N/109-N. (38 Pages)

Facility	HEIS #	Sample Date	Logbook	Page	Sample Purpose	Location Detail	Comments
109-N	J195N8	26-Aug-09	EL-1516-15	84	characterization	Excavation near SE corner of 109-N	Black mastic-backed felt material
109-N	J195N9	26-Aug-09	EL-1516-15	84	characterization	SE corner of 109-N wall	Black cold joint material, no mastic
109-N	J19614	2-Sep-09	EL-1516-15	85-88	characterization	Aux cell.	Fiberboard and mastic from wall.
109-N	J19615	2-Sep-09	EL-1516-15	85-88	characterization	Cell 4 area.	Fiberboard from ground and mastic from wall.
109-N	J19616	2-Sep-09	EL-1516-15	85-88	characterization	Cell 3 area.	Fiberboard and mastic from wall.
109-N	J19617	2-Sep-09	EL-1516-15	85-88	characterization	Cell 2.	Fiberboard and mastic from wall.
109-N	J19618	2-Sep-09	EL-1516-15	85-88	characterization	Cell 1.	Fiberboard and mastic from wall.
109-N	J1B9F6	28-Jun-10	EL-1516-16	50	characterization	Re-Bar stubs on west side of 109N	Sampled protective grease coating put on rebar

Attachment 14

Pre-Demo GPS Survey Report for 105N & 109N Buildings

Pre Demo GPS Survey Data Report for 105N & 105NB Buildings

Project : 100N-bldgs-8-06

User name	maaye	**Date & Time**	5:18:18 PM 10/17/2006
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAVD83	**Geoid Model**	GEOID99 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

```
Survey Project Name/Title:   105N - 109N
Survey Purpose:                        GPS Building corners and surrounding features for
the 105N and 109N Buildings
Requested By:                          Amy Hood
General Site Location:                 100-N
Charge Code:
Field Surveyor:                        Margo Aye
Computer Software Used:                Trimble Survey Controller, and  Geomatics Office
V.11
Survey Equipment Used:                 5800, LTI Laser
Control Monuments Used:                100N-4
Survey Method:                         RTK
Estimated Horizontal Precision:        .020m
Estimated Vertical Precision:          .050m
Fieldwork Start Date:                  8/8/06
Fieldwork Completion Date:   8/15/06
Notes:    A network of large piping was on south end of 109N, made it difficult to map
south side.
```

point_id	bldgname_1	Feat_Code	Desc	Northing	Easting	Elevation
154	105N	corner-bldg		149545.722	571161.903	139.741
157	105N	corner-bldg		149555.479	571169.95	139.76
158	105N	corner-bldg		149551.211	571168.235	139.821
159	105N	corner-bldg		149551.853	571166.843	139.749
160	105N	cap		149550.295	571164.556	139.717
162	105N	corner-bldg		149570.485	571206.765	139.818
173	105N	corner-bldg		149541.208	571249.191	139.721
174	105N	corner-bldg		149541.94	571248.061	139.971
322	109N	bldg-corner-offset		149403.019	571235.416	139.474
325	109N	bldg-corner-offset		149402.081	571233.222	139.545
335	109NB	bldg-corner-offset		149452.11	571109.239	139.574
569	105N	corner-concrete		149458.303	571262.934	139.724
570	105ND	corner-concrete		149457.737	571264.292	139.712
571	105ND	corner-concrete		149461.613	571265.924	139.693
574	105N	corner-concrete		149465.877	571271.443	139.77
575	105N	corner-concrete		149467.514	571272.17	139.758
576	105N	corner-concrete		149469.28	571268.031	139.771
577	105N	corner-concrete		149467.688	571267.276	139.744
1245	105ND	lift		149456.622	571266.041	139.683

1257	105NE	corner-bldg		149572.75	571179.731	139.637
1401	105N	bldg-corner-top	not at ground	149532.966	571142.485	139.788
1402	105NA	bldg-corner-top	not at ground	149527.251	571153.264	142.778
1403	105N	bldg-corner-top	not at ground	149522.488	571156.648	143.584
1411	105N	corner-bldg		149528.419	571141.968	139.996
1413	105N	corner-bldg		149551.295	571181.902	139.806
1420	105N	corner-overhang		149557.367	571228.412	140.459
1421	105N	corner-bldg		149561.757	571226.143	139.788
1422	105N	corner-bldg		149548.325	571221.531	139.926
1423	105N	corner-bldg		149550.01	571226.849	139.77
1424	105N	corner-bldg		149546.894	571225.749	139.78
1438	105NB	corner-bldg		149549.073	571279.869	139.395
1439	105NB	corner-bldg		149549.213	571280.766	139.353
1440	105N	corner-bldg		149532.726	571268.346	139.669
1442	105NB	drain		149537.311	571308.852	139.386
1444	105N	corner-bldg		149480.852	571286.171	139.628
1447	105N	corner-bldg		149474.942	571269.459	139.624
1455	109N	corner-bldg		149403.299	571234.515	142.726
1456	105N	corner-mh-sewer		149460.201	571261.446	152.61
1474	109NB	corner-concrete		149442.768	571105.324	139.614
1478	105N	confined-space		149511.532	571130.471	143.277
1479	105N	corner-bldg		149541.006	571121.902	139.89
1650	105N	bldg-corner-offset		149513.275	571134.816	143.277
1651	109N	corner		149456.233	571110.418	139.648
1656	105NA	corner		149524.973	571150.02	139.996
1657	105NA	corner		149526.596	571157.297	139.996
1658	105NA	corner		149528.942	571151.584	139.996
1766	105NE	corner-bldg		149569.547	571186.306	139.715
1767	105N	corner-bldg		149568.643	571204.634	139.769
1789	109N	corner-bldg		149436.488	571247.464	139.658
1790	109N	corner-bldg		149434.963	571250.983	139.655
1791	109N	corner-bldg		149441.509	571252.998	139.727
1985	105ND	corner-concrete		149460.078	571266.85	139.618
1986	105ND	corner-concrete		149460.468	571266.019	139.593
1987	105ND	corner-concrete		149459.228	571266.454	139.573
1988	105ND	corner-concrete		149459.605	571265.621	139.568
2033	105NE	corner-bldg		149580.14	571182.924	139.61

Attachment 15

Post-Demo GPS Survey Report for 105N & 109N Buildings

GPS Post Demo Survey Report for the 105N Building

User name	maaye	**Date & Time**	10:12:05 AM 12/19/2012
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	**Geoid Model**	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

```
Survey Project Name:        Post Demo Survey for 105N Building
Date:                       12/18/2012
Equipment:                  5800
Survey Purpose:             Map D4 post demo excavations around 105N Building
Requested By:               Clay McCurley
Location:                   100N
Charge Code:
Field Surveyor:             Margo Aye
Survey Software Used:       Trimble Survey Controller, and  Geomatics Office V.11
Survey Equipment Used:      5800, LTI Impulse Laser
Control Monuments Used:     N-2, F-Line
Survey Method:              RTK, & LTI Impulse Laser
Horizontal Precision:       .020m
Vertical Precision:         .050m
Fieldwork Start Date:       12/14/06 (see survey dates per point)
Fieldwork Completion Date:  12/14/12
Notes:
```

Point_ID	FEAT_CODE	NORTHING	EASTING	ELEVATION	SURVEY_DATE
2	toe	149482.939	571251.301	136.760	3/4/2010
3	toe	149484.693	571244.692	135.835	3/4/2010
4	toe	149486.910	571240.167	135.119	3/4/2010
5	toe	149489.409	571236.291	134.969	3/4/2010
7	top-toe	149494.531	571235.732	135.433	3/4/2010
8	top-toe	149501.460	571233.681	133.432	3/4/2010
10	conc-toe	149503.356	571229.665	133.650	3/4/2010
13	topo	149482.962	571235.594	134.858	3/4/2010
14	topo	149478.954	571234.915	134.794	3/4/2010
16	top	149487.274	571265.873	139.748	3/4/2010
17	top	149490.162	571256.885	139.813	3/4/2010
18	top	149496.949	571243.468	139.726	3/4/2010
21	top	149539.255	571259.348	139.336	11/19/2009
22	top	149556.233	571227.409	139.788	11/19/2009
23	top	149548.867	571240.425	139.587	11/19/2009
24	top	149541.827	571258.141	139.648	11/19/2009
25	top	149545.226	571248.741	139.688	11/19/2009
26	toe	149536.788	571245.093	134.895	11/19/2009
27	top	149553.357	571231.525	139.742	11/19/2009
30	wall	149542.695	571234.461	135.346	11/19/2009
31	toe	149542.865	571231.487	134.875	11/19/2009
32	toe	149540.240	571236.980	134.905	11/19/2009
33	toe	149534.070	571250.727	134.949	11/19/2009
34	toe	149531.576	571251.960	134.949	11/19/2009

35	toe	149528.565	571250.702	134.917	11/19/2009
36	wall-height-8ft	149526.130	571250.309	134.862	11/19/2009
38	toe	149524.152	571248.877	134.983	11/19/2009
39	elev	149534.518	571239.292	134.895	11/19/2009
40	elev	149532.107	571236.946	134.860	11/19/2009
41	ramp	149475.669	571259.239	137.911	3/4/2010
43	top	149528.121	571231.927	135.934	3/4/2010
44	top	149532.594	571226.148	136.020	3/4/2010
46	top	149533.155	571222.881	135.962	3/4/2010
48	slope	149530.507	571227.902	135.949	3/4/2010
49	slope	149528.183	571227.652	134.358	3/4/2010
50	toe	149527.328	571220.502	132.791	3/4/2010
53	slope	149525.859	571230.305	134.538	3/4/2010
54	top	149522.026	571233.297	135.106	3/4/2010
55	toe	149524.665	571228.363	133.218	3/4/2010
60	elev	149522.503	571224.146	132.388	3/4/2010
61	elev	149522.321	571221.627	132.374	3/4/2010
63	top	149519.994	571229.464	133.235	3/4/2010
65	toe	149519.153	571226.482	132.429	3/4/2010
67	elev	149520.745	571223.860	132.310	3/4/2010
71	toe	149520.189	571221.218	132.568	3/4/2010
73	corner	149517.531	571224.151	132.975	3/4/2010
75	wall-ledge	149503.837	571229.257	133.745	3/4/2010
76	wall-ledge	149499.004	571227.601	133.350	3/4/2010
78	top	149533.828	571220.287	135.821	3/4/2010
80	top	149533.599	571215.424	134.906	3/4/2010
81	slope	149531.237	571217.593	133.857	3/4/2010
87	toe	149529.275	571213.826	132.629	3/4/2010
95	elev	149525.518	571217.031	132.908	3/4/2010
98	elev	149522.659	571216.267	132.731	3/4/2010
103	toe	149524.364	571210.886	132.611	3/4/2010
106	ramp	149479.504	571249.595	136.646	3/4/2010
108	topo	149479.950	571244.075	136.023	3/4/2010
109	toe-wall-corner	149493.538	571225.000	133.765	3/4/2010
110	toe-wall-corner	149491.833	571227.251	133.573	3/4/2010
111	wall-toe	149491.207	571223.983	132.429	3/4/2010
112	wall-toe	149489.621	571223.416	132.434	3/4/2010
113	toe-wall-corner	149489.255	571223.489	133.744	3/4/2010
114	elev	149485.115	571227.097	134.646	3/4/2010
115	toe-wall	149487.782	571224.029	132.443	3/4/2010
116	toe	149486.466	571221.970	133.785	3/4/2010
117	elev	149479.643	571227.916	134.778	3/4/2010
118	toe	149483.633	571221.077	133.852	3/4/2010
119	toe	149479.526	571222.609	134.610	3/4/2010
121	toe	149479.287	571220.920	133.877	3/4/2010
122	ramp	149476.364	571249.809	137.236	3/4/2010
124	topo	149477.482	571237.565	134.865	3/4/2010
126	topo	149475.818	571233.525	134.690	3/4/2010
127	toe-wall	149471.300	571235.651	134.706	3/4/2010
128	toe	149473.845	571231.978	134.702	3/4/2010

129	toe-wall	149473.614	571230.406	134.685	3/4/2010
130	toe-wall	149478.589	571218.781	133.977	3/4/2010
131	toe-wall-corner	149477.041	571219.852	133.948	
132	top	149481.635	571274.480	139.788	11/19/2009
133	top	149487.548	571260.563	139.745	11/19/2009
134	top	149477.833	571279.424	139.620	11/19/2009
135	top	149469.744	571282.928	139.560	11/19/2009
136	top	149464.127	571280.183	139.506	11/19/2009
137	toe	149474.298	571266.553	134.862	11/19/2009
138	toe	149477.312	571260.437	134.818	11/19/2009
139	toe	149469.799	571264.994	134.812	11/19/2009
140	elev-chk	149470.817	571261.278	134.617	11/19/2009
141	toe	149462.440	571262.100	134.815	11/19/2009
142	top	149456.757	571272.273	139.616	11/19/2009
146	top	149451.594	571268.063	139.556	11/19/2009
148	top	149491.518	571252.959	139.546	11/19/2009
149	top	149494.111	571248.206	139.770	11/19/2009
150	toe	149484.637	571241.343	135.092	11/19/2009
151	toe	149481.793	571248.420	134.833	11/19/2009
152	elev-chk	149474.667	571252.757	134.831	11/19/2009
154	elev-chk	149478.327	571243.805	134.881	11/19/2009
155	toe	149458.201	571254.902	135.037	11/19/2009
156	top	149525.612	571251.863	138.401	11/19/2009
158	top	149520.417	571252.443	139.732	11/19/2009
159	elev	149524.407	571235.405	134.550	3/30/2010
160	toe	149523.431	571234.900	134.231	3/30/2010
161	toe	149524.642	571232.303	134.251	3/30/2010
163	toe	149521.785	571236.481	134.109	3/30/2010
169	lip-on-wall-corner	149517.856	571225.363	133.744	3/30/2010
172	top	149513.448	571249.624	139.751	3/30/2010
175	top	149506.544	571246.091	139.755	3/30/2010
176	top	149502.472	571244.354	139.706	3/30/2010
178	top	149498.342	571242.695	139.712	3/30/2010
180	toe	149516.400	571237.533	134.563	3/30/2010
184	toe	149515.881	571228.974	132.783	3/30/2010
185	toe	149514.239	571226.810	132.580	3/30/2010
188	lip-on-wall-edge	149515.548	571224.327	133.745	3/30/2010
193	center-of-elevator	149510.433	571229.903	132.424	3/30/2010
195	toe	149512.285	571226.256	132.518	3/30/2010
196	toe	149510.931	571225.345	132.488	3/30/2010
198	lip-on-wall-edge	149511.086	571222.303	133.726	3/30/2010
200	toe	149509.146	571223.212	132.995	3/30/2010
201	top-conc-lip-corner	149508.997	571221.284	133.961	3/30/2010
202	toe	149504.243	571235.213	133.282	3/30/2010
207	topo	149536.765	571177.703	133.127	10/7/2010
209	topo	149541.947	571188.315	133.257	10/7/2010
214	topo	149537.878	571172.535	133.286	10/7/2010
216	topo	149533.195	571164.605	133.181	10/7/2010
217	topo	149536.866	571183.046	133.098	10/7/2010
219	topo	149543.484	571196.026	133.413	10/7/2010

221	topo	149537.536	571167.220	133.232	10/7/2010
222	topo	149531.353	571163.367	133.105	10/7/2010
226	toe	149548.682	571176.555	133.190	10/7/2010
227	toe	149544.361	571174.738	133.051	10/7/2010
228	toe	149543.074	571172.423	133.068	10/7/2010
229	toe	149540.468	571166.563	133.238	10/7/2010
230	topo	149548.278	571181.436	133.204	10/7/2010
231	topo	149541.415	571178.940	133.240	10/7/2010
236	top	149570.096	571173.559	139.927	10/7/2010
237	top	149555.130	571167.285	139.779	10/7/2010
238	top	149553.726	571156.957	139.754	10/7/2010
239	top	149549.332	571152.857	139.993	10/7/2010
241	top-edge-conc	149533.057	571147.383	139.734	10/7/2010
242	test	149534.087	571185.155	133.907	10/7/2010
243	corner	149524.221	571181.576	133.844	10/7/2010
244	corner	149526.643	571179.037	133.910	10/7/2010
245	center-pipe	149528.357	571174.683	134.215	10/7/2010
252	toe	149529.477	571159.229	133.341	10/7/2010
254	toe	149538.776	571162.227	133.217	10/7/2010
260	toe	149553.114	571181.316	133.438	10/7/2010
261	toe	149554.207	571186.773	133.422	10/7/2010
262	toe	149532.313	571191.728	133.299	10/7/2010
263	toe	149539.835	571197.810	133.514	10/7/2010
264	toe	149548.155	571203.404	133.427	10/7/2010
284	topo	149569.777	571206.985	134.764	10/7/2010
286	toe	149558.395	571205.249	133.041	10/7/2010
289	toe	149565.904	571206.552	132.870	10/7/2010
290	toe	149568.025	571203.283	132.702	10/7/2010
291	toe	149569.094	571198.060	132.663	10/7/2010
294	toe	149565.628	571191.748	132.911	10/7/2010
295	toe	149559.949	571189.540	132.942	10/7/2010
297	topo	149555.367	571193.606	132.970	10/7/2010
299	topo	149563.668	571194.834	132.820	10/7/2010
300	top	149559.575	571216.485	139.205	10/7/2010
303	top	149565.452	571218.147	139.106	10/7/2010
304	top	149568.429	571218.249	139.142	10/7/2010
305	top	149570.537	571217.154	139.209	10/7/2010
306	top	149572.189	571214.037	138.981	10/7/2010
307	top	149574.433	571211.695	139.069	10/7/2010
308	top	149578.174	571206.404	139.225	10/7/2010
311	top	149582.077	571199.579	139.375	10/7/2010
313	center-shaft	149527.233	571208.141	134.145	7/14/2010
314	center-shaft	149529.090	571203.785	134.046	7/14/2010
327	center	149541.929	571215.461	132.333	7/14/2010
342	topo	149532.308	571206.953	133.859	7/14/2010
344	topo	149543.001	571191.212	132.955	7/14/2010
348	topo	149570.524	571199.937	133.180	7/14/2010
350	toe	149559.536	571218.214	134.100	7/14/2010
351	toe	149556.577	571222.608	134.329	7/14/2010
352	toe	149550.155	571220.874	134.447	7/14/2010

353	top-hole	149545.036	571218.849	134.185	7/14/2010
355	top-hole	149547.144	571211.034	134.007	7/14/2010
357	top-hole	149539.789	571207.801	134.024	7/14/2010
359	top-hole	149536.385	571214.806	133.984	7/14/2010
361	top-hole	149540.417	571219.004	134.604	7/14/2010
363	topo	149539.434	571224.734	135.150	7/14/2010
364	topo	149551.893	571234.595	139.393	
365	top	149551.876	571234.577	139.368	7/14/2010
366	top	149558.605	571234.422	139.609	7/14/2010
367	top	149564.345	571231.423	139.547	7/14/2010
368	top	149570.490	571224.221	139.647	7/14/2010
369	top	149574.265	571218.597	139.752	
370	toe	149535.299	571222.040	135.181	7/14/2010
372	toe	149531.724	571220.546	135.013	7/14/2010
378	top-con-corn	149527.612	571199.845	132.754	7/14/2010
380	front-con-corn	149524.551	571207.227	132.203	7/14/2010
392	toe	149564.069	571211.335	133.285	7/14/2010
393	toe	149562.029	571220.678	133.770	7/14/2010
395	corner	149522.922	571211.011	134.985	
404	toe	149576.252	571196.404	132.329	7/14/2010
437	top	149553.331	571112.136	131.793	11/14/2012
439	top	149546.552	571108.802	132.009	11/14/2012
441	top	149541.334	571115.045	131.803	11/14/2012
443	top	149537.242	571123.223	131.714	11/14/2012
446	toe	149546.023	571116.097	129.121	11/14/2012
448	toe	149544.583	571119.486	128.822	11/14/2012
450	toe	149542.618	571123.192	128.777	11/14/2012
452	toe	149541.187	571127.341	128.868	11/14/2012
454	toe	149538.006	571132.049	129.038	11/14/2012
455	toe	149538.146	571133.984	129.063	11/14/2012
459	toe	149536.625	571136.909	129.824	11/14/2012
460	toe	149533.458	571144.724	129.844	11/14/2012
461	toe	149532.133	571148.251	129.936	11/14/2012
462	toe	149531.501	571151.728	129.709	11/14/2012
465	toe	149534.280	571149.430	129.233	11/14/2012
466	toe	149535.557	571146.599	129.009	11/14/2012
467	toe	149540.424	571136.246	128.885	11/14/2012
468	toe	149541.797	571133.503	128.883	11/14/2012
469	toe	149543.244	571130.638	128.964	11/14/2012
470	toe	149544.084	571129.353	128.816	11/14/2012
471	toe	149544.879	571127.506	128.635	11/14/2012
473	toe	149546.069	571124.204	128.584	11/14/2012
476	toe	149547.697	571119.878	128.791	11/14/2012
478	toe	149548.672	571118.308	128.693	11/14/2012
480	toe	149548.206	571116.604	128.841	11/14/2012
481	toe	149548.126	571115.473	128.995	11/14/2012
482	toe	149548.361	571113.610	130.213	11/14/2012
485	top	149534.772	571130.887	131.330	11/14/2012
487	top	149533.204	571134.614	131.950	11/14/2012
488	top	149530.110	571142.175	131.897	11/14/2012

489	top	149526.699	571148.921	132.025	11/14/2012
490	top	149522.135	571156.033	132.508	11/14/2012
491	top	149522.691	571159.271	133.560	11/14/2012
492	top	149525.002	571161.378	133.025	11/14/2012
493	top	149526.798	571159.922	132.891	11/14/2012
495	top	149532.612	571159.366	133.012	11/14/2012
496	top	149535.508	571157.949	133.087	11/14/2012
498	top	149540.598	571150.692	133.021	11/14/2012
499	top	149542.958	571146.437	132.760	11/14/2012
502	top	149549.616	571138.337	132.823	11/14/2012
504	top	149553.955	571131.326	133.043	11/14/2012
505	top	149556.143	571126.928	133.171	11/14/2012
508	top	149559.518	571121.257	133.290	11/14/2012
512	top	149562.423	571113.163	133.133	11/14/2012
514	top	149572.064	571122.065	137.155	11/14/2012
516	top	149567.814	571128.481	137.339	11/14/2012
522	top	149562.719	571137.488	136.986	11/14/2012
526	top	149556.814	571142.283	135.949	11/14/2012
527	top	149555.562	571146.168	136.190	11/14/2012
530	top	149550.809	571146.126	135.077	11/14/2012
531	top	149546.043	571150.146	133.123	11/14/2012
532	top	149548.189	571139.859	132.702	11/14/2012
546	top	149586.287	571187.029	132.008	11/14/2012
550	top	149581.115	571180.641	131.877	11/14/2012
559	top	149580.632	571185.492	131.136	11/14/2012
561	top	149578.250	571183.481	131.072	11/14/2012
564	top	149570.835	571182.104	131.627	11/14/2012
569	top	149571.168	571191.313	131.812	11/14/2012
575	top	149579.490	571195.162	132.325	11/14/2012
576	top	149582.244	571194.483	132.423	11/14/2012
577	top	149586.180	571192.174	132.517	11/14/2012
579	top	149564.577	571185.476	132.665	11/14/2012
580	top	149566.442	571181.026	132.492	11/14/2012
584	top	149579.451	571188.983	130.648	11/14/2012
587	topo	149564.090	571171.436	132.416	12/31/2012
588	topo	149560.855	571179.381	132.608	12/31/2012
590	toe	149564.332	571189.583	132.188	12/31/2012
595	toe	149577.415	571179.634	130.988	12/31/2012
602	toe	149573.484	571195.160	131.685	12/31/2012
604	toe	149567.424	571191.390	131.888	12/31/2012
621	toe	149573.959	571200.554	132.516	12/31/2012
626	topo	149591.279	571184.743	132.425	12/31/2012
628	topo	149582.338	571176.882	131.754	12/31/2012
629	topo	149576.658	571173.588	131.677	12/31/2012
638	toe	149574.323	571184.936	129.387	12/31/2012
641	toe	149578.200	571187.518	129.585	12/31/2012
648	top	149569.269	571214.729	138.287	12/31/2012
657	toe	149545.626	571184.855	133.710	12/31/2012
658	toe	149549.484	571187.419	133.914	12/31/2012
659	toe	149554.777	571192.308	134.345	12/31/2012

Facility Status Change Form

660	toe	149558.716	571197.948	135.031	12/31/2012
661	toe	149561.262	571204.601	136.145	12/31/2012
664	topo	149518.436	571144.321	130.919	5/16/2012
665	topo	149516.380	571149.187	130.878	5/16/2012
666	top-of-lip	149509.964	571145.247	131.322	5/16/2012
668	toe-edge-wall	149508.924	571148.645	130.896	5/16/2012
669	top-of-lip	149508.994	571147.550	131.341	5/16/2012
670	edge-of-ex	149517.939	571135.062	131.047	5/16/2012
671	edge-of-ex	149519.410	571132.056	131.249	5/16/2012
672	top-of-lip	149511.111	571143.421	131.316	5/16/2012
673	corn-bld	149515.278	571133.516	131.323	5/16/2012
678	topo	149517.196	571154.366	131.022	5/16/2012
680	corner	149511.015	571175.688	131.857	5/16/2012
681	toe-edge-wall	149509.474	571173.892	131.344	5/16/2012
683	topo	149513.715	571163.656	131.031	5/16/2012
684	topo	149511.410	571164.828	130.931	5/16/2012
692	topo	149512.832	571159.101	130.918	5/16/2012
693	topo	149515.621	571158.320	130.970	5/16/2012
694	topo	149513.205	571156.689	130.962	5/16/2012
695	topo	149510.486	571156.477	130.969	5/16/2012
696	topo	149515.423	571153.472	130.994	5/16/2012
697	topo	149511.735	571151.053	130.935	5/16/2012
698	topo	149505.530	571160.708	130.927	5/16/2012
699	toe-edge-wall	149503.721	571162.250	131.138	5/16/2012
702	topo	149522.855	571141.142	131.193	5/16/2012
703	topo	149522.156	571149.202	131.352	5/16/2012

Facility Status Change Form

GPS Post Demo Survey Report for the 109N Building

User name	maaye	**Date & Time**	10:12:05 AM 12/19/2012
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	**Geoid Model**	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

```
Survey Project Name:        Post Demo Survey for 109N Building
Date:                       12/18/2012
Equipment:                  5800
Survey Purpose:             Map D4 post demo excavations around 105N Building
Requested By:               Clay McCurley
Location:                   100N
Charge Code:
Field Surveyor:             Margo Aye
Survey Software Used:       Trimble Survey Controller, and  Geomatics Office V.11
Survey Equipment Used:      5800, LTI Impulse Laser
Control Monuments Used:     N-2, F-Line
Survey Method:              RTK, & LTI Impulse Laser
Horizontal Precision:       .020m
Vertical Precision:         .050m
Fieldwork Start Date:       12/14/06 (see survey dates per point)
Fieldwork Completion Date:  12/14/12
Notes:
```

Point_ID	FEAT_CODE	NORTHING	EASTING	ELEVATION	SURVEY_DATE
3	concrete-corner-grnd	149445.189	571138.382	133.277	8/25/2009
9	concrete-corner-grnd	149452.092	571122.265	133.177	8/25/2009
10	concrete-corner-grnd	149453.882	571117.852	132.990	8/25/2009
12	concrete-corner-grnd	149462.125	571126.512	133.267	8/25/2009
13	concrete-corner-grnd	149463.931	571122.167	133.182	8/25/2009
17	corner-offset-4ft	149455.439	571112.548	133.226	8/25/2009
18	edge-of-wall	149457.104	571111.992	133.165	8/25/2009
19	edge-of-wall	149461.792	571113.955	133.155	8/25/2009
20	pipe	149463.095	571114.696	132.949	8/25/2009
21	top	149436.386	571132.249	139.695	8/25/2009
22	top	149441.454	571122.716	139.995	8/25/2009
23	top	149442.988	571116.910	140.142	8/25/2009
24	footing-offset	149442.037	571119.295	140.148	8/25/2009
25	footing-offset	149441.493	571122.702	139.976	8/25/2009
26	topo-ramp	149446.007	571110.400	138.089	8/25/2009
27	wall-offset	149447.395	571107.804	137.984	8/25/2009
32	top	149433.961	571138.691	139.669	8/25/2009
50	footing-top	149407.091	571201.900	139.519	8/25/2009
51	footing-top	149406.077	571204.855	139.568	8/25/2009
52	pipe-cluster	149404.654	571207.228	139.511	8/25/2009
59	topo-conc-exposed	149398.664	571222.769	139.627	8/25/2009
60	topo-conc-exposed	149396.395	571229.687	139.584	8/25/2009
61	topo-conc-exposed	149395.321	571231.722	139.477	8/25/2009
62	topo-conc-exposed	149393.574	571238.954	139.530	8/25/2009

63	topo	149403.507	571245.847	139.331	8/25/2009
64	topo	149408.385	571246.162	139.410	8/25/2009
65	topo	149415.650	571248.986	139.411	8/25/2009
66	top	149424.949	571252.586	139.367	8/25/2009
67	corner-offset	149417.132	571250.300	139.413	8/25/2009
68	corner-offset	149433.676	571256.574	139.462	8/25/2009
69	corner-offset	149443.955	571262.152	139.511	8/25/2009
70	corner-offset	149400.111	571216.848	139.534	8/25/2009
71	concrete-floor	149421.282	571215.046	134.956	8/25/2009
73	valve-vault	149455.417	571130.771	132.214	8/25/2009
75	topo-pt	149450.044	571127.709	132.845	8/25/2009
76	top-wall	149447.676	571129.882	135.144	8/25/2009
77	top-wall	149451.756	571120.569	135.191	8/25/2009
81	top-conc	149463.148	571124.733	134.881	8/25/2009
82	top	149450.930	571264.471	139.397	8/25/2009
83	corner-offset	149457.758	571266.752	139.654	8/25/2009
84	corner-nwall-rm33	149419.310	571231.793	133.467	8/25/2009
85	corner-offset-grade	149426.010	571229.198	133.636	8/25/2009
87	rad-line-top-of-grout	149455.895	571255.273	133.929	8/25/2009
90	edgeofwall-daylight	149454.794	571254.557	132.613	8/25/2009
91	edge-of-wall-daylight	149451.155	571238.197	132.955	8/25/2009
92	edge-of-wall	149449.602	571237.314	132.729	8/25/2009
93	wall-top	149433.041	571245.819	134.526	8/25/2009
94	elev-location-daylight	149425.387	571240.761	131.941	8/25/2009
95	pipe-grouted	149420.055	571239.010	132.480	8/25/2009
97	pipe-grouted-top	149417.684	571238.077	132.955	8/25/2009
98	rm34-sump-daylight	149418.788	571238.065	132.128	8/25/2009
99	rm34-sump-corner-top	149413.009	571236.563	135.168	8/25/2009
100	rm34-sump-daylight	149414.540	571235.588	133.515	8/25/2009
101	rm34-sump-corner-toe	149417.637	571235.964	133.519	8/25/2009
104	door-edge	149428.514	571231.283	133.325	8/25/2009
106	pipe-offset-against-wall	149452.722	571265.121	139.360	8/25/2009
107	conduit-cluster-5	149444.605	571113.545	139.419	8/25/2009
108	conduit-cluster	149447.029	571115.132	138.291	8/25/2009
109	topo	149454.648	571120.097	136.025	8/25/2009
121	corner-at-ground	149404.543	571233.278	133.435	8/25/2009
122	corner-at-ground	149411.764	571236.248	133.693	8/25/2009
123	topo	149407.371	571232.601	133.151	8/25/2009
124	topo	149412.877	571225.902	133.252	8/25/2009
125	topo	149418.682	571216.041	133.159	8/25/2009
131	topo	149424.750	571197.684	133.223	8/25/2009
132	topo	149432.294	571181.546	133.350	8/25/2009
133	topo	149439.647	571164.408	133.408	8/25/2009
136	topo	149446.098	571149.536	133.454	8/25/2009
137	topo	149452.362	571138.932	133.293	8/25/2009
146	corner-offset	149423.122	571226.616	0.000	8/25/2009
147	corner-offset	149492.154	571255.918	0.000	8/25/2009
148	pedistal-corner	149423.314	571219.055	134.969	8/25/2009
149	pedistal-corner	149425.036	571214.958	134.919	8/25/2009
150	corner-top	149429.874	571203.607	135.194	8/25/2009

151	corner-top	149431.601	571199.550	134.927	8/25/2009
152	corner	149436.328	571188.178	135.134	8/25/2009
153	corner	149438.196	571184.462	135.352	8/25/2009
154	wall	149423.491	571189.476	135.053	8/25/2009
157	wall	149425.114	571184.206	135.157	8/25/2009
159	slope	149408.266	571240.381	136.140	8/25/2009
160	wall	149417.038	571235.119	135.045	8/25/2009
161	wall	149418.333	571232.501	134.935	8/25/2009
163	wall	149413.480	571233.449	135.363	8/25/2009
164	wall	149415.611	571229.327	134.549	8/25/2009
165	wall	149414.755	571229.930	134.884	8/25/2009
167	wall-side	149405.883	571234.755	135.399	8/25/2009
170	wall	149407.433	571225.819	135.259	8/25/2009
171	conduit-clust-top-asphalt	149404.341	571220.785	138.372	8/25/2009
172	slope	149402.416	571237.579	136.917	8/25/2009
173	concrete-beam-corner	149399.804	571232.780	138.851	8/25/2009
176	concrete-beam-corner	149399.301	571232.419	138.712	8/25/2009
177	concrete-beam-top	149398.502	571230.831	138.901	8/25/2009
178	slope	149400.737	571227.982	137.395	8/25/2009
179	concrete-beam	149401.256	571223.626	138.746	8/25/2009
182	wall	149414.818	571210.057	134.966	8/25/2009
187	wall	149409.730	571220.309	135.153	8/25/2009
189	conduit-clust	149404.603	571218.635	138.520	8/25/2009
190	conduit-clust-top-asphalt	149404.500	571218.573	138.718	8/25/2009
196	corner-top-vault	149410.493	571206.530	139.308	8/25/2009
199	cond-clust	149408.381	571208.726	138.378	8/25/2009
200	corner-top-vault	149411.556	571204.048	139.304	8/25/2009
203	wall	149418.483	571199.598	134.985	8/25/2009
206	slope	149413.726	571200.915	135.956	8/25/2009
212	conduit-cluster-6-6in-pipes	149414.015	571194.308	138.521	8/25/2009
213	slope	149418.677	571189.651	135.254	8/25/2009
214	slope	149417.797	571190.144	135.966	8/25/2009
219	wall	149451.127	571153.407	135.409	8/25/2009
220	wall	149449.470	571157.310	135.138	8/25/2009
224	wall	149433.791	571163.482	135.070	8/25/2009
228	wall	149429.432	571173.758	135.152	8/25/2009
229	toe	149424.773	571181.335	134.436	8/25/2009
230	slope	149422.643	571180.151	135.341	8/25/2009
238	wall	149438.076	571153.166	134.991	8/25/2009
239	wall	149440.240	571147.974	135.324	8/25/2009
240	toe	149438.788	571147.658	134.748	8/25/2009
242	slope	149436.768	571145.085	136.351	8/25/2009
245	conduet-cluster-6pipes	149431.524	571148.097	138.693	8/25/2009
248	hole-bottom-edge-on-pipe	149430.887	571156.990	136.381	8/25/2009
250	wall	149455.910	571141.907	135.292	8/25/2009
251	wall	149457.641	571137.836	135.245	8/25/2009
254	toe	149442.863	571138.969	135.049	8/25/2009
257	concrete-wall-top	149449.374	571126.682	135.315	8/25/2009
258	corner-top-pipeling	149447.820	571125.195	139.121	8/25/2009
266	corner-top-pipeling	149448.994	571122.182	139.519	8/25/2009

Facility Status Change Form

267	corner-top-pipeling	149446.635	571121.235	139.639	8/25/2009
268	corner-top-pipeling	149445.219	571124.224	139.609	8/25/2009
270	septic-pipe	149440.584	571137.342	136.295	8/25/2009
277	conduit-2-2in	149420.432	571174.515	138.755	8/25/2009
278	corner-offset	149467.841	571242.789	0.000	8/25/2009
279	corner-offset	149461.327	571258.497	0.000	8/25/2009
280	corner-offset	149461.701	571257.624	0.000	8/25/2009
283	door-edge	149427.511	571228.502	0.000	8/25/2009

Attachment 16

Proposal to Leave Certain ACM Along 109-N SSE Boundary Wall (CCN 148324)

148324

DeJong, Diana L

From:	Cathel, Robert L
Sent:	Tuesday, December 29, 2009 12:00 PM
To:	DeJong, Diana L
Cc:	McCurley, Clay D
Subject:	FW: Proposal to leave certain ACM along 109-N SSE boundary wall
Attachments:	Agreement to leave ACM along SSE Wall.doc

Diana,

Please chron this email and its attachment as it represents a regulatory agreement between DOE and Ecology. Also, please let me know the chron number.

Thanks,
Bob Cathel
100-N Environmental Project Lead

Agreement to leave ACM along S...

From:	Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent:	Wednesday, December 09, 2009 10:36 AM
To:	Cathel, Robert L; Ayres, Jeffrey M; Guercia, Rudolph F; Chance, Joanne C
Cc:	Dieterle, Steven E; Trevino, Ruben A; McCurley, Clay D
Subject:	RE: Proposal to leave certain ACM along 109-N SSE boundary wall

Bob,
Ecology concurs with the approach to leave the ACM in place along the SSE wall at the 109-N facility.

Rick Bond
Facility Transition Project Manager
Washington State
Department of Ecology
FBON461@ECY.WA.GOV
(509) 372-7885

From: Cathel, Robert L [mailto:rlcathel@wch-rcc.com]
Sent: Thursday, December 03, 2009 8:48 AM
To: Bond, Rick (ECY); Ayres, Jeff (ECY); Guercia, Rudolph F; Chance, Joanne C
Cc: Dieterle, Steven E; Trevinó, Ruben A; McCurley, Clay D
Subject: Proposal to leave certain ACM along 109-N SSE boundary wall

Rick,

Please review the attached proposed agreement to leave certain ACM in place along the SSE wall of the 109-N Facility. Please let me know if Ecology concurs with the approach. If Ecology concurs, I will submit the agreement between DOE and Ecology at the next UMM for inclusion in the minutes. Also, please contact me with any questions or concerns.

148324

Jeff,

The "Mastic Example" photos are provided per your request.

Thanks,
Bob Cathel
100-N Environmental Project Lead

<< File: Agreement to leave ACM along SSE Wall.doc >> << File: Cold Joint Example.jpg >> << File: Mastic Example 1.jpg >> << File: Mastic Example 2.jpg >>

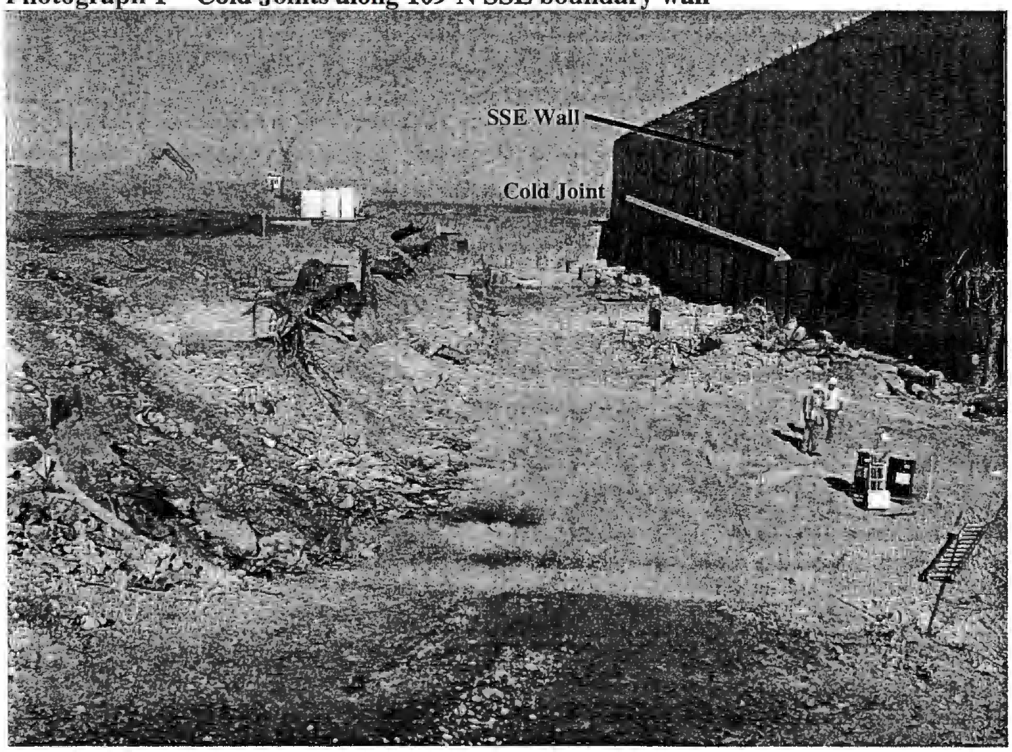
Agreement between DOE and Ecology to leave ACM in-situ along 109-N SSE boundary wall

The following proposal was discussed with Ecology personnel and Ecology personnel have approved this proposal via email from Rick Bond to Bob Cathel dated 12/9/09.

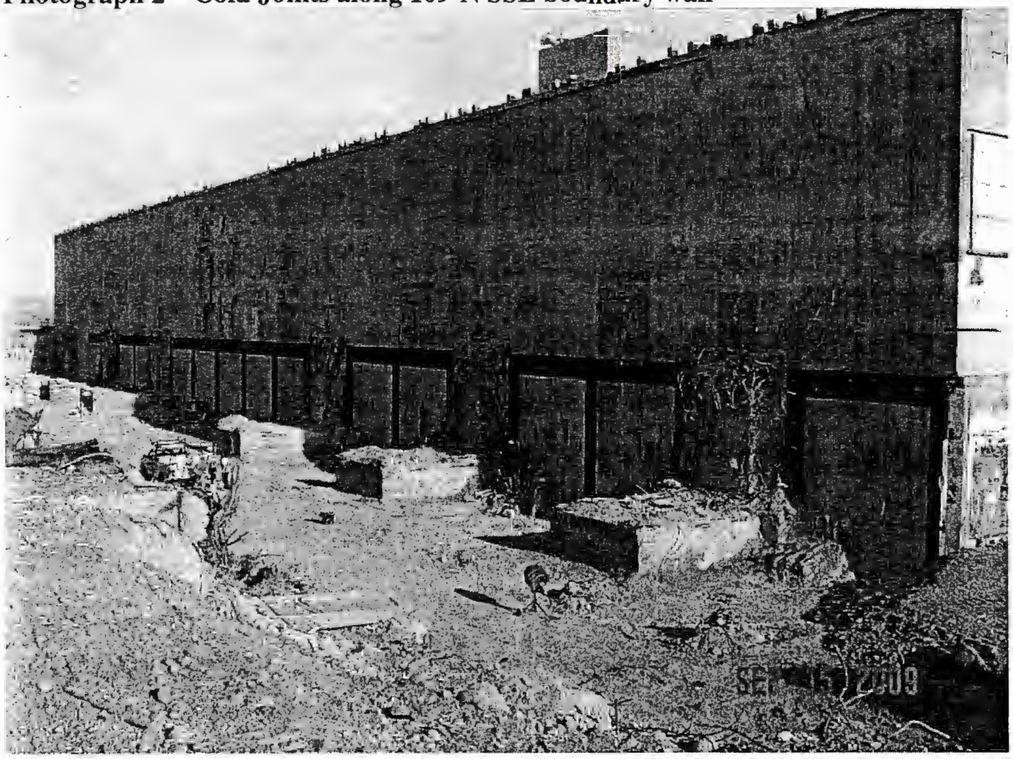
Along the outside of the SSE wall on the south side of the 109-N Heat Exchanger Building exists remnants of cold joints between the wall and the removed turbine bays. Photographs 1 and 2 shows the cold joints along the wall, which run the entire length of the facility (on the south side) from approximately the minus 16-foot level to the zero-foot level. They appear to be constructed of a cellulosic fiber mat, approximately 12 - 24 inches wide and 1 inch thick. This mat was adhered to the concrete wall using mastic. This mastic was troweled onto the wall; each application approximately 6 inches in diameter spaced every 1 - 2 feet to ensure adhesion of the mat to the wall (Photograph 3 shows an example of the mastic application). The cellulosic mat and mastic has been sampled and analyzed for asbestos. The result for the cellulosic mat was that no asbestos material was detected; however, the mastic contains asbestos - Chrysotile < 20 - <= 30% concentration.

As can be seen in the photographs, the cellulosic mat and mastic remains tightly adhered to the wall, with no evidence of it coming loose. To remove this material from this wall would place WCH D4 personnel at risk with very limited benefit. Due to these risks DOE and its subcontractor (WCH) recommend leaving this material in place. The area along the wall will be backfilled with clean soil covering all portions of the mat until final disposition of the entire 105-N/109-N facility. This information would be captured in the Facility Status Change Form for the 109-N facility and placed in the administrative record.

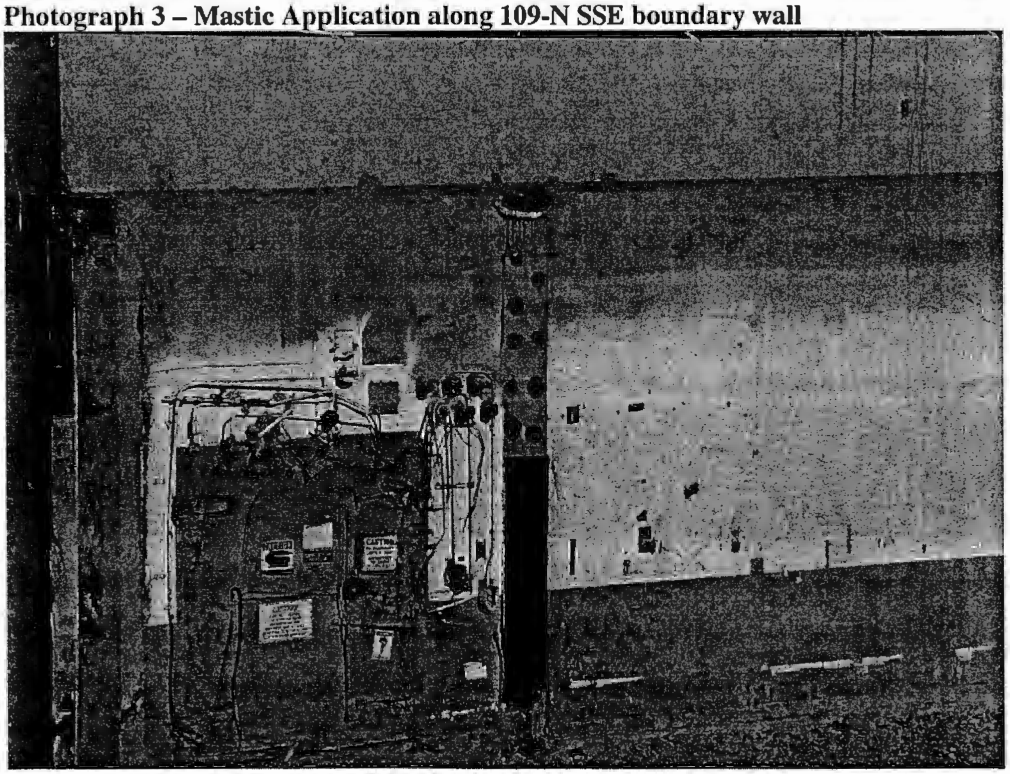
Photograph 1 – Cold Joints along 109-N SSE boundary wall



Photograph 2 – Cold Joints along 109-N SSE boundary wall



Photograph 3 – Mastic Application along 109-N SSE boundary wall



Attachment 17

Radiological Survey Records

Facility Status Change Form

RADIOLOGICAL SURVEY RECORD

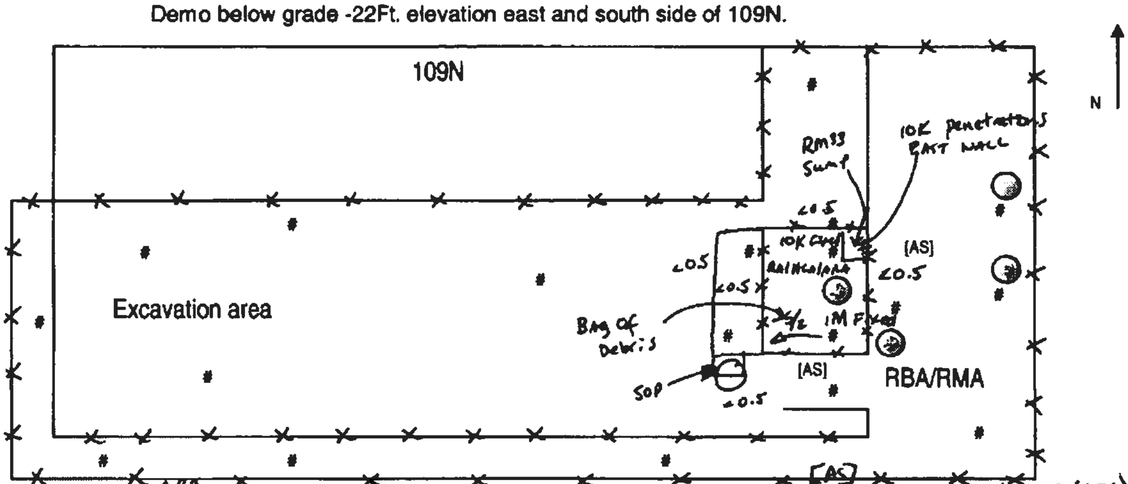
Page 1 of 2

Type of Survey ☒ Routine D1,W2,W4,W6 ☒ Work Progress			Survey # RSR – 100ISS-09-0528
RWP # / Rev. # 100ISS-09-002/00	Date 08/17/2009	Time 1530	Location 100N

Description
109N Room 33 Sump Demo ē Loadout

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/6

Demo below grade -22Ft. elevation east and south side of 109N.



Boundary ~~RBA~~ air samples # 100ISS-09-0449 @ 816103 room 33 sump Demo # 100ISS-09-0451 (Work AREA)
South RBA Boundary [AS] # 100ISS-09-0448
Removed 5 Bags of soil/Debris From ARA/RA/CA (Double Bagged and Placed in ERDF CAN).
Workers to cut penetrations @ East wall with saw zall.

CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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										

O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA Soil Contamination Area
Radiological Boundary x—x—x															

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/DP6DD	0036 / 0011	2/14/2010		N	
Ro-20	ICEB4-1282	03/28/2010			
NA	NA	NA		A	

RCT Name/Signature/Date: J.A. Powell 08/17/2009	RCT Supervisor Name/Signature/Date: Mark Sims 8-31-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-09-0528

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#	Soil/debris in HCA	NA	NA	NA	NA	<500	7	10K	10
#	Soil/debris in HCA	NA	NA	NA	NA	<500	7	1M	10
O,#	800 excavator bucket	<20	7	<1K	10	<500	7	<5K	10
O,#	Shovel/sawzall	<20	7	<1K	10	<500	7	<5K	10
#	Penetrations east wall	NA	NA	NA	NA	<500	7	10K	10
#	All other directs	NA	NA	NA	NA	<500	7	<5K	10
				N					
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 1.0 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
Soil/debris (bagged)	ND	5	ND	2
		N		
		A		

WCH-TM-R006a (06/30/2009)

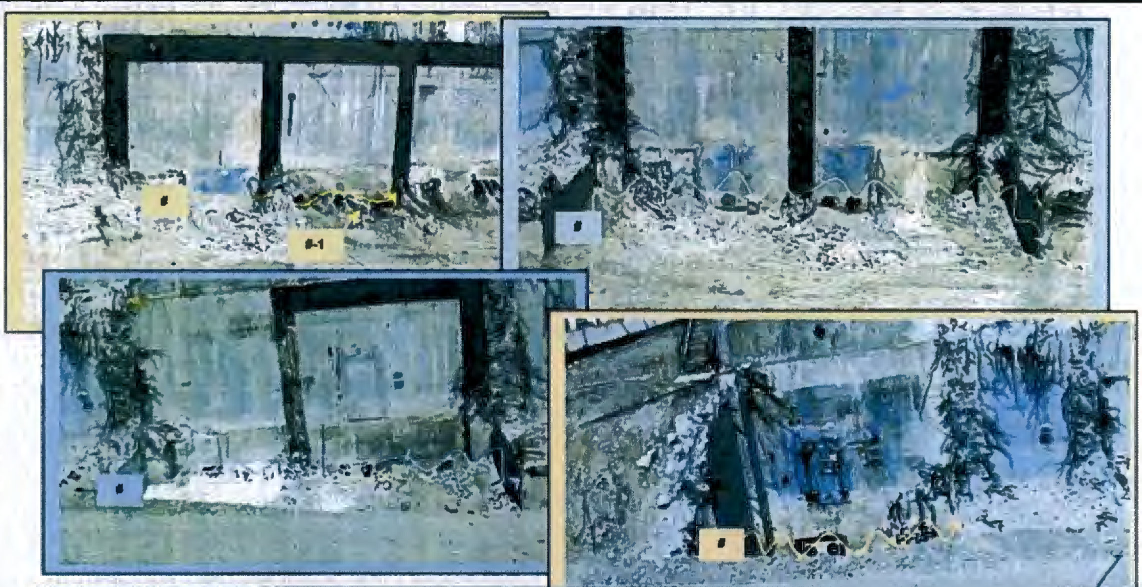
RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine NA ☒ Work Progress			Survey # RSR –100ISS-09-0592
RWP # / Rev. # 100ISS-08-008/ 03	Date 09-02-2009	Time 1400	Location 100N

Description: 109N Survey of Exposed Concrete Below Grade at 109N

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07



RCT performed a direct survey of the exposed wall below grade at 109N demolition site in area where concrete pour-back's and eventual back-fill of the demolition trench is to occur. Special attention was paid to the concrete around the pipe penetrations as shown, as forms for concrete pour-back's are to be attached with screw anchors to these points. No fixed contamination was found in any of the pipe penetration areas except as indicated previously in the location shown at #-1 and enumerated on page 2 of this survey report. Pipe is wrapped in plastic to contain contamination, and is located in a posted RBA/RMA. All others depicted above are in a URMA.

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2360/43-93	SCLL8-0081/DTLLP-0182	12-09-2009	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
GL Eppling/[signature] /09-02-2009	M. Sims/ [signature] 9-14-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR -100ISS-09-0592

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
#	All Directs Except Below	NA	NA	NA	NA	< 500	7	< 5,000	10
# -1	Wrapped pipe as shown page 1	NA	NA	NA	NA	< 500	7	4,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine NA ☒ Work Progress			Survey # RSR –100ISS-09-0573
RWP # / Rev. # 100ISS-08-008-03	Date 9/2/09	Time 1000	Location 100N
Description Asbestos Sampling of 109N SSE Wall			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07-6			

Performed Work Progress Survey during sampling activities of possible asbestos containing material on the South SSE wall of the 109N Building. Performed directs and some tech smears on SSE wall. No contamination was found.

South SSE wall is in a posted RBA/RMA.

As samples and container left RBA a survey equivalent of a hand/foot survey was performed.

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2224-3/DP6BD	0155/0013	5/4/10	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date: Debbie Poteet *Debbie Poteet* 9/2/09	RCT Supervisor Name/Signature/Date: Mark Sims *M Sims* 9-14-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR -100ISS-09-0593

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
#	All Directs	N/A	N/A	N/A	N/A	< 500	7	< 5,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

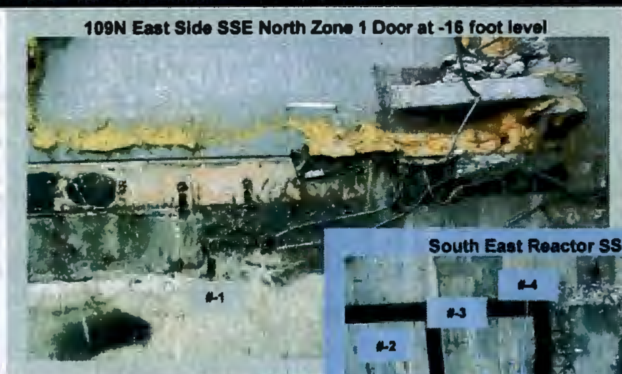
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Type of Survey ☐ Routine NA ☒ Work Progress			Survey # RSR –100ISS-09-0603
RWP # / Rev. # 100ISS-08-008/ 03	Date 09-09-2009	Time 1400	Location 100N
Description: 109N Survey of Exposed Concrete and Pipe Below Grade			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07			

109N East Side SSE North Zone 1 Door at -16 foot level



Survey of -16 Foot SSE

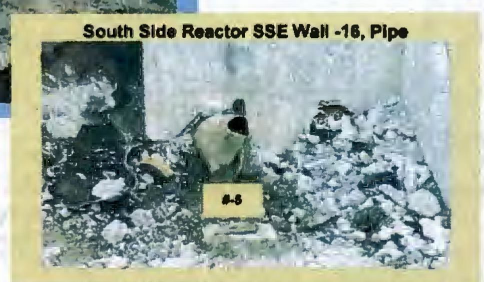
RCT performed a direct survey of the exposed wall below grade at 109N demolition site in area where concrete pour-back's and eventual back-fill of the demolition trench is to occur. Special attention was paid to the pipes, concrete around the pipe penetrations and the -16 foot level floor seams. Forms for concrete pour-back's are to be attached with screw anchors to concrete around pipe penetration points. No removable or transferable contamination was found in any of the areas surveyed, and no fixed contamination was found in pipe penetration areas except as indicated above and enumerated on page 2 of this survey report. Contaminated pipe is wrapped in plastic to contain contamination, labeled as Radioactive Material and is located in a posted SCA/URMA/RMA.

Contaminated pipe will be remediated prior to back-fill of excavation.

South East Reactor SSE Wall -16 and Pipe

South Side Retaining Wall Pipe Penetration

South Side Reactor SSE Wall -16, Pipe



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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			
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x	

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2360/43-93	SCLL8-0081/DTLLP-0182	12-09-2009	NA	NA	NA
L-2360/43-93	SCLL8-0079/DTLLP-0180	06-10-2010	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: JA Powell/[signature] /09-09-2009 GL Eppling/[signature] /09-09-2009	RCT Supervisor Name/Signature/Date: M. Sims/ [signature] 9-21-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-09-0603

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
#	All Directs Except Below	NA	NA	NA	NA	< 500	7	< 5,000	10
# - 1	Wall Below Zone 1 Door	NA	NA	NA	NA	< 500	7	30,000	10
# - 2	Pipe	NA	NA	NA	NA	< 500	7	6,000	10
# - 3	Wall Above Sump	NA	NA	NA	NA	< 500	7	30,000	10
# - 4	Wall Above Sump	NA	NA	NA	NA	< 500	7	6,000	10
# - 5	Pipe	NA	NA	NA	NA	< 500	7	40,000	10
# - 6	Pipe	NA	NA	NA	NA	< 500	7	6,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

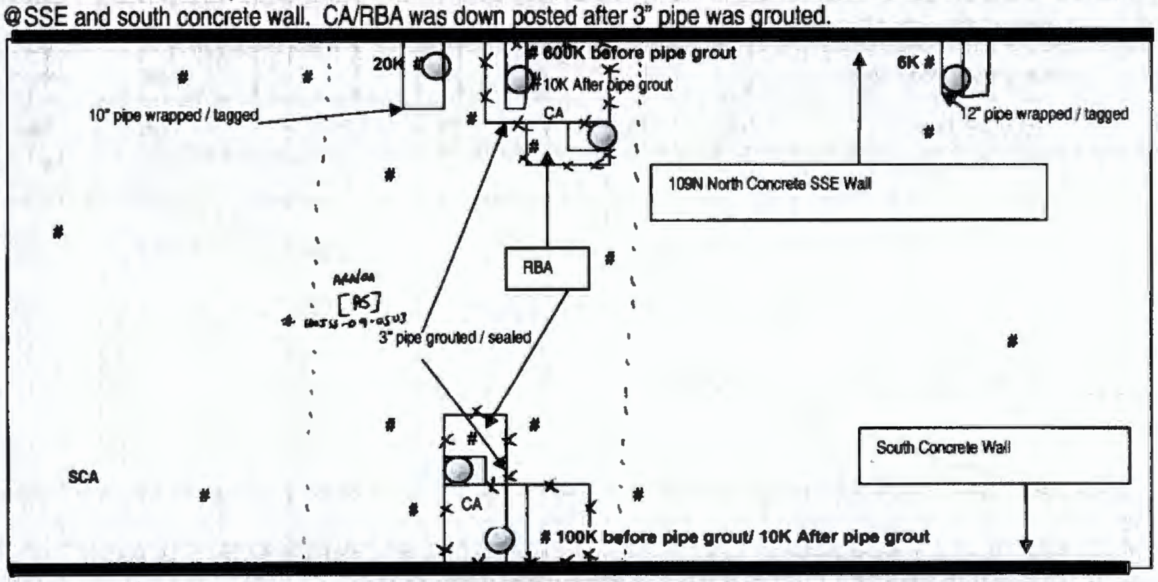
Page 1 of 2

Type of Survey			Survey #
☒ Routine D1,W2,W4	☒ Work Progress		RSR – 100ISS-09-0616
RWP # / Rev. # 100ISS-08-008/03	Date 09/14/2009	Time 1550	Location 100N

Description
109N down post ARA/CA for pour backs

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/6

-20 ft elevation down posted ARA/CA based on air sample results on #100ISS-09-0503. Grouted pour back on 3" piping @SSE and south concrete wall. CA/RBA was down posted after 3" pipe was grouted.



N

(BG)- denotes before grout
(AG)- denotes After grout

CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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
O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360 / 43-93	0074 / 0175	09/03/2010		N	
NA	NA	NA			
NA	NA	NA		A	

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
JA Powell [signature] 09/10/2009	M Sims [signature] 9-21-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-09-0616

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#,O	3" piping SSE wall (BG)	<20	7	<1K	10	<500	7	600K	10
#,O	3" piping south Wall (BG)							100K	
#,O	3" piping SSE wall (AG)							10K	
#,O	3" piping south Wall (AG)							10K	
#	All other directs	NA	NA	NA	NA	<500	7	<5K	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine N/A ☒ Work Progress			Survey # RSR –100ISS-09-0689
RWP # / Rev. # N/A	Date 10/7/09	Time 1530	Location 100N
Description Door B8 109N			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07-6			

Performed a work progress survey on area around Door B8 on the 109N Building located on the north east side prior to and post lead paint removal. Area is 1' around door. Performed directs and tech smears, no contamination was found. Area is posted RMA/SCA/URMA

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x-----x-----x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0081/0182	6/10/10	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date: Debbie Poteet Debbie Poteet 10/7/09	RCT Supervisor Name/Signature/Date: Mark Sims M Sims 10-20-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR -100ISS-09-0689

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
#	All Directs	N/A	N/A	N/A	N/A	< 500	7	< 5,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey			Survey #
☐ Routine N/A	☒ Work Progress		RSR –100ISS-09-0690
RWP # / Rev. # N/A	Date 10/8/09	Time 1030	Location 100N

Description
Metal Door 109N

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07-6

Performed a work progress survey on area around metal door on the 109N Building located on the south west corner prior to and post lead paint removal. Area is 1' around door. Performed directs and tech smears, no contamination was found.

Area is posted RMA/SCA/URMA

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0081/0182	6/10/10	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
Debbie Poteet Debbie Poteet 10/8/09	Mark Sims [signature] 10-20-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR -100ISS-09-0690

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
#	All Directs	N/A	N/A	N/A	N/A	< 500	7	< 5,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

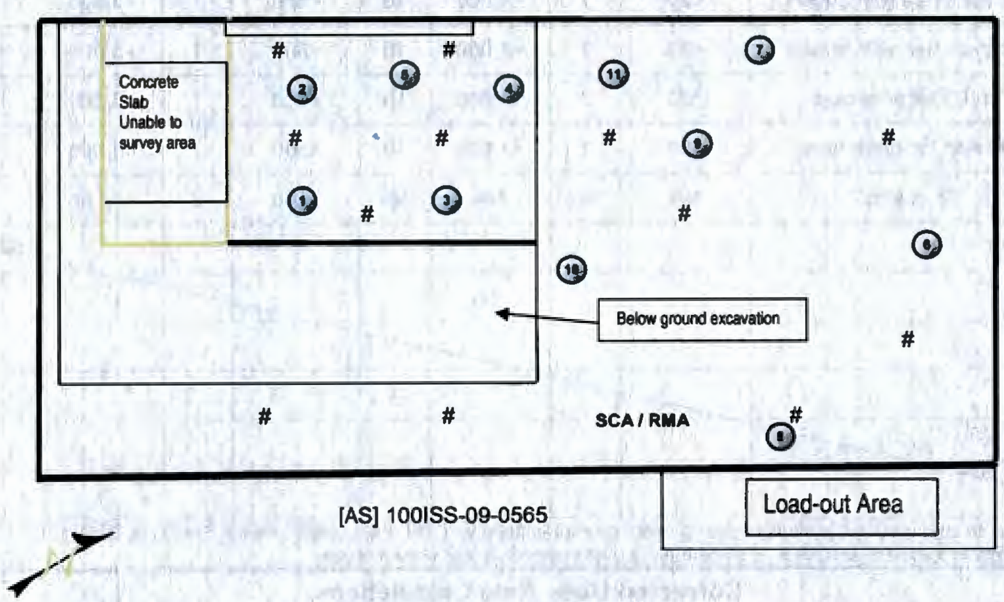
Page 1 of 2

Type of Survey ☐ Routine	☒ Work Progress		Survey # RSR – 100ISS-09-0773
RWP # / Rev. # 100ISS-09-004/00	Date 11/10/2009	Time 1400	Location 100N

Description
105N Control Room below ground Demo/Load-out

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/6

105N Control Room Demo / Load-out



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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		
O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (µR/hr)	SCA	Soil Contamination Area	Radiological Boundary x—x—x	

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2360 / 43-93	SCLL8-0081 / DTTP-0182	06/10/2010	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: J.A. Powell JPowell 11/10/2009	RCT Supervisor Name/Signature/Date: M Sims M Sims 11-30-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-09-0773

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All smears	<20	7	<1,000	10	NA	NA	NA	NA
O,#	400 track hoe with shear	<20	7	<1,000	10	<500	7	<5,000	10
O,#	308 track hoe with bucket	<20	7	<1,000	10	<500	7	<5,000	10
O,#	800 track hoe with bucket	<20	7	<1,000	10	<500	7	<5,000	10
O,#	744E loader bucket	<20	7	<1,000	10	<500	7	<5,000	10
O,#	400 with Hammer head	<20	7	<1,000	10	<500	7	<5,000	10
#	All directs	NA	NA	NA	NA	<500	7	<5,000	10
				N					
					A				

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
		N		
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey		Survey #
☐ Routine NA	☒ Work Progress	RSR –100ISS-09-0817

RWP # / Rev. #	Date	Time	Location
100ISS-09-004/ 00	11-23-2009	1030	100N

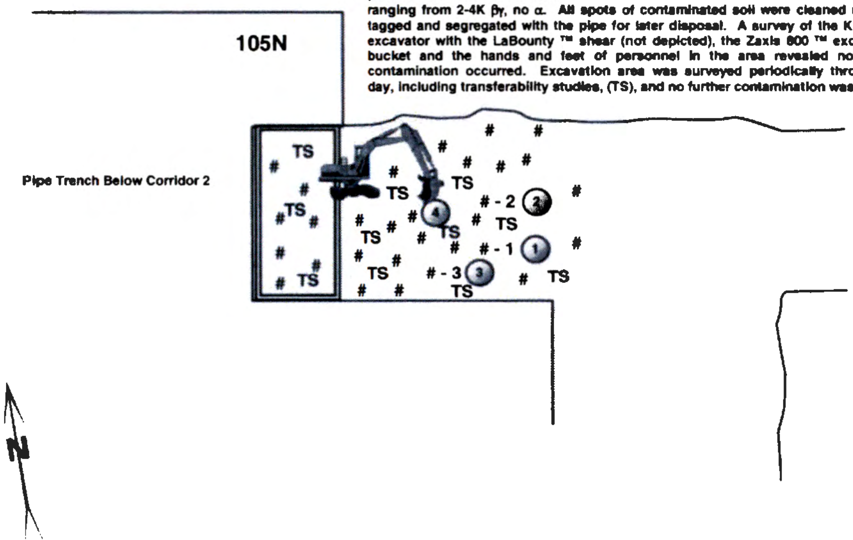
Description
105N/ Control Room and Corridor 2 Demo Below Grade

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07

Survey of Excavation Area and Pipe Removed from Trench

RCT performed a survey of pipe removed from the pipe trench below Corridor 2 to ensure the maintenance of contamination control in the posted SCA/RMA. RCT was surveying discolored soil at the end of a piece of pipe and discovered 3K dpm/100cm^2 βγ, < 500 dpm/100cm^2 α in the soil. The source of the contamination was traced to a 10" steel pipe, and all pieces of said pipe were isolated, all open ends were covered, and pipe was labeled as rad material. Smears of the soil and the inside of the source pipe yielded no removable contamination. A total of three such areas were discovered, ranging from 2-4K βγ, no α. All spots of contaminated soil were cleaned up, bagged, tagged and segregated with the pipe for later disposal. A survey of the Komatsu 400 excavator with the LaBounty ™ shear (not depicted), the Zaxis 800 ™ excavator with bucket and the hands and feet of personnel in the area revealed no spread of contamination occurred. Excavation area was surveyed periodically throughout the day, including transferability studies, (TS), and no further contamination was found.

Load-out Area



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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										

◯	Technical Smear	#	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 (mRem/hr)	
Δ	Micro Rem (μR/hr)	SCA	Soil Contamination Area	Radiological Boundary x---x---x									

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2360/43-93	SCLL8-0081/DTLLP-0182	06-10-2010	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
Greg Eppling/ [signature] /11-23-2009	M Sims [signature] 12-3-09

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR -100ISS-09-0817

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O, #	All except as noted below	< 20	7	< 1,000	10	< 500	7	< 5,000	10
O,#-1	Direct and smear # 1	< 20	7	< 1,000	10	< 500	7	< 5,000	10
O,#-2	Direct and smear # 2	< 20	7	< 1,000	10	< 500	7	< 5,000	10
O,#-3	Direct and smear # 3	< 20	7	< 1,000	10	< 500	7	< 5,000	10
			N	A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N	A		

WCH-TM-R006a (06/30/2009)

Facility Status Change Form

RADIOLOGICAL SURVEY RECORD

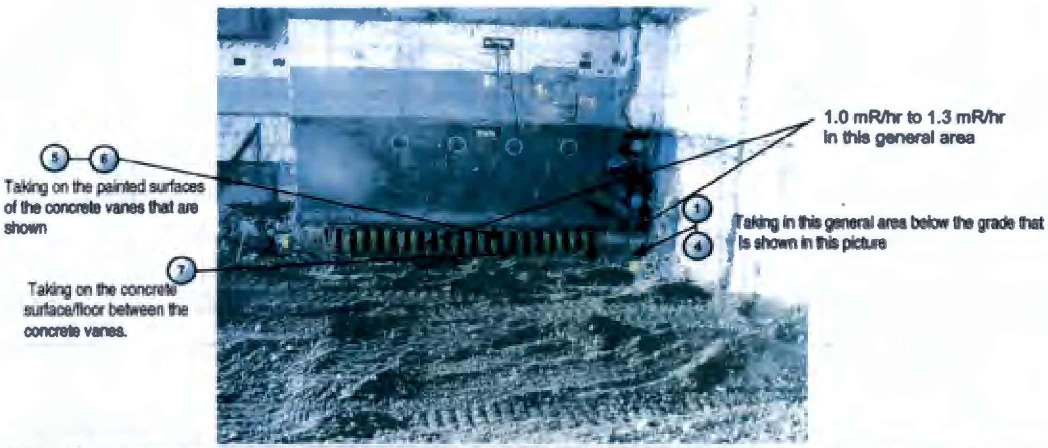
Page 1 of 2

Type of Survey ☒ Routine D1	☒ Work Progress		Survey # RSR –100ISS-10-0185
RWP # / Rev. # 100ISS-10-001-00	Date 3/1/10	Time 0915	Location 100N
Description 105N Demo Area (Zone 1 Inlet Area)			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07-7			

Performed work progress survey of demo activities performed at 105N Rx. Area is posted CA. The area surveyed (CA) is part of the Zone One Air Inlet. Directs, tech smears and dose rates were taken. Tech smears were taken on the louvered area and walls, results are on page 2.

General Area Dose Rates are 1.0 mR/hr to 1.3 mR/hr (around louvered area and wall.) The rest of the area is <0.5 mR/hr.

This survey meets the requirements of Daily Routine D1 (SOP and Control Point) this routine is not entered in to routine book due to it not being an established area.



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (µR/hr)	SCA Soil Contamination Area; Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3 / 43-93	0099 /0044	09/01/2010	NA	NA	NA
RO20	1201	12/11/10	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: Debbie Poteet *Debbie Poteet* Paul Vestal *Paul Vestal*	3/1/10 3/1/10	RCT Supervisor Name/Signature/Date: Mark Sims *M Sims 3-1-10*

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR -100ISS-10-0185

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1 4	See Map on pg. 1	< 20	7	6,000	10	350	7	85 K	10
5	See Map on pg. 1	140	7	12 K	10	800	7	350 K	10
6	See Map on pg. 1	84	7	17 K	10	760	7	275 K	10
7	See Map on pg. 1	140	7	50 K	10	1960	7	1.3 M	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 3

Type of Survey ☒ Routine D1 ☒ Work Progress			Survey # RSR –100ISS-10-0199
RWP # / Rev. # 100ISS-10-001-00	Date 03/03/2010	Time 1030	Location 100N

Description 105N survey of posted CA below grade excavation area.

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07-7

A survey was performed of the below grade demolition/excavation area on the NW side of the 105N building just to the east of room 181 and the W elevator. Demolition of the area has been performed and a previous survey, see RSR-100ISS-10-0185 found fixed and removable contamination in the zone 1 concrete air vanes.

The purpose of today's survey was to survey the area and have laborers bag up contaminated material, known paint chips and pieces of the concrete air vanes broken off during demolition. Upon further investigation and surveys a great deal of the darker sandy soil was also found to be contaminated. Fixed levels ranged from 1000 dpm/100 cm^2 to 130,000 dpm/100 cm^2 in the soil and 100,000 dpm/100 cm^2 to 340,000 dpm/100 cm^2 on the concrete portions of the air vanes. Removable levels taken from chunks of concrete and rocks >1 ½" ranged from 1000 dpm/100 cm^2 to 30,000 dpm/100 cm^2.

Air sampling was performed with a portable air sampler AIR-100ISS-10-0125 which was kept within 6' of the workers and a CA boundary sample on the NW corner of the excavation AIR-100ISS-10-0127. A survey of the SOP was also performed which meets the requirements of Daily Routine D1 (SOP and Control Point). This routine is not entered in the routine book due to it not being an established area.

After the above survey was performed an attempt was made to remove the contaminated soil. Air sampling was performed during this evolution with an air samplers mounted on the boom of the 800 excavator - AIR-100ISS-10-0126 and the long reach shear AIR-100ISS-10-0128. Note the area on pg. 3 where smear # 8 and # 9 were taken. This area was excavated down deeper than from the morning entry and direct contamination levels increased in this area of the soil.

Also note on pg. 3 the apparent water level marks on the concrete air vanes. The direct reading above the water mark level is 120,000 dpm/100 cm^2 and below the water mark 340,000 dpm/100 cm^2 and 1,300,000 in between the air vanes on the concrete reported on RSR-100ISS-10-0185. Fixative has now been applied to all the exposed concrete air vanes shown on pg. 3, (note the blue color now present between the air vanes).

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
◯ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3 / 43-93	0099 /0044	09/01/2010	2224-3 / 43-93	0147 /0047	03/10/2010
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: Debbie Poteet [signature] 3/3/10 ~~3/1/10~~ 3/3/10 PV Paul Vestal / [signature] ~~3/1/10~~ 3/3/10 PV	RCT Supervisor Name/Signature/Date: Mark Sims [signature] 3-3-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 3

Survey # RSR -100ISS-10-0199

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
	Highest level on smear	70	7	30K	10	N/A	N/A	N/A	N/A
#	Above water mark	N/A	N/A	N/A	N/A	<500	7	120 K	10
#	Below water mark	N/A	N/A	N/A	N/A	<500	7	340 K	10
#	Highest level on soil	N/A	N/A	N/A	N/A	<500	7	130 K	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

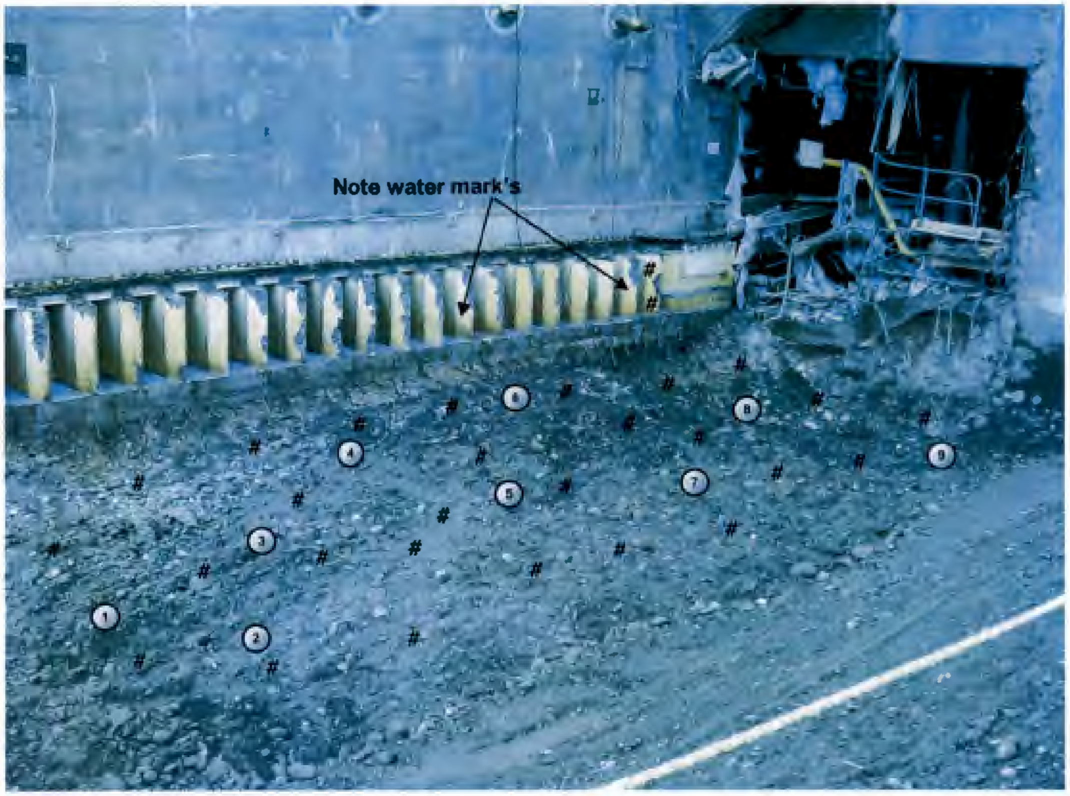
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: 3 of 3 Survey # RSR-100ISS-10-0199

Additional Information
(Drawing, Map, Etc.)



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

RADIOLOGICAL SURVEY RECORD

Page 1 of 5

Type of Survey ☒ Routine D1	☒ Work Progress		Survey # RSR –100ISS-10-0217
RWP # / Rev. # 100ISS-10-001-00	Date 03/09/2010	Time 1330	Location 100N

Description 105N grid survey of below grade excavation area.

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07-7

A grid survey was performed of the below grade demolition/excavation area on the NE side of the 105N building just to the east of room 181 and the W elevator. Demolition of the area has been performed and previous surveys (see RSR-100ISS-10-0185, RSR-100ISS-10-0199 for any additional information) found fixed and removable contamination in the zone 1 concrete air vanes and fixed and removable contamination in the soil.

The purpose of today's survey was to grid the area to be surveyed in approximately 5' X 5' grid pattern for a more detailed survey of the area. After the area had been gridded off into 40 - 5' X 5' squares a smear was taken inside of each square, and 20 of the 40 squares had direct readings performed with a shielded 20 cm^2 for beta results and a 100 cm^2 dual probe for the alpha results. The results from the 20 cm^2 probe were multiplied by 5 to report results in 100 cm^2.

After the first 20 squares had direct surveys performed the crew took a lunch break and after lunch a safety concern prevented the direct survey of the last 20 squares at this time. The grid pattern started at the SE corner of the excavation and numbered as follows – Letter A through D went from south to north and numbers 1-10 running from east to west, as shown on map pg. 5.

Also surveyed were the concrete air fins, which had previously been surveyed but not since the fixative had been applied. Direct surveys were not taken at this time but 10 smears were taken that correspond to the grid pattern. See results on pg 2.

Air sampling was performed with a portable air sampler AIR-100ISS-10-0132 which was kept within 6' of the workers. A survey of the SOP was also performed which meets the requirements of Daily Routine D1 (SOP and Control Point). This routine is not entered in the routine book due to it not being an established area.

CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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										

○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area
Radiological Boundary x—x—x									

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360 / 43-93	0081 /0182	02/05/11	Model 12 / 210T	0049 / 0180	4-8-10 / 10-21-10
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: Johnny Holcombe [signature] / 03-09-2010 Paul Vestal [signature] / 3-9-10	RCT Supervisor Name/Signature/Date: Mark Sims [signature] 3-9-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 5 Survey # RSR -100ISS-10-0217

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1	'Concrete' floor between fins A1	< 20	7	< 1000	10	N/A	N/A	N/A	N/A
2	'Concrete' floor between fins A2	21	7	3,300	10	N/A	N/A	N/A	N/A
3	'Wall' of fin A3	28	7	5,900	10	N/A	N/A	N/A	N/A
4	'Wall' of fin A4	98	7	6,200	10	N/A	N/A	N/A	N/A
5	'Concrete' floor between fins A5	< 20	7	2,900	10	N/A	N/A	N/A	N/A
6	'Concrete' floor between fins A6	< 20	7	1,500	10	N/A	N/A	N/A	N/A
7	'Wall' of fin A7	98	7	8,800	10	N/A	N/A	N/A	N/A
8	'Wall' of fin A8	77	7	10,800	10	N/A	N/A	N/A	N/A
9	'Concrete' floor between fins A9	< 20	7	1,400	10	N/A	N/A	N/A	N/A
10	'Concrete' floor between fins A10	< 20	7	1,600	10	N/A	N/A	N/A	N/A
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation) Contamination	Page: 3 of 5 Survey # RSR-100ISS-10-0217

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
A1	See Map pg. 5	< 20	7	< 1000	10	< 100	7	< 5000	10
A2	See Map pg. 5	147	7	12,400	10	< 100	7	65,000	10
A3	See Map pg. 5	< 20	7	< 1000	10	< 100	7	62,500	10
A4	See Map pg. 5	< 20	7	< 1000	10	< 100	7	50,000	10
A5	See Map pg. 5	< 20	7	< 1000	10	< 100	7	15,000	10
A6	See Map pg. 5	< 20	7	< 1000	10	< 100	7	22,500	10
A7	See Map pg. 5	< 20	7	< 1000	10	< 100	7	60,000	10
A8	See Map pg. 5	< 20	7	< 1000	10	< 100	7	115,000	10
A9	See Map pg. 5	< 20	7	< 1000	10	< 100	7	17,500	10
A10	See Map pg. 5	< 20	7	< 1000	10	< 100	7	140,000	10
B1	See Map pg. 5	< 20	7	< 1000	10	< 100	7	62,500	10
B2	See Map pg. 5	< 20	7	< 1000	10	< 100	7	< 5000	10
B3	See Map pg. 5	< 20	7	< 1000	10	< 100	7	5,000	10
B4	See Map pg. 5	< 20	7	< 1000	10	< 100	7	5,000	10
B5	See Map pg. 5	< 20	7	< 1000	10	< 100	7	125,000	10
B6	See Map pg. 5	< 20	7	< 1000	10	< 100	7	7,500	10
B7	See Map pg. 5	< 20	7	< 1000	10	< 100	7	52,500	10
B8	See Map pg. 5	< 20	7	< 1000	10	< 100	7	40,000	10
B9	See Map pg. 5	< 20	7	< 1000	10	< 100	7	100,000	10
B10	See Map pg. 5	< 20	7	< 1000	10	< 100	7	60,000	10
C1	See Map pg. 5	< 20	7	< 1000	10	N/A	N/A	N/A	N/A
C2	See Map pg. 5	< 20	7	< 1000	10	N/A	N/A	N/A	N/A
C3	See Map pg. 5	< 20	7	< 1000	10	N/A	N/A	N/A	N/A
C4	See Map pg. 5	< 20	7	< 1000	10	N/A	N/A	N/A	N/A
C5	See Map pg. 5	< 20	7	< 1000	10	N/A	N/A	N/A	N/A

[1]Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

WCH-TM-R006f (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation) Contamination	Page: 4 of 5 Survey # RSR-100ISS-10-0217

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
C6	See Map pg. 5	< 20	7	< 1000	10				
C7	See Map pg. 5	< 20	7	< 1000	10				
C8	See Map pg. 5	< 20	7	< 1000	10				
C9	See Map pg. 5	< 20	7	1000	10				
C10	See Map pg. 5	< 20	7	< 1000	10				
D1	See Map pg. 5	< 20	7	< 1000	10				
D2	See Map pg. 5	< 20	7	< 1000	10				
D3	See Map pg. 5	< 20	7	< 1000	10		N		
D4	See Map pg. 5	< 20	7	< 1000	10			A	
D5	See Map pg. 5	< 20	7	< 1000	10				
D6	See Map pg. 5	< 20	7	< 1000	10				
D7	See Map pg. 5	< 20	7	< 1000	10				
D8	See Map pg. 5	< 20	7	< 1000	10				
D9	See Map pg. 5	< 20	7	< 1000	10				
D10	See Map pg. 5	< 20	7	< 1000	10				
			N						
				A					

[1]Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

WCH-TM-R006f (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: 5 of 5 Survey # RSR-100ISS-10-0217

Additional Information
(Drawing, Map, Etc.)

105N Zone 1 Exhaust Plenum Intake Grid

Grids established are approximately 5' X 5' and are not to scale. The highest contamination levels in each grid were marked with orange spray paint.

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

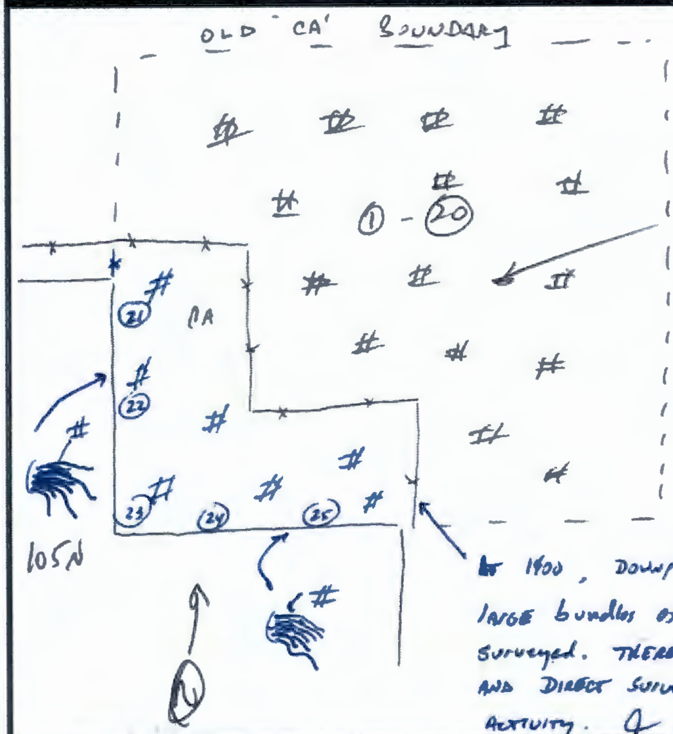
RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine	☑ Work Progress		Survey # RSR –100ISS-10-0265
RWP # / Rev. # 100ISS-10-001/00	Date March 23, 2010	Time 1000	Location 100N

Description
105N Demo, CA downpost

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07



Took 20 SMEARS ON ROCKS OR PIECES CONCRETE AND VARIOUS DEMO PIECES. (Each >1")

TOOK DIRECTS ON CONCRETE FRAGMENTS, sheared pipe ends and the Area in general.

At 1400, DOWNPOSTED THIS AREA.
large bundles of small tubing (instrumentation lines) surveyed. THERE ARE TWO AT POINTS WHERE SHOWN AND DIRECT SURVEYS PERFORMED WITH NO DETECTABLE ACTIVITY. JC

CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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		
O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (µR/hr)	SCA	Soil Contamination Area

Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/DTNE2	0178/0138	7-6-10	N/A		
N/A			N/A		
N/A			N/A		

RCT Name/Signature/Date: [signature] Jack Conrad, March 23, 2010. JC	RCT Supervisor Name/Signature/Date: John King [signature] 12/2/10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-10-0265

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1-20 21-25	Smears, Rocks >1"	<20	7	<1000	10	NA			
#	Directs, as shown	NA				<500	7	<5000	10
N/A									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
N/A				

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

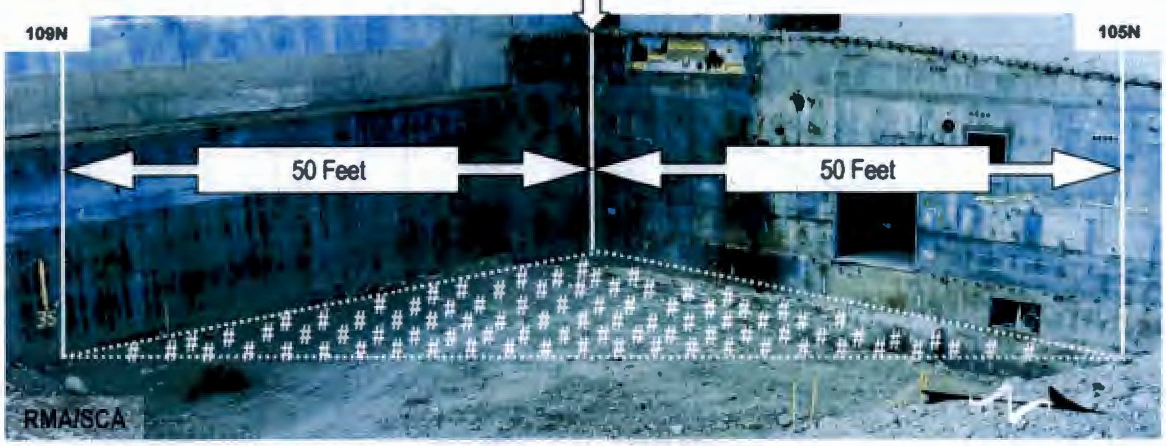
Page 1 of 2

Type of Survey			Survey #
☐ Routine NA	☒ Work Progress		RSR –100ISS-10-0280
RWP # / Rev. # NA	Date 03-25-2010	Time 1000	Location 100N

Description: Survey of Dirt Between 109N and 105N at -16' Level

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07 Rev 07 4.13.10

Survey of Soil at Northeast Confluence of 109N and 105N, -16 Foot Level
A survey of soil was performed at the depicted location to satisfy requirements for backfill of the area where other means proved to be inadequate due to inability to acquire satellite signal in this corner of the building. Direct surveys were performed as indicated, and no counts above background levels were observed. Technical smears were performed (but not depicted for clarity) on many items larger than 1 inch in diameter. The entire area is posted RMA/SCA.



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2224-3/ 43-93	0149/0193	09-29-2010	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
GL Eppling/ /03-25-2010	F. MORAN 4.13.10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR -100ISS-10-0280

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
#	All Directs	N/A	N/A	N/A	N/A	< 500	7	< 5,000	10
			N	A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

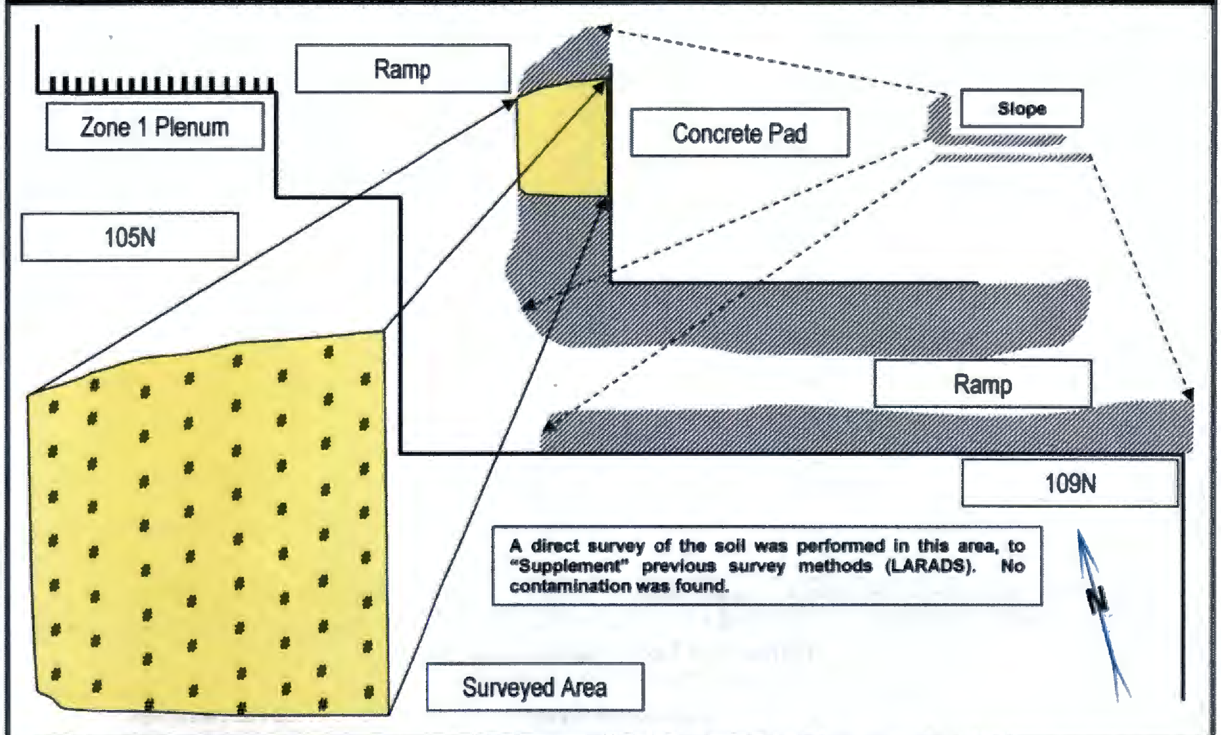
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N	A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine NA	☒ Work Progress		Survey # RSR –100ISS-10-0300
RWP # / Rev. # NA	Date 04-05-2010	Time 1615	Location 100N
Description: Survey of Soil on Slope at 105N			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07			



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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

○	Technical Smear	#	Direct	M	Large Area Wipe	T	Transferable	General Area Dose Rates =Uncorrected Meter Reading (mR/hr)	All radiation readings are y dose rates in units of mR/hr unless otherwise indicated	Contact 30 cm	N	Neutrons (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA	Soil Contamination Area	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2224-3/ 43-93	0149/0193	09-29-2010	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: GL Eppling/[signature]/04-05-2010	RCT Supervisor Name/Signature/Date: F. MORAN [signature] 4-6-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR -100ISS-10-0300

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#	All Directs	N/A	N/A	N/A	N/A	< 500	7	< 5,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

Facility Status Change Form

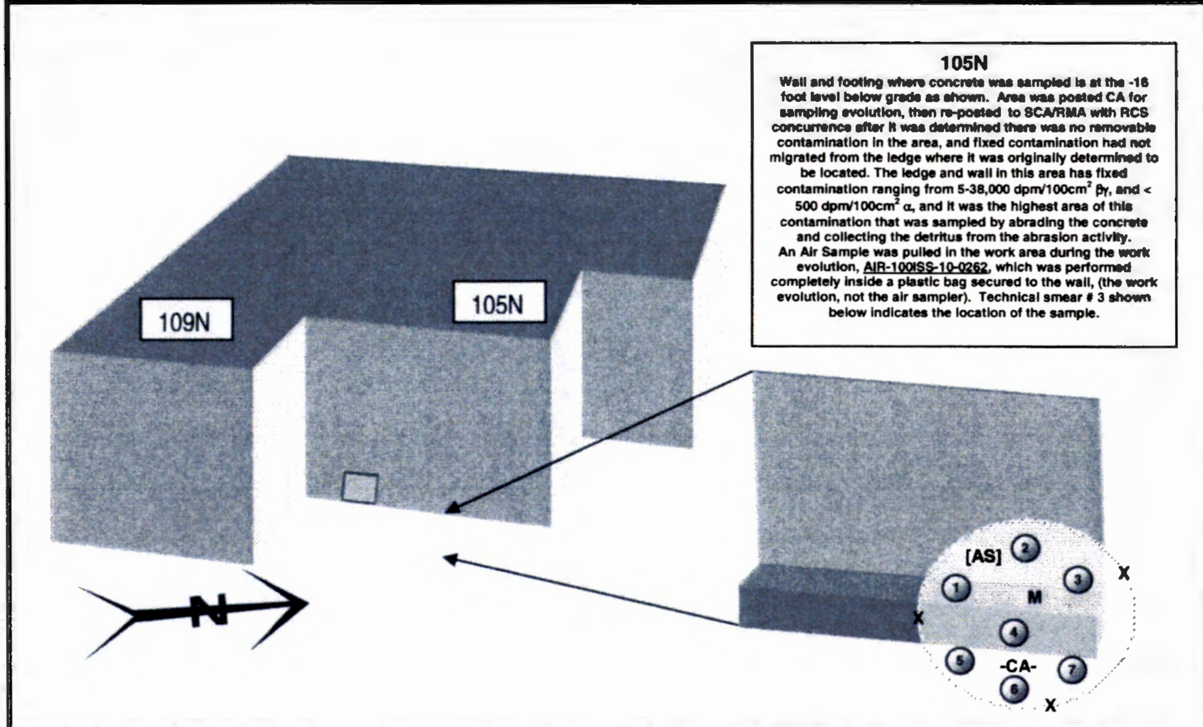
RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey			Survey #
☐ Routine NA	☒ Work Progress		RSR –100ISS-10-0360
RWP # / Rev. # 100ISS-10-001/ 00	Date 04-20-2010	Time 1045	Location 100N

Description: Survey of CA for Re-post After Sampling

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07 / Rev. 7



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (µR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2224-3/DP-6	SCLLB-0178/DTNE2-0138	07-06-10	NA	NA	NA
L-2224-3/DP-6	SCLLB-0164/DTNE2-0012	07-06-10	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
G.L. Eppling/[signature]/04-20-2010	F. Moran [signature] 5-10-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR -100ISS-10-0360

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
M, #	All LAW's and Directs	N/A	N/A	< 1,000	10	< 500	7	< 5,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

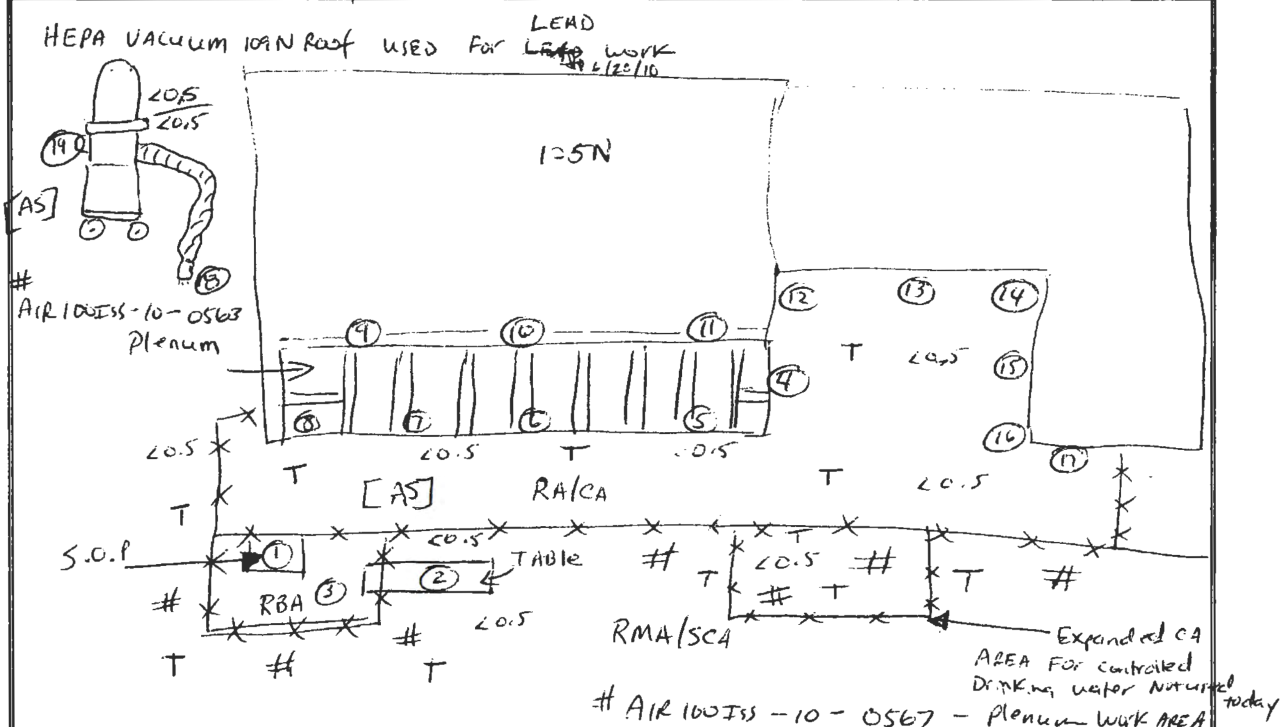
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey D8 [X] Routine D1, W2, W4, W6, W15 [X] Work Progress	Survey # RSR –100ISS-10- 0611
RWP # / Rev. # 100ISS-10-002 Rev. 00 — Date 06/28/2010 — Time 1330	Location 100N / 105N / 109N
Description Drill holes in concrete @ Plenum & Installing Rebar	
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 Rev ~~07~~ 7 JP 6/29/10	



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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
O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0081/082	02/05/2011	N/A	———	——>
RO-20	1257	10/13/2010	N/A	———	——>
N/A	———	——>	N/A	———	——>

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
J. A. Powell Powell 06/28/2010	John King King 8-23-10

WCH-TM-R006a (06/30/2009) — RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-10- 0611

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1	S.O.P	< 20	7	<1,000	10				
2	Survey Table								
3	2" Rock						N	A	
4-11	Plenum wall								
12-17	Concrete								
#	Ground					<500	7	<5,000	10
T	All Transferable	< 20	7	<1,000	10	N/A			
18-19	HEPA VACUUM	<20	7	<1,000	10	N/A			
				N					
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

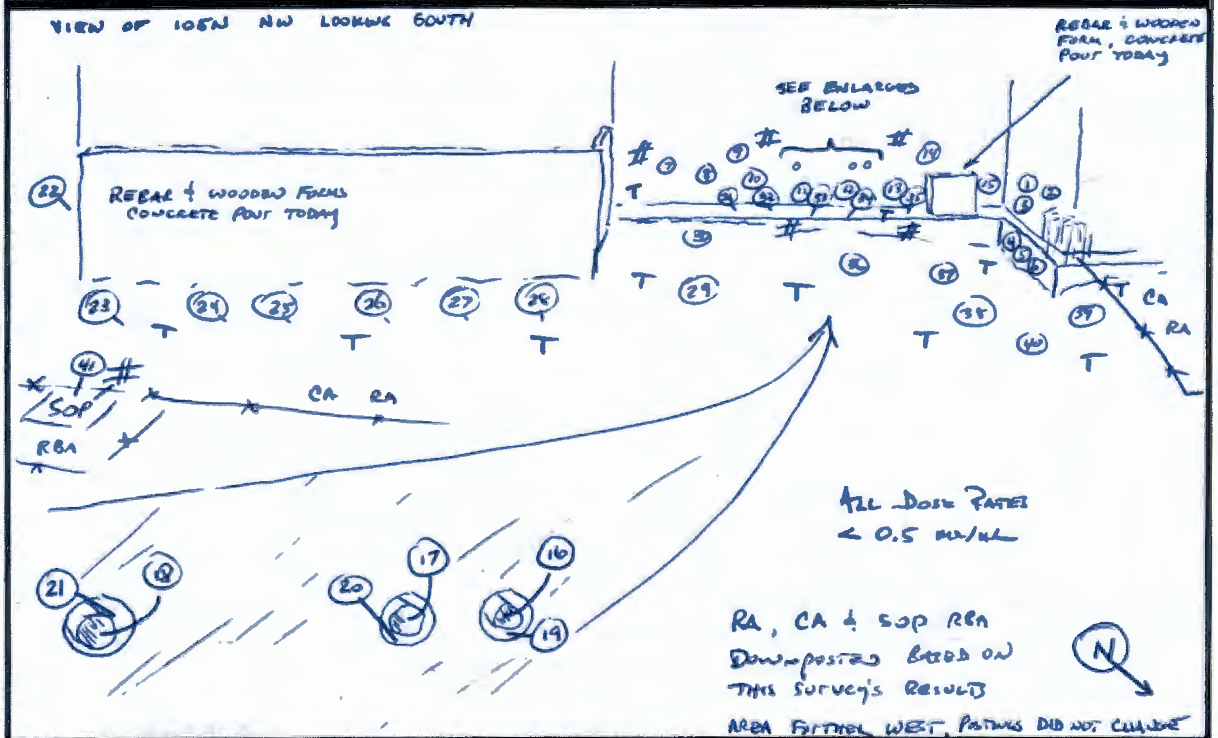
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
N/A See Page 1 For general AREA	Dose Rates			
HEPA VACUUM	N/A	<0.5	N/A	<0.5
		N/A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine NP	☑ Work Progress		Survey # RSR –100ISS-10- 0629
RWP # / Rev. # 100ISS-10-002 /00	Date 7-1-2010	Time 0845	Location 100N
Description 105N NW EXCAVATION CONCRETE POUR / DOWNPOST			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 Rev 07			



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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											
O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA	Soil Contamination Area		Radiological Boundary							

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
Ro 20	1201	12-11-10	N/A		
2224-3 43-93	0099 /0044	9-1-2010	N/A		
NA			N/A		

RCT Name/Signature/Date: Joel Conrad [signature] 7-1-2010	RCT Supervisor Name/Signature/Date: John King [signature] 8-23-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-10- 0629

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
17	INSIDE PIPE AS SHOWN	<20	7	4000	10	N/A			
1-16	where shown	<20	7	<1000	10	N/A			
18-41	where Shown	<20	7	<1000	10	N/A			
T	TRANSFERABILITY Survey	<20	7	<1000	10	N/A			
N/A									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
N/A				

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine ☒ Work Progress			Survey # RSR –100ISS-10-0677
RWP # / Rev. # 100ISS-10-002-00	Date 7/20/10	Time 1315	Location 100N
Description 105N/ Soil Removal from Plenum Area for Sampling			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07-7			

Performed Work Progress Survey on soil as it was removed (pot-holing) from the Plenum area at 105N. Performed directs and towel presses (for transferability). Please see page 2 for survey results.

Performed directs and tech smears on the bucket attachment of the John Deere 330 Excavator as soil was brought out for sampling and post clean up activities. No contamination was found.

After soil was placed back in the "pot hole" area ground was directed and performed towel presses. Please see page 2 for results.

Performed directs and tech smears on sample jars after they were filled. No contamination was found.

Area is posted RMA/SCA.

Tp=towel press

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0076/0177	5/17/11	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date: Deb Poteet [signature] 7/20/10	RCT Supervisor Name/Signature/Date: F. Moses [signature] 8-10-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-10-0677

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All Smears	< 20	7	< 1,000	10	N/A	N/A	N/A	N/A
Tp	All Towel Presses	N/A	N/A	<1000	10	N/A	N/A	N/A	10
#	Bucket of Soil at old surface	N/A	N/A	N/A	N/A	<500	7	28K ~~<5000~~ 7.28.10	10
#	Bucket of Soil at -3'	N/A	N/A	N/A	N/A	<500	7	~~28K~~ <5000 7.28.10	10
#	Bucket of Soil at -6'	N/A	N/A	N/A	N/A	<500	7	<5000	10
#	Directs of Bucket post soil sampling and re-filling hole	N/A	N/A	N/A	N/A	<500	7	<5000	10
#	Directs of ground where soil removed hole was placed	N/A	N/A	N/A	N/A	<500	7	<5000	10

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

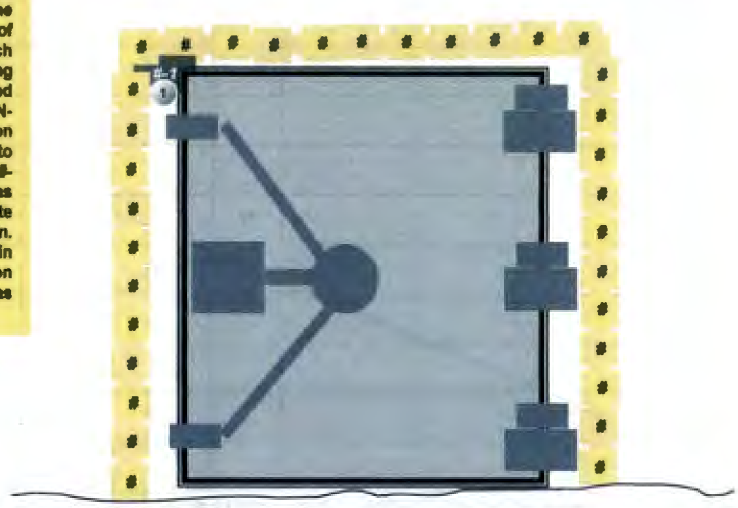
Type of Survey ☐ Routine NA	☒ Work Progress		Survey # RSR –100ISS-10-0839
RWP # / Rev. # NA	Date 09-07-2010	Time 1015	Location 100N/ 105N

Description: Survey of Wall Around Entrance Door to C Elevator

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07 Revision 7

Survey of Wall

A survey was performed around the heavy blast doorway entrance to the "C" Elevator, with the intention of drilling some holes to attach framework for a containment being built there. There is a fixed contamination posting there, FCA-N-002, but the only fixed contamination found in the area where drilling is to transpire was at the location labeled #-1 to the right. The work area was adjusted outwards to accommodate not drilling in the fixed contamination. A technical smear was performed in the area of the fixed contamination and no removable contamination was found.



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/ DP6DD	SCLLB-0036/ DTNE4-0011	08-06-2011	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: G.L. Eppling/ [signature] /09-07-2010	RCT Supervisor Name/Signature/Date: John King/ [signature] 9/8/10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR -100ISS-10-0839

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	Smear	< 20	7	< 1,000	10	NA	NA	NA	NA
#	All directs except below	NA	NA	NA	NA	< 500	7	< 5,000	10
# -1	Direct on wall as shown	NA	NA	NA	NA	< 500	7	6,000	10
			N	A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N	A		

WCH-TM-R006a (06/30/2009)

Facility Status Change Form

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey			Survey #
☒ Routine D1,W4,W6,W15	☒ Work Progress		RSR – 100ISS-10-1063
RWP # / Rev. # 100ISS-10-002 rev.00	Date 11/02/2010	Time 1600	Location 100N/105N

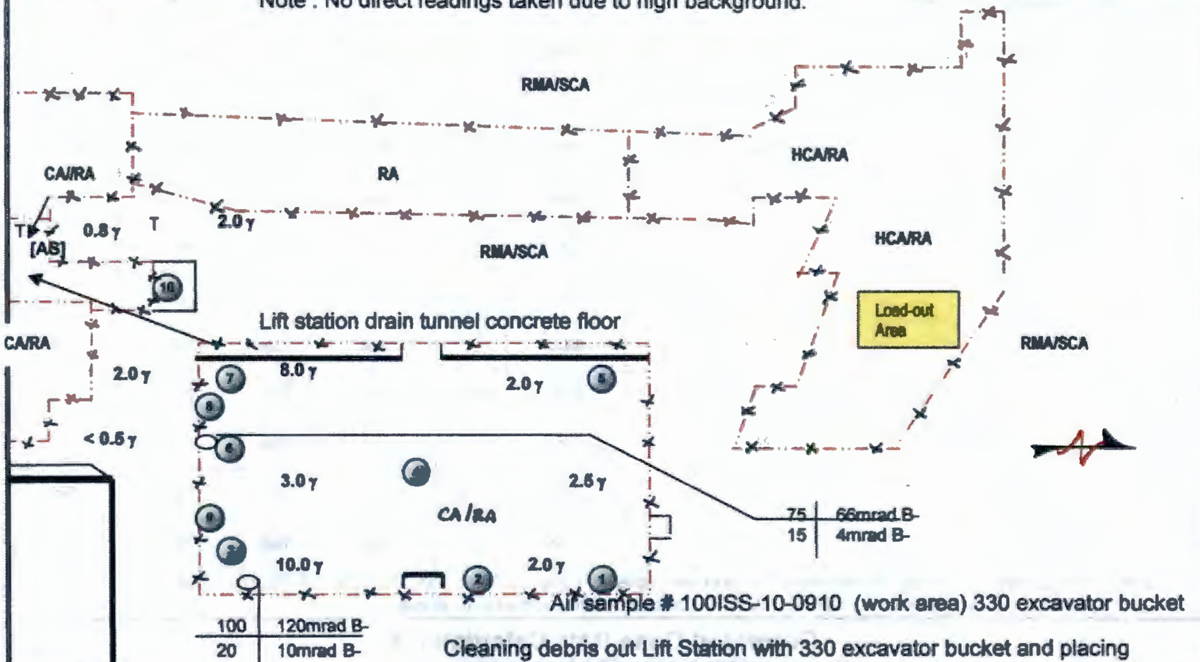
Description

105N Pre-job survey Lift station drain tunnel clean out.

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)

TA-07-SR-07 rev.7

Note : No direct readings taken due to high background.



Air sample # 100ISS-10-0910 (work area) 330 excavator bucket

Cleaning debris out Lift Station with 330 excavator bucket and placing in front end loader to be hauled to HCA/RA at load out area. All equipment

CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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
○	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA	Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/ 43-93	SCLL8-0082 / DTLLP-0183	06/24/2011	RO-20	ICEB4-1282	02/26/2011
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
J.A. Powell [signature] 11/02/2010	[signature] 11/3/10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-10-1063

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
T	See Map for locations	<20	7	<1K	10	NA	NA	NA	NA
O	330 excavator bucket	72	7	35K	10	NA	NA	NA	NA
O	Front end loader	21	7	14K	10	NA	NA	NA	NA
1	Floor	<20	7	2K	10	NA	NA	NA	NA
2		<20	7	3K	10	NA	NA	NA	NA
3		560	7	80K	10	NA	NA	NA	NA
4		28	7	5K	10	NA	NA	NA	NA
5		<20	7	3K	10	NA	NA	NA	NA
6		210	7	64K	10	NA	NA	NA	NA
7		72	7	64K	10	NA	NA	NA	NA
8	Wall	35	7	2K	10	NA	NA	NA	NA
9	Wall	49	7	5K	10	NA	NA	NA	NA
10	S.O.P	<20	7	<1K	10	NA	NA	NA	NA

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

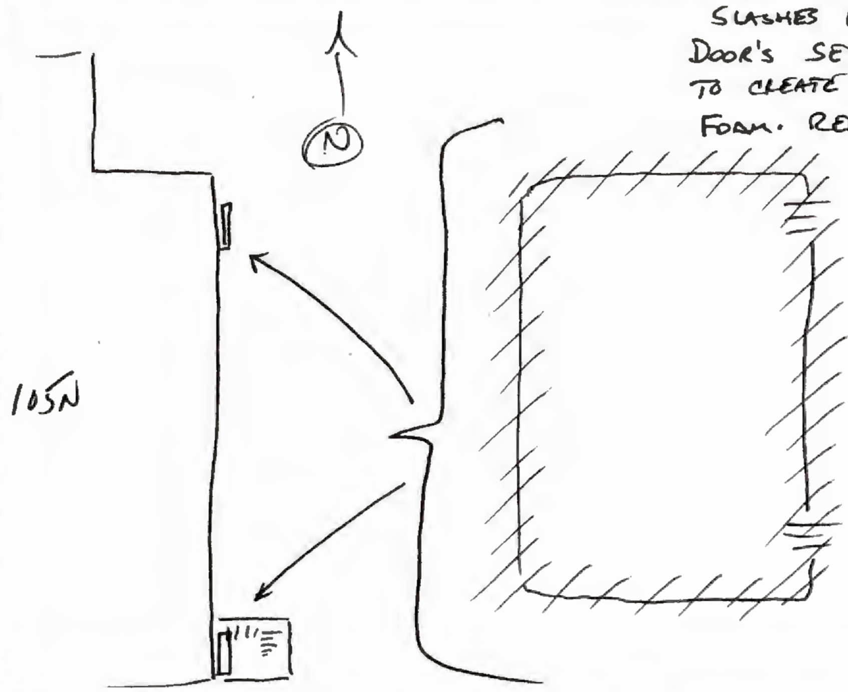
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
Concrete Floor	(40-20)x6= 120	20x5=100	(15-10)X 2= 10	20x1=20
Concrete Floor	(26-15)X6= 66	15x5=75	(10-8)x2= 4	15x1=15
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine N/A ——— ☑ Work Progress			Survey # RSR –100ISS- 10 - 1198
RWP # / Rev. # N/A ———	Date 12-7-2010	Time 1000	Location 100N 105N East
Description ZONE 1 DOORS, FOAM REMOVAL			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 Rev 07			



SLASHES INDICATE LOCATION OF DOOR'S SEAL WHERE FOAM USED TO CREATE "AIR-TIGHT" BOUNDARY. FOAM. REMOVED AND AREA SHOWN DIRECT SURVEYED.

All Results Negative

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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			
O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x	

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360 43-93	0078/0179	11-16-11	N/A		
N/A			N/A		
N/A		—	N/A		

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
Jack Conrad [signature] 12-7-10	John King [signature] 12-8-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS- 10 – 1198

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#	Doors	N/A				<500	7	<500	10
N/A									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
N/A				

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

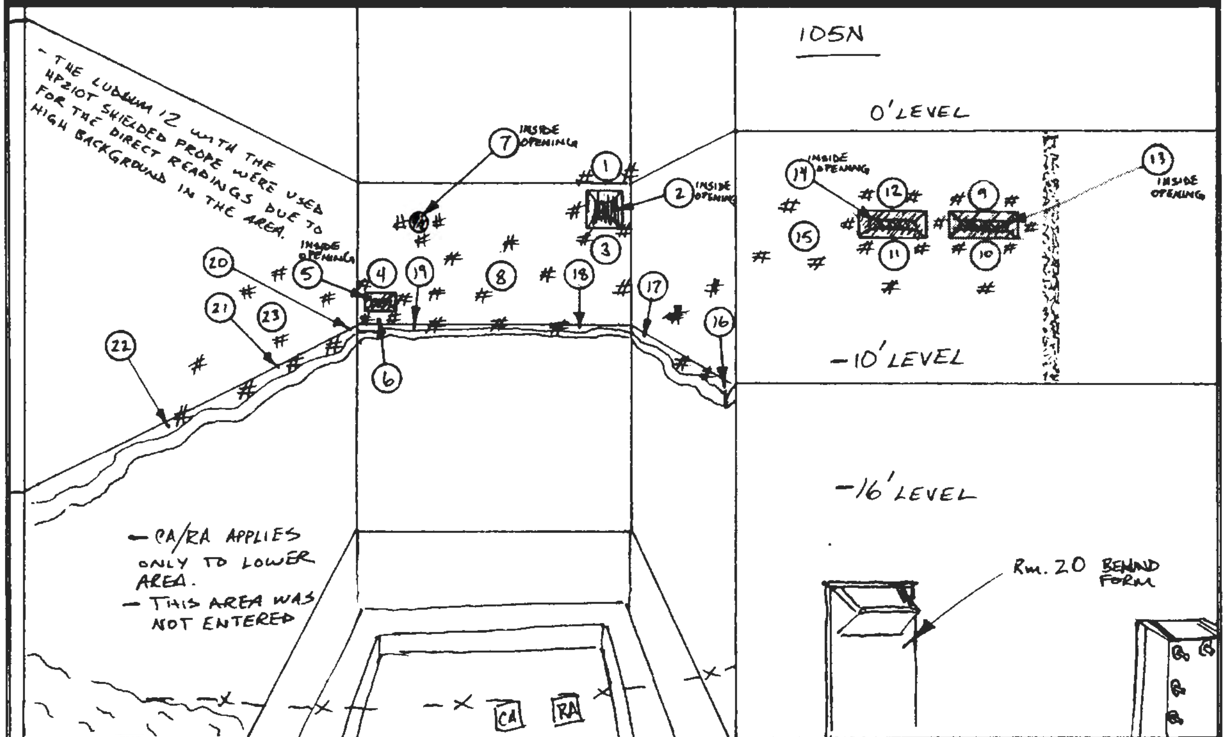
Page 1 of 2

Type of Survey		Survey #
☐ Routine	☑ Work Progress	RSR – 100ISS-11-0002

RWP # / Rev. #	Date	Time	Location
N/A	01-03-2011	1230	100N R8-17-11

Description: 105N - SSE WALL CONSTRUCTION ON N.W. CORNER

References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 REV. 07



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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					
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x			

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/43-93	0009/0097	06-14-2011	12/HP210T	0048/0173	04-15-2011/02-06-2011
2224-3/43-93	0099/0044	09-09-2011	N/A →		
2360/43-93	0076/0177	12-17-2011	N/A →		

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
J.B. HOLCOMBE / [signature] / 01-03-2011	JOHN KING / [signature] 1-4-11

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-10-0002

Contamination Measurement Information[1]

K 8-17-11

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
○	All Tech Smears	< 20	7	< 1k	10	N/A			
#	All Direct Readings	N/A				N/A ~~<500~~	N/A ~~7~~	< 5K	10
				N					
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

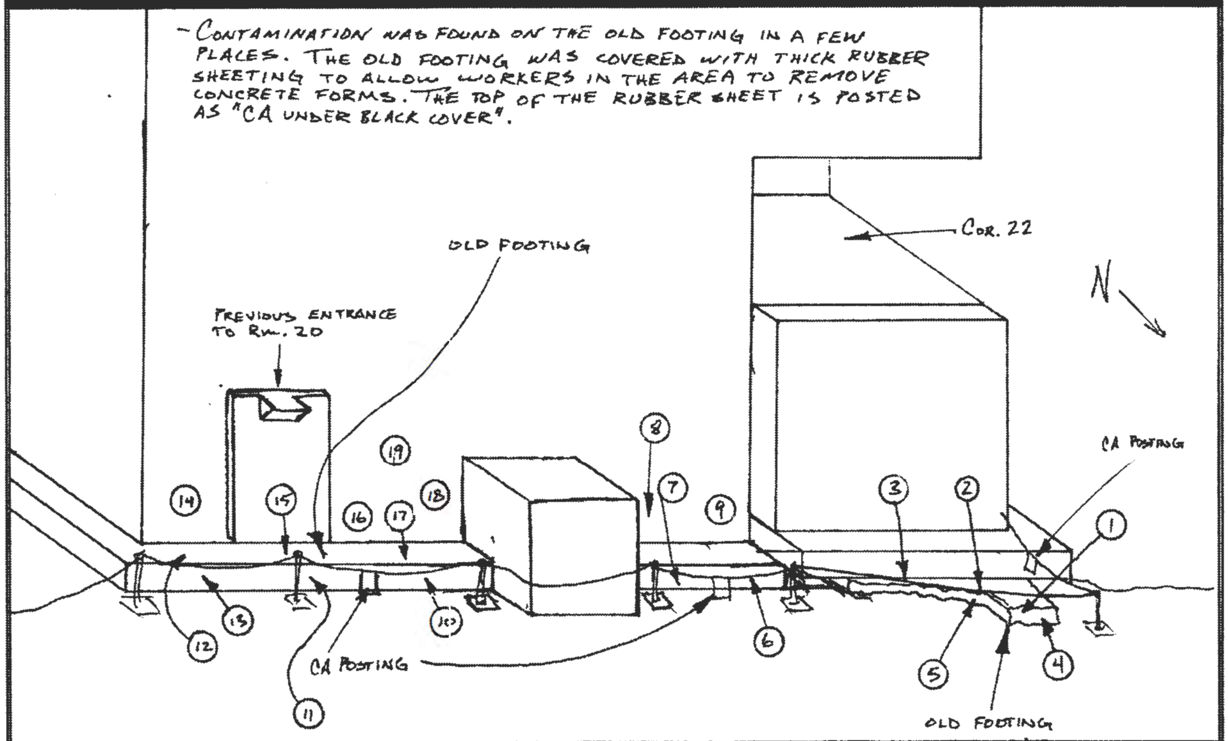
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
		N		
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☑ Routine W4, W15	☑ Work Progress		Survey # RSR – 100ISS-11-0025
RWP # / Rev. # 100ISS-10-001/~~00~~ 01 (OM 1-27-11)	Date 01-26-2011	Time 1230	Location 100 N
Description 105N – REMOVAL OF CONCRETE FORMS			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 REV. 7			



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
LUDLUM 12 / HP 210	0052 / 0055	04-15-2011 / 02-16-2011	N/A	→	→
2224-3 / 43-93	0099 / 0044	09-09-2011	N/A	→	→
N/A	→	→			

RCT Name/Signature/Date: J. B. HOLCOMBE / [signature] / 01-27-2011 P.R. VESTAL / [signature] / 1-27-11	RCT Supervisor Name/Signature/Date: JOHN KING / [signature] 1-31-11

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-11-0025

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F	Total (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F
1	TOP HALF OF ON FRONT OF THE OLD FOOTING	< 20	7	1K	10	N/A	N/A	N/A	N/A
2	TOP OF OLD FOOTING	< 20	7	3K	10				
3	TOP OF OLD FOOTING	< 20	7	2K	10				
~~4~~ 17	TOP OF OLD FOOTING	< 20	7	1K	10				
	ALL OTHER TECH SMEARS	< 20	7	< 1K	10				
	N A								

AH 1-27-11

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

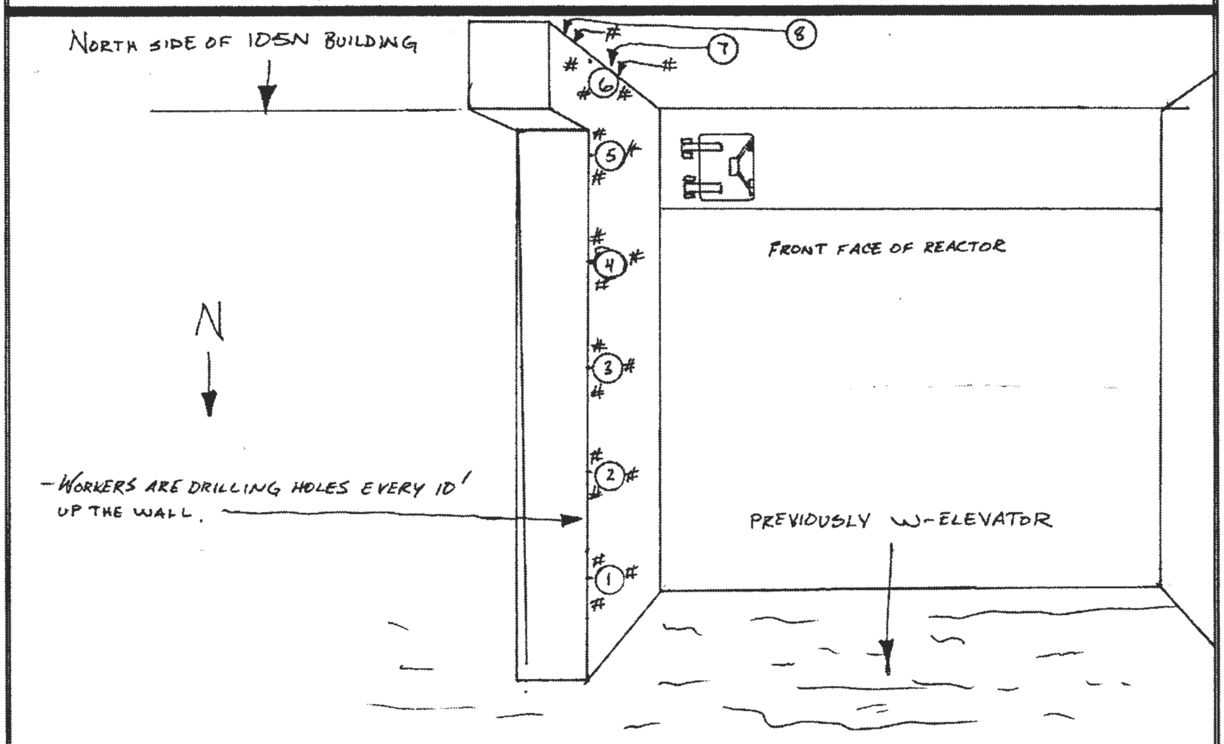
Location	Contact Readings β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	30 cm Readings β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
		N A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine ☑ Work Progress			Survey # RSR – 100ISS-11-0032
RWP # / Rev. # N/A	Date 02-02-2011	Time 1445	Location 100N
Description 105N VERIFY WALL IS FREE OF CONTAMINATION			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 REV. 7			



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/43-93	0080/0090	08-10-2011	N/A →		
N/A →					
N/A →					

RCT Name/Signature/Date: J.B. HOLCOMBE / [signature] / 02-02-2011	RCT Supervisor Name/Signature/Date: JOHN KING / [signature] 2-3-11

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS - 11 - 0032

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
○	All Tech Smears	<20	7	<1K	10	N/A			
#	All Direct Readings	N/A				<500	7	<5K	10
			N	A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N	A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☒ Routine D1 ☒ Work Progress	Survey # RSR –100ISS-11-0333

RWP # / Rev. #	Date	Time	Location
100ISS-10-002-01	7/9/11	0930	100N

Description
105N 60'CA/RA

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07-7

Performed a Work Progress Survey of the CA/RA on the 60' Level in Rooms 601 through Rooms 613 at 105N Rx. Performed directs (in some areas), tech smears and General Area Dose Rates. No contamination was found. General Area Dose Rates are <0.5 to 0.5 mr/hr.

Survey was done while Laborers were painting weld spots on beams in support on cocooning activities.

This survey meets the criteria for the Daily Routine D1 (SOP and Control Point). Tech smears and directs were performed and no contamination was found

Please note that in some areas of these room direct survey was not possible due to high back ground.

CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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		
O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA	Soil Contamination Area	Radiological Boundary x----x----x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0011/0003	3/23/12	NA	NA	NA
RO20	1587	6/17/12	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date: Deb Poteet [signature] 7/9/11	RCT Supervisor Name/Signature/Date: Michael Wright [signature] 10-14-2011

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR -100ISS-11-0333

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#O	All Areas Surveyed	<20	7	<1000	10	<500	7	<5000	10

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☒ Routine D1	☐ Work Progress		Survey # ~~RSR –100ISS-11-0334~~ 42 7-21-11
RWP # / Rev. # 100ISS-10-002-01	Date 7/11/11	Time 0930	Location 100N

Description
105N 60'CA/RA

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07-7

Performed a Work Progress Survey of the CA/RA on the 60' Level in Rooms 601 through Rooms 613 at 105N Rx. Performed directs (in some areas), tech smears and General Area Dose Rates. No contamination was found. General Area Dose Rates are <0.5 to 0.5 mr/hr.

Survey was done while Laborers were painting weld spots on beams in support on cocooning activities.

This survey meets the criteria for the Daily Routine D1 (SOP and Control Point). Tech smears and directs were performed and no contamination was found

Please note that in some areas of these rooms direct survey was not possible due to high back ground.

The drinking area was established and drinking water was given to workers. The drinking area was also surveyed by tech smears and directs, no contamination was found. Please Daily Log 100ISS-11-0108 for workers names, HIDs, and times water was given.

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0011/0003	3/23/12	NA	NA	NA
RO20	1587	6/17/12	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date: Deb Poteet Deb Poteet 7/11/11	RCT Supervisor Name/Signature/Date: Michael Wright Michael T. Wright 10-14-2011

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR -100ISS-11-03 42

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#O	All Areas Surveyed	<20	7	<1000	10	<500	7	<5000	10
				NA					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
		NA		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey Routine ☒ Work Progress			Survey # RSR –100ISS-11-0440
RWP # / Rev. # 100ISS-10-002-01	Date 08-22-11	Time 1400	Location 100N
Description 105N SE Face Anchor Point Surveys			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07-7			

Performed a Work Progress Survey on the 105N South East exterior face of building. The survey included multiple tech smears and directs; of anchor and drill points in/on the surface wall of the exterior surface area on the Southeast side of the building; Power tools and drill bits were surveyed along with concrete bore material removed from the walls. All surveys conducted revealed no elevated levels of contamination or radiation. Please see pg# 2 for results.

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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
O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)
SCA Soil Contamination Area	Radiological Boundary x—x—x							

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	SCLLB-0075/DTLLP-0176	12-22-11	N/A	N/A	N/A
N/A	N/A	N/A	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date: Rene' L Thomas [signature] 08-22-11	RCT Supervisor Name/Signature/Date: Michael Wright [signature] 10-05-2011

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-11-0440

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O,#	All Areas Surveyed	<20	7	<1000	10	<500	7	<5000	10
N/A									N/A

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
N/A				N/A

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey Routine ☒ Work Progress			Survey # RSR –100ISS-11-0445
RWP # / Rev. # 100ISS-10-002-01	Date 08-23-11	Time 1400	Location 100N / 105 N
Description 105N S.E. Face Anchor Point Surveys			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07-7			

Performed a Work Progress Survey on the 105N South East exterior face of building. The survey included multiple tech smears and directs; of anchor and drill points in/on the surface wall of the exterior area on the Southeast side of the building; Power tools and drill bits were surveyed along with concrete bore material removed from the walls. All surveys conducted revealed no elevated levels of contamination or radiation. A pre-survey in the 109N Roof was also conducted at multiple points using tech smears and directs, the point surveys were marked by the electrician; No elevated results were found. Please see pg# 2 for results.

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary x----x----x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3	SCLLB-0081	05-18-12	43-93	0069	05-18-12
N/A	N/A	N/A	NA	NA	NA
N/A	N/A	N/A	NA	NA	NA

RCT Name/Signature/Date: Rene' L Thomas [signature] 08-23-11	RCT Supervisor Name/Signature/Date: Michael Wright [signature] 10-05-2011

WCH-TM-R006a (06/30/2009) RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-11-0445

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2) α	Removable α C-F	Removable β-γ	Removable β-γ C-F	Total (dpm/100 cm^2) α	Total α C-F	Total β-γ	Total β-γ C-F
O,#	All Areas Surveyed	<20	7	<1000	10	<500	7	<5000	10
N/A									N/A

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings β (mrad/hr) (WO-WC) X CF = DR	Contact Readings γ (mR/hr) WC X CF = DR	30 cm Readings β (mrad/hr) (WO-WC) X CF = DR	30 cm Readings γ (mR/hr) WC X CF = DR
N/A				N/A

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

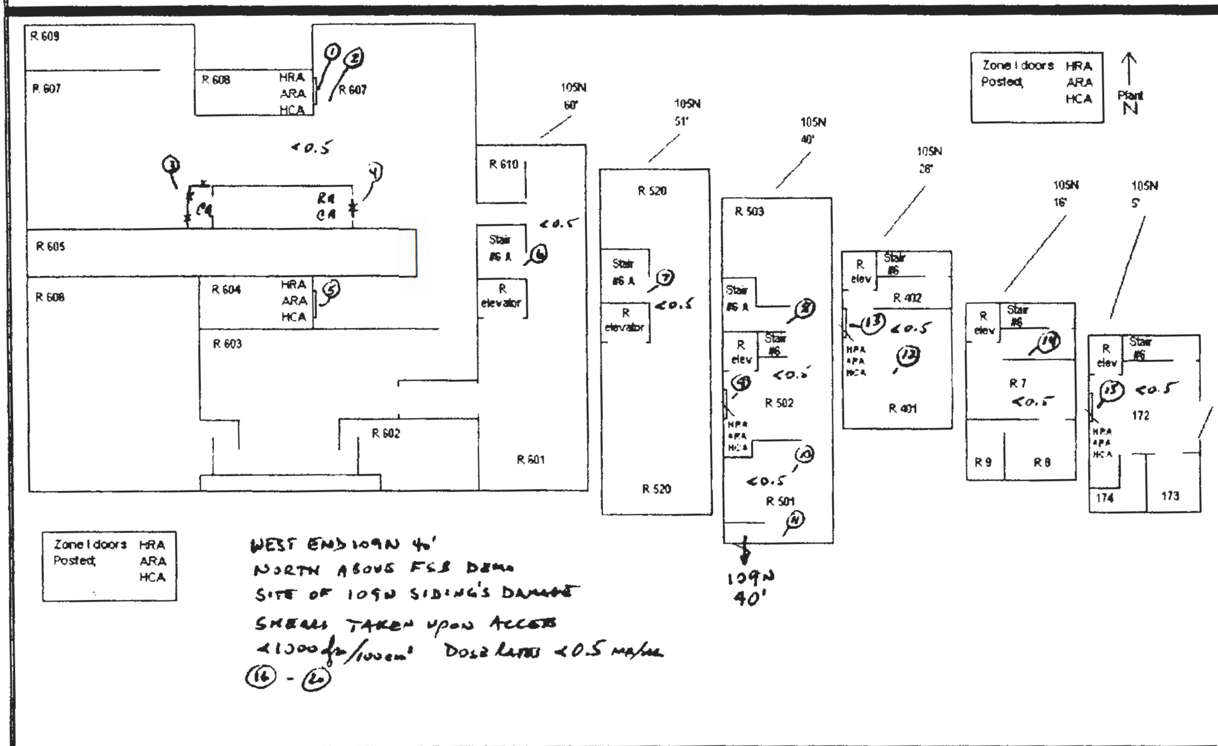
Page 1 of 2

Type of Survey ☑ Routine M5 M9 M10 A2 ☑ Work Progress	Survey # 100ISS-12-0005 RSR – ~~100ISS-0005~~ 9 4-24-12

RWP # / Rev. #	Date	Time	Location 100N
100ISS-10-0002 03	April 16, 2012	1000	105N/109N

Description
Performed surveys 105N and 109N, routine and while accessing 40' 109N's owl box (not illustrated)

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07 R 7



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/43-93	0076/0013	2-28-13	N/A		
RO20	1588	9-1-12	N/A		
N/A			N/A		

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
Jack Conrad, April 16, 2012 Loris Heller, April 16, 2012	Gary Burton 4-25-12

WCH-TM-R006a (06/30/2009)   RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - ~~100ISS-0005~~ 100ISS-12-0005

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2) α	Removable α C-F	Removable β-γ	Removable β-γ C-F	Total (dpm/100 cm^2) α	Total α C-F	Total β-γ	Total β-γ C-F
1-20	SMEARS - FLOOR, HIGH TRAFFIC AREAS/AT INACTIVE HCA BOUNDARYS	<20	7	<1000	10	N/A			
N/A									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings β (mrad/hr) (WO-WC) X CF = DR	Contact Readings γ (mR/hr) WC X CF = DR	30 cm Readings β (mrad/hr) (WO-WC) X CF = DR	30 cm Readings γ (mR/hr) WC X CF = DR
N/A				

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

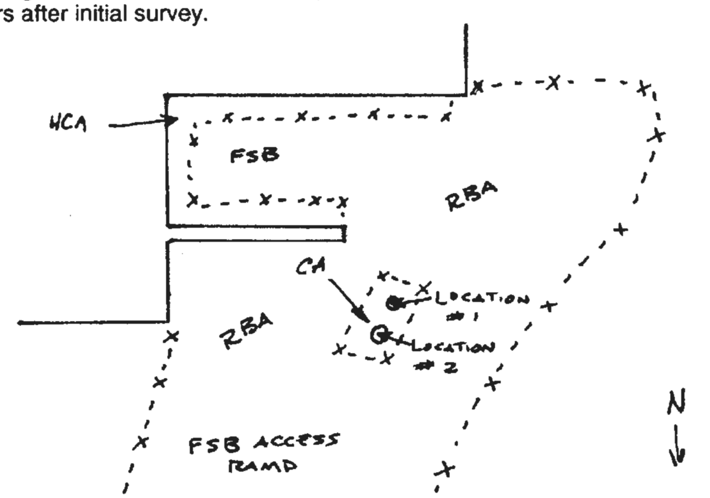
Page 1 of 2

Type of Survey ☐ Routine	☒ Work Progress		Survey # RSR – 100ISS-12-0028
RWP # / Rev. # 100ISS-10-002/Rev 04	Date 05-08-12	Time 1000	Location 100N/FSB access ramp

Description
Contamination found on FSB access ramp

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/ Rev 7

Technician was asked to survey oil stains on Fuel Storage Basin access ramp, at which time two contaminated areas were found. Transferable surveys and direct surveys were completed on both spots. Readings listed on page two of this report. RCS notified, as well as project Management. Area was posted as Contamination area while awaiting final disposition. This area is located within an RBA/Underground Radioactive Materials Area. Diagram below shows approximate location on FSB access ramp. The two locations are noted as locations #1 & #2. Readings on page two are designated likewise. Original survey showed higher transferable alpha readings than what is shown on page two. Levels shown on page two are final decay counts taken several hours after initial survey.



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0078/0179	09-06-12	Ludlum model 12	0050	03-30-13
N/A	N/A	N/A	HP 210	0074	04-27-13
N/A	N/A	N/A	N/A	N/A	N/A

RCT Name/Signature/Date: Terry Parker/ [signature] /05-09-12	RCT Supervisor Name/Signature/Date: [signature] 5-9-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-12-0028

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#1	Transferable/Direct readings, location #1	35	7	<1000	10	<500	7	50,000	10
#2	Transferable/Direct readings, location #2	42	7	4000	10	<500	7	90,000	10
				N					
					A				

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 3

Type of Survey ☐ Routine ☒ Work Progress			Survey # RSR – 100ISS-12-0042
RWP # / Rev. # 100ISS-12-001/00 ~~100N-12-001/Rev00~~ KC-22-12	Date 05-17-12	Time 1420	Location 100N/FSB/Fast Chute
Description Survey of wall surrounding fast chute			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07/R 7.			

RCT surveyed the area surrounding the fast chute, located in the Eastern most wall of the Fuel Storage Basin. Instruction on surveying this wall included NOT surveying the area 18 inches around the chute itself or below the chute to the wall footing. The area from that 18 inch "boundary", out to approximately five feet around the chute, was surveyed. This survey was completed with a Ludlum model 3 and HP 210 shielded probe. Alpha readings were taken with an Electra/DP 6 dual channel instrument. Two background counts were taken in the area of the chute. The first, taken on the South side of the chute, approximately 15 feet away, (while in the man basket), was 53,980 d/m beta-gamma. The second was taken approximately 25 feet away from the chute to the North-West, also from the man basket. This background survey resulted in a count of 27,320 d/m beta-gamma. These numbers are important to remember while reviewing survey data obtained from this area, as there is a 10 mr/hr – 25 mr/hr field emanating from the fast chute area, which almost certainly affected the beta-gamma survey data obtained.

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
O Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
Electra	CMNE1-0061	09-23-12	Ludlum model 3	0007	09-23-12
DP 6	0139	09-23-12	HP 210	0060	03-29-13
RO-20	1257	09-30-12	2224-3/43-93	0174/0040	05-10-13

RCT Name/Signature/Date: Terry Parker/ [signature] /05-18-12	RCT Supervisor Name/Signature/Date: John King [signature] 5-22-12

WCH-TM-R006a (06/30/2009) RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 3 Survey # RSR - 100ISS-12-0042

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1-40	Technical smears	<20	7	<1000	10	N/A	N/A	N/A	N/A
41	Technical smear	<20	7	6230	10	N/A	N/A	N/A	N/A
42	Technical smear	21	7	25,120	10	N/A	N/A	N/A	N/A
43	Technical smear	<20	7	2650	10	N/A	N/A	N/A	N/A
44	Technical smear	<20	7	6810	10	N/A	N/A	N/A	N/A
45,46, 48	Technical smears	<20	7	<1000	10	N/A	N/A	N/A	N/A
47	Technical smear	<20	7	2590	10	N/A	N/A	N/A	N/A
49	Technical smear	<20	7	1190	10	N/A	N/A	N/A	N/A
50	Technical smear	<20	7	3920	10	N/A	N/A	N/A	N/A
			N						
					A				

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

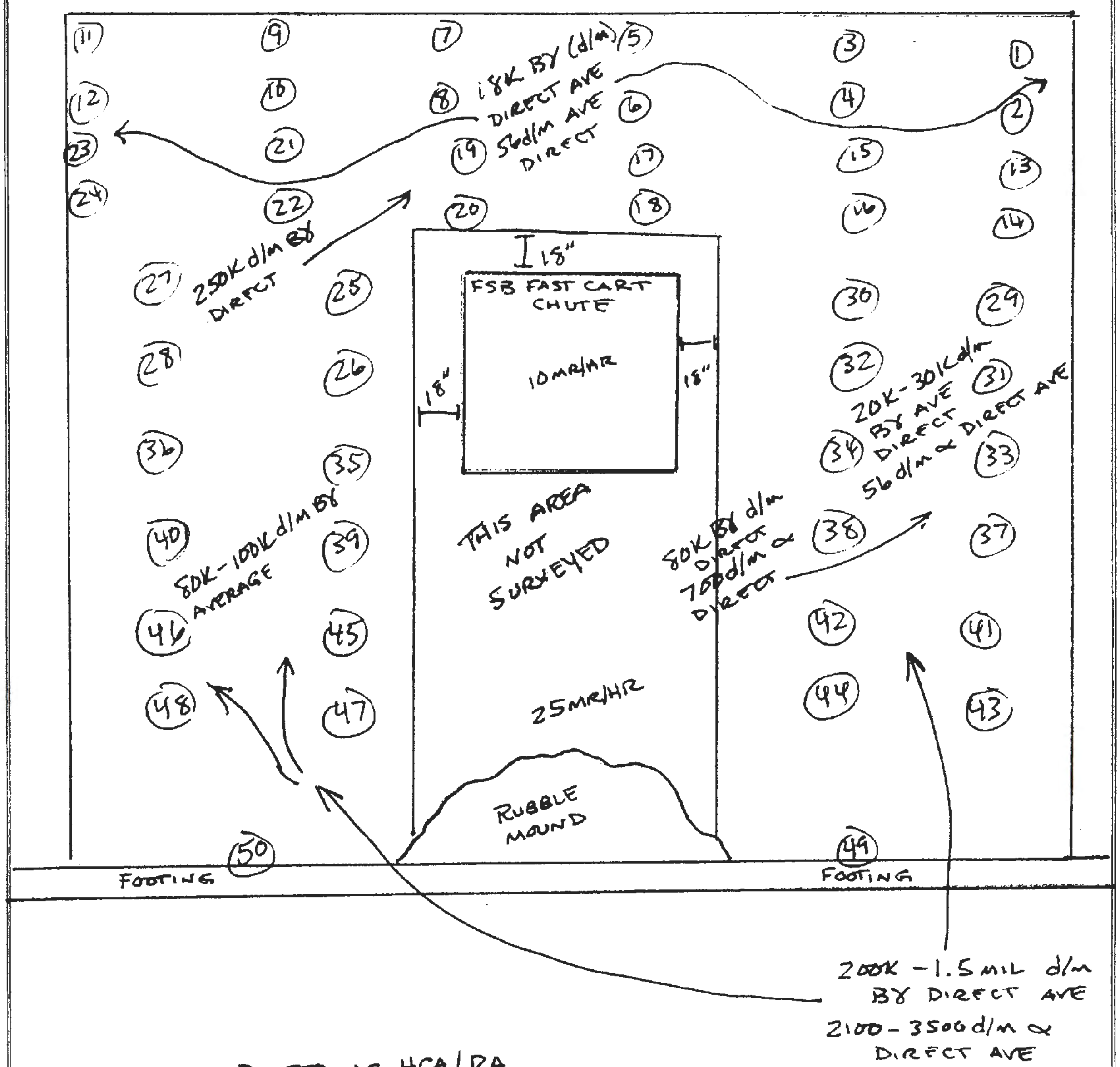
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: 3 of 3 Survey # RSR 100ISS-12-0042

Additional Information
(Drawing, Map, Etc.)



AREA SHOWN POSTED AS HCA/RA
SURVEY LOCATIONS SHOWN ARE APPROXIMATE

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

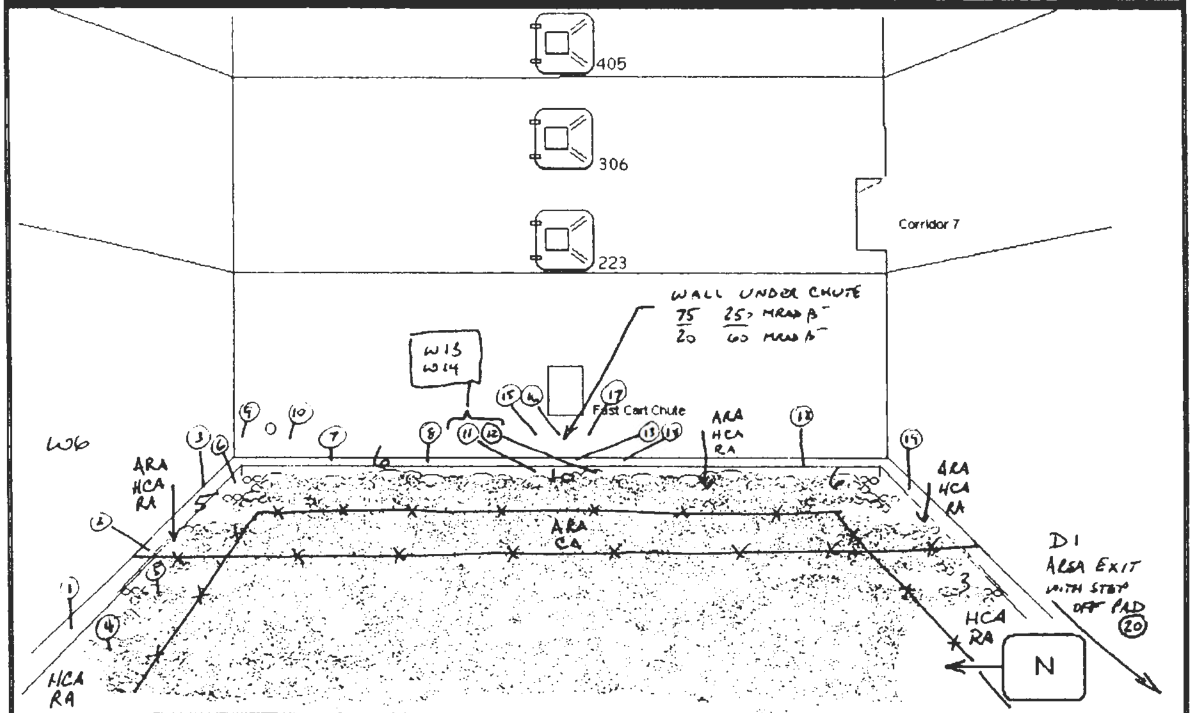
RADIOLOGICAL SURVEY RECORD

Page 1 of ~~2~~ ~~4~~ 3

Type of Survey ☑ Routine D1 W6 W13 W14 ☑ Work Progress			Survey # RSR – 100ISS -12- 0093
RWP # / Rev. # 100ISS -12- 001 01	Date June 7th 2012	Time 1600	Location 100N 105N FSB

Description
FOOTINGS CLEARED OF SOIL/EXCESS GROUT 5/8" GRAVEL LAID IN FRONT OF WALL TO COVER ROUGH COBBLE

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA - 07 - SR - 07 R 7



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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			
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x	

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3 43-93	0082 / 0090	5-4-13	N/A		
~~N/A~~ 2020	1586	5-9-13	N/A		
N/A			N/A		

RCT Name/Signature/Date: Jack Conrad, June 7 2012	RCT Supervisor Name/Signature/Date: 6-12-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of ~~2~~ ~~4~~ 3 Survey # RSR - 100ISS - 12 - 0093

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
N/A									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
WALL UNDER CHUTE	(200-75) x 2 = 250	75 x 1 = 75	(50-20) x 2 = 60	20 x 1 = 20
N/A				

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation) Contamination	Page: 3 of 3 Survey # RSR 100ISS-12-0093

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1	Top of Footing	<20	7	<1000	10	N/A			
2	Top of Footing	<20	7	3000	10				
3	Top of Footing	<20	7	<1000	10				
4	Stone >2" Dia	<20	7	<1000	10				
5	Stone >2" Dia	<20	7	<1000	10				
6	Stone >2" Dia	196	7	50000	10				
7	Top of Footing	<20	7	8000	10				
8	Top of Footing	<20	7	15000	10				
9	wall	77	7	9000	10				
10	wall	<20	7	1500	10				
11	verticle face of footing	63	7	4000	10				
12	verticle face of footing	<20	7	1500	10				
13	Top of Footing	63	7	3500	10				
14	Top of Footing	<20	7	2000	10				
15	wall beneath chute	42	7	50000	10				
16	wall beneath chute	42	7	3000	10				
17	wall beneath chute	56	7	105000	10				
18	Top of Footing	<20	7	<1000	10				
19	Top of Footing	<20	7	<1000	10				
20	Step Off Pad	<20	7	<1000	10				
N/A									

[1]Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

WCH-TM-R006f (06/30/2009)

RADIOLOGICAL SURVEY RECORD

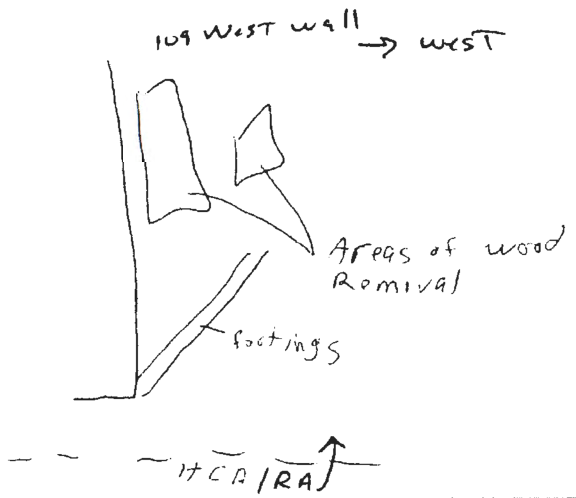
Page 1 of 2

Type of Survey ☐ Routine ☒ Work Progress	Survey # RSR - ISS - 12 - 0139
RWP # / Rev. #: 100ISS-12-001 R01 · Date: 06/25/12 · Time: 1300	Location 100N / 109N W. Wall

Description: Pulled wood off of poured area W. Wall of 109N.

References: (e.g., SRTA, ASER, LASER, RSP, Work Package) IA-07-SR-0717

carptners into area to remove wood forms after pour of concrete, smeared wood & stock piled wood for another HCA pour in RBA.



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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

O	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (µR/hr)	SCA	Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
12	CM LLI 0050	03/30/13	N/A		N/A
HP210T	OTEBS 0074	04/27/13			
N/A	N/A	N/A	N/A		N/A

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
Loris Heller / Loris Heller / 06/27/12	[signature] 6-28-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - ISS-12-0139

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2) α	α C-F	β-γ	β-γ C-F	Total (dpm/100 cm^2) α	α C-F	β-γ	β-γ C-F
All	Smears	<20	7	<1000	10	N/A	N/A	N/A	N/A
N/A									N/A
N/A									N/A

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings β (mrad/hr) (WO-WC) X CF = DR	Contact Readings γ (mR/hr) WC X CF = DR	30 cm Readings β (mrad/hr) (WO-WC) X CF = DR	30 cm Readings γ (mR/hr) WC X CF = DR
N/A				N/A
N/A				N/A

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

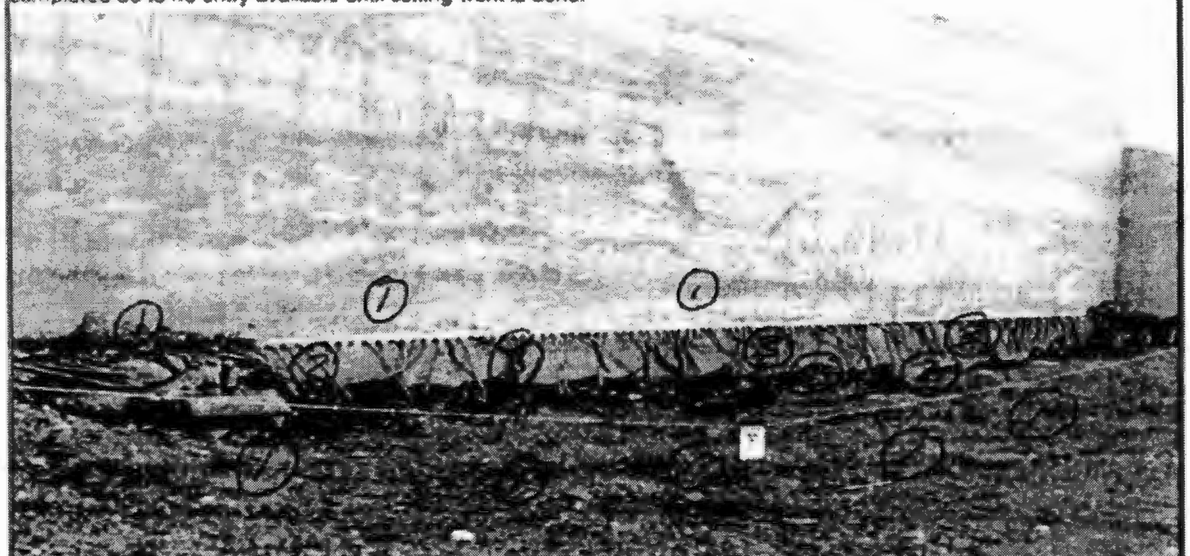
Page 1 of 2

Type of Survey ☐ Routine	☒ Work Progress		Survey # 100ISS RSR – ~~100N~~-12- 0152
RWP # / Rev. # 100ISS-12-001/01	Date 06/28/2012	Time 1000	Location 100N/109N

Description
Verification and downposting survey of CA

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07 Rev 7

Work today consisted of surveys of the area pictured below for down posting from a CA for future work. Future work is intending to cut out the rebar pictured below. The CA was posted for bio vectors which can be seen directly under the rebar. All surveys were background except for under the rebar and were sporadic. The rebar's themselves found no contamination on them. The pipe had no contamination above background on the outer surface. The internal could not be completed do to no entry available until cutting work is done.



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/43-10	0138/0163	2-21-13	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: Paul Nims 6-28-12	RCT Supervisor Name/Signature/Date 7-3-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100155-0158 ~~100N-12-0152~~ PN-6-28-12

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1	Ground surveys away from rebar	<20	7	<1000	10	<500	7	<5000	10
2	Ground surveys under rebar on brown area	<20	7	<1000	10	<500	7	6000	10
3	Rebar surveys	<20	7	<1000	10	<500	7	<5000	10
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

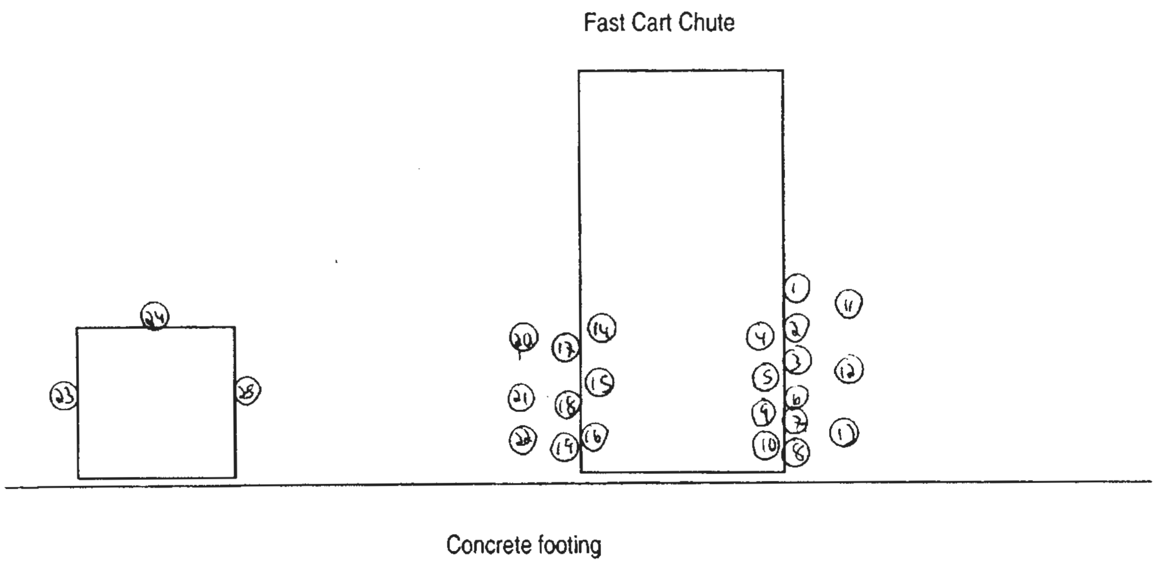
Page 1 of 2

Type of Survey ☐ Routine ☒ Work Progress			Survey # RSR – 100ISS-12-0181
RWP # / Rev. # 100ISS-12-001/01	Date 07/19/12	Time 1500	Location 100N/105N

Description
Fast Cart Chute Concrete Pours

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/7

Area's surveyed are in an HCA/ARA/RA.



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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
○	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x----x----x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3	SCLLB-0126	01/05/13	DP6BD	DTNE2-0080	04/04/13
DP6BD	DTNE2-0116	01/05/13	NA	NA	NA
2224-3	SCLLB-0167	04/04/13	NA	NA	NA

RCT Name/Signature/Date: Sean Kropla [signature] 07/19/12	RCT Supervisor Name/Signature/Date: [signature] 7-19-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-12-0181

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O	All smears except those listed below	<20	7	<1000	10	NA	NA	NA	NA
3	Wall	<20	7	2K	10				
4	Concrete	<20	7	4K	10				
6	Wall	<20	7	1500	10				
7	Wall	<20	7	2K	10				
8	Wall	<20	7	2K	10				
13	Wall	<20	7	2K	10				
15	Concrete	<20	7	1500	10				
18	Wall	308	7	7500	10				
19	Wall	<20	7	7K	10				
22	Wall	<20	7	6K	10				
23	Wall	602	7	10K	10				
25	Wall	161	7	8600	10				

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

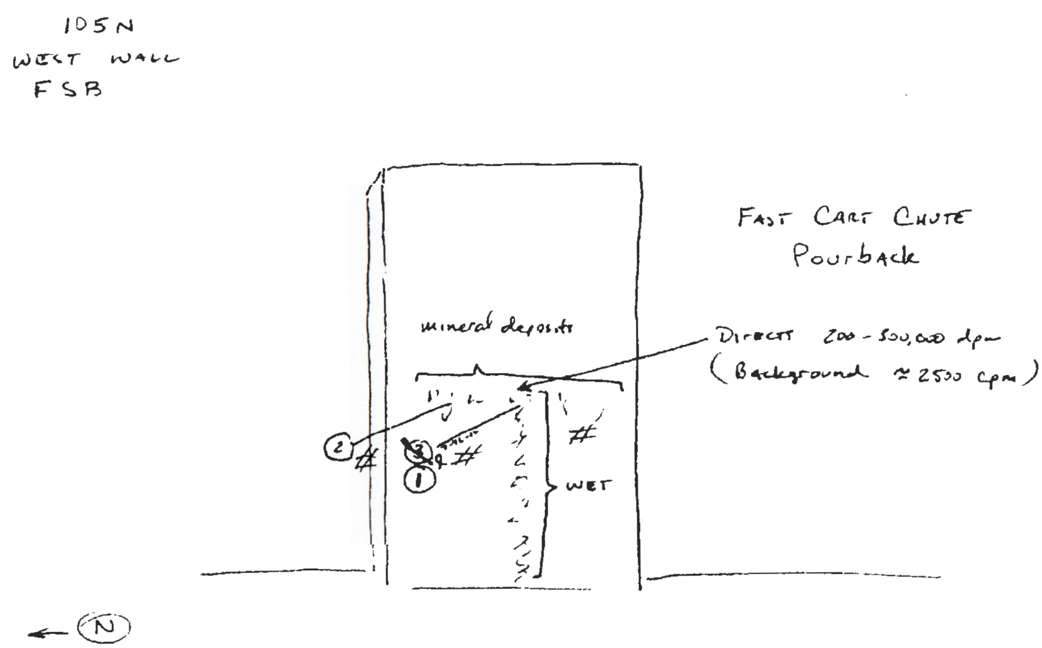
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
NA				
				NA

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine N/A ———— ☑ Work Progress			Survey # RSR – 100ISS-12-0195
RWP # / Rev. # 100ISS-12-001/ 01	Date July 26, 2012	Time 1400	Location 100N/105N FSB
Description Surveyed water seepage, Fast Cart Chute Pourback			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 R7			



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
Model 3/210T	0018/0046	2-13-13	N/A —		
2224-3/43-93	0010/0068	5-10-13	N/A —		
N/A —		—	N/A —		

RCT Name/Signature/Date: Jack Conrad, July 26th, 2012	RCT Supervisor Name/Signature/Date: John Kiel 7-26-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-12-0195

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
1	Surveyed area of seepage	<20	7	30,000	10	N/A			
2	Surveyed area of seepage	<20	7	20,000	10	N/A			
#	Surveyed area of seepage	N/A						300,000	10
N/A									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
N/A				

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 9

Type of Survey ☒ Routine **D1, W2, W4, W6, W13, W14, W15** ☒ Work Progress			Survey # RSR –100N-12-0861
RWP # / Rev. # 100N-10-013/ 04	Date 04-04-2012	Time 1610	Location 100N/ 105N FSB
Description: 105N FSB Demo Survey and Routines			
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-07 Revision 7			

105N Fuel Storage Basin Demolition Area Work Progress Survey and Associated Routines

Routines Performed:

- D1- SOP/CP contamination survey
- W2- RBA contamination survey;
- W4- CA/HCA active boundary confirmation survey;
- W6- RA/HRA radiation survey;
- W13/W14- ETD/HTD contamination survey;
- W15-CA/HCA contamination survey.

ETD and HTD smears were taken on the Komat'su ™ 800 Excavator bucket as described here and on pages 2-4.
- ETD #1, sample # 100N-12-0861-15
- ETD #2, sample # 100N-12-0861-16
- HTD #1, sample # 100N-12-0861-44
- HTD #2, sample # 100N-12-0861-45

Equipment Surveyed and Sampled:

(Technical smears on excavators taken in order inside cab (4, 1-floorboard, 2-foot controls, 3-hand controls, 4-air vents), on tracks (2, 1 each track) and on implements (2) as indicated on following pages but not graphically depicted.)

400 Komat'su™ Excavator with bucket; technical smears numbered 1-8

800 Komat'su™ Excavator with bucket; technical smears numbered 9-16

1100 Komat'su™ Excavator with hammer; technical smears numbered 17-24

375 CAT™ Excavator with hammer; technical smears numbered 25-32

Air Samples:

Southwest Boundary:
AIR-100N-12-1002

West Boundary:
AIR-100N-12-1003

Northwest Boundary, Load-out Area:
AIR-100N-12-1004

North Boundary, Load-out Area:
AIR-100N-12-1005

Northeast Boundary:
AIR-100N-12-1006

East Boundary:
AIR-100N-12-1007

Scaffold Tarping Area RBA:
AIR-100N-12-1008

RCT's Work Area HRA/HCA/ARA:
AIR-100N-12-1009

- Shaded areas on page 3 approximate the spoils pile where material is demolished and staged prior to being loaded into ERDF containers, (map is not to scale).
- RCT's entered the FSB to perform routines as well as a thorough characterization survey of the FSB footprint for closure, see [illegible]
- [illegible] of personnel entering the uncharacterized portion of the HRA on foot is achieved by the use of a telemetric dosimeter system on all personnel entering the area.
- Dose rates around the shaded area spoils pile were obtained with the listed extender and/or RO-20 listed below, and are as indicated.
- A survey of the interior of all excavators' cabs was performed to satisfy diminished PPE requirements for the operators during operation of the equipment, and no removable contamination was found in any of the excavator cabs.
- The work area air sample could not be located within 6 feet of the work at all times for all personnel entries, therefore all workers wore lapel breathing zone samplers during the work evolutions.

CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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
○	Technical Smear	#	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 (mRem/hr)	\	Micro Rem (μR/hr)	SCA Soil Contamination Area; Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2224-3/43-93	**SCLLB-0003/DTLLP-0115**	**10-03-2012**	**RO-20**	**ICEB4-1295**	**06-15-2012**
WB Johnson	**XEWB2-0032**	**05-29-2012**	**Ludlum Model 3**	**CMLL2—0007**	**09-23-2012**
WB Johnson	**XEWB2-0014**	**05-20-2012**	**HP210-T**	**DTEB5-0180**	**01-10-2013**

RCT Name/Signature/Date: JB Holcombe/ /04-04-2012 BJ Massie/ /04-04-2012 GL Eppling/ /04-04-2012	RCT Supervisor Name/Signature/Date: 4-6-12 Ron Wilson

WCH FM R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 9

Survey # RSR - 100N-12-0861

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O, T, #	All smears, transferability, & directs except below	< 20	7	< 1,000	10	< 500	7	< 5,000	10
T, # - 1	Soil in SCA/RBA/RA west HCA/ARA boundary	< 20	7	< 1,000	10	< 500	7	140,000	10
5	Smear on 400 excavator track	< 20	7	11,810	10	NA	NA	NA	NA
7	Smear on 400 excavator bucket	< 20	7	49,710	10	NA	NA	NA	NA
8	Smear on 400 excavator bucket	400	7	21,440	10	NA	NA	NA	NA
13	Smear on 800 excavator track	35	7	1,034	10	NA	NA	NA	NA
14	Smear on 800 excavator track	91	7	9,410	10	NA	NA	NA	NA
15	Smear on 800 excavator bucket, ETD-1, 100N-12-0861-15	182	7	14,350	10	NA	NA	NA	NA
16	Smear on 800 excavator bucket, ETD-2, 100N-12-0861-16	189	7	12,370	10	NA	NA	NA	NA
21	Smear on 1100 excavator track	112	7	7,550	10	NA	NA	NA	NA
24	Smear on 1100 excavator hammer	100	7	6,730	10	NA	NA	NA	NA
33	Smear on spoils pile	100	7	3,100	10	NA	NA	NA	NA
34	Smear on spoils pile	1,330	7	4,500	10	NA	NA	NA	NA

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

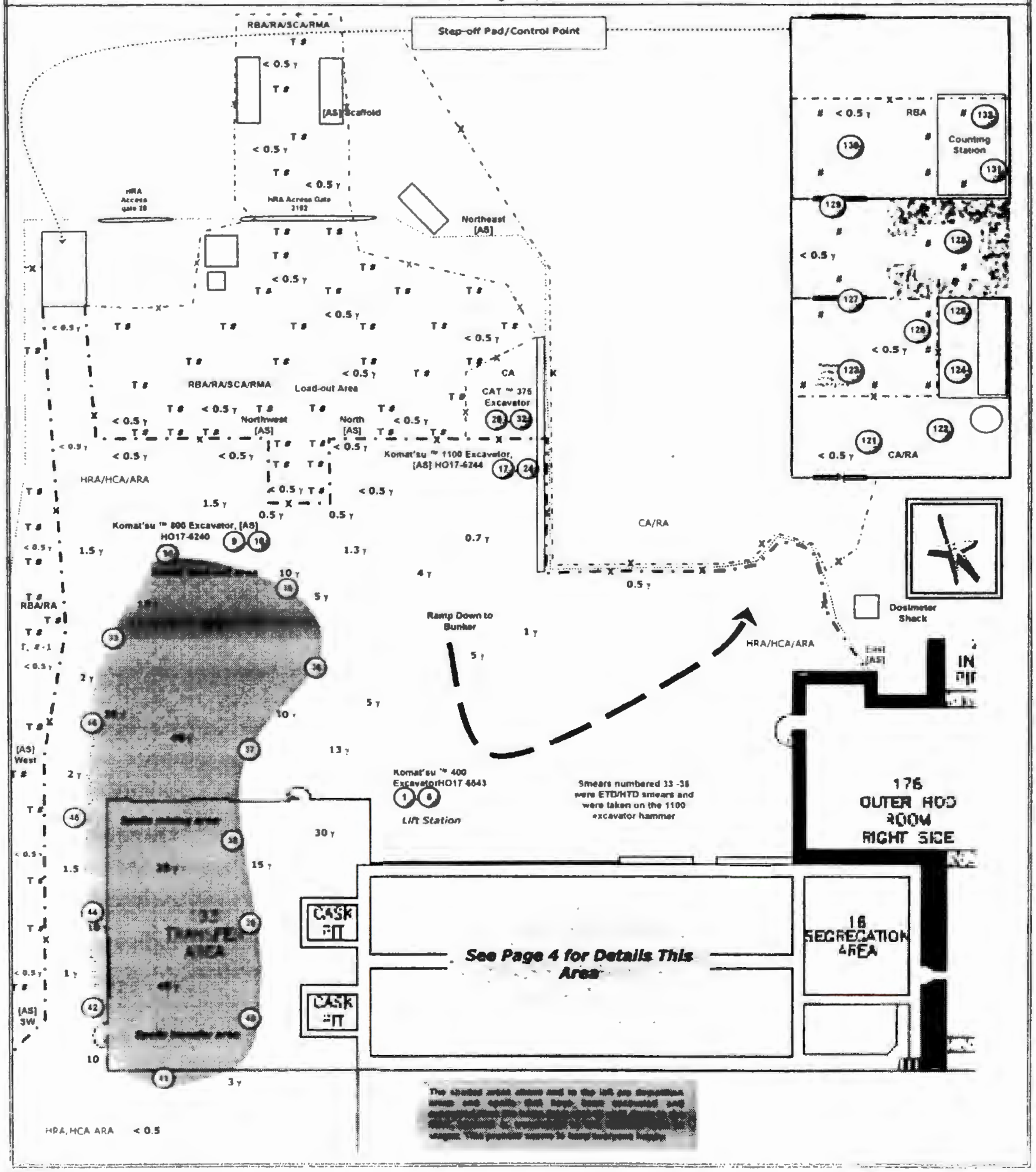
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
Ground on ramp above north cask pit	NA	1(R/hr)	NA	200
South basin footing side	NA	300	NA	130
South basin footing side	NA	150	NA	70
Southwest corner of exam pit, footing	NA	250	NA	104
North basin side of footing	NA	100	NA	70
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

WCH TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: 3 of 9 Survey # RSR-100N-12-0861

Additional Information
(Drawing, Map, Etc.)

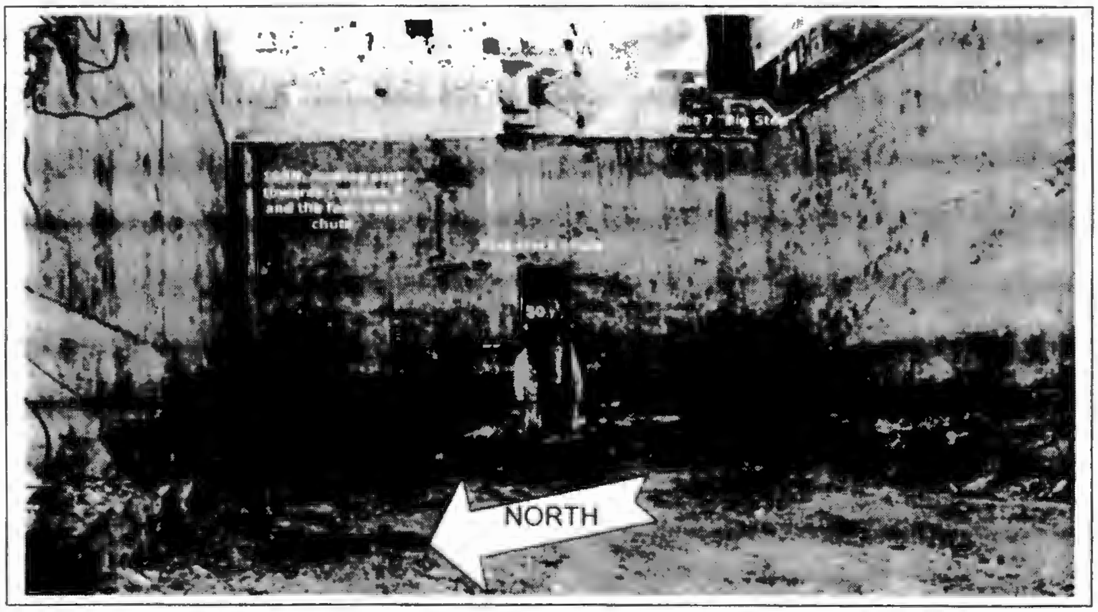


WCH TM-R006c (03/15/2006)

RADIOLOGICAL SURVEY RECORD (continuation)	Page: 5 of 9 Survey # RSR-100N-12-0861

Additional Information
(Drawing, Map, Etc.)

105N FSB



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

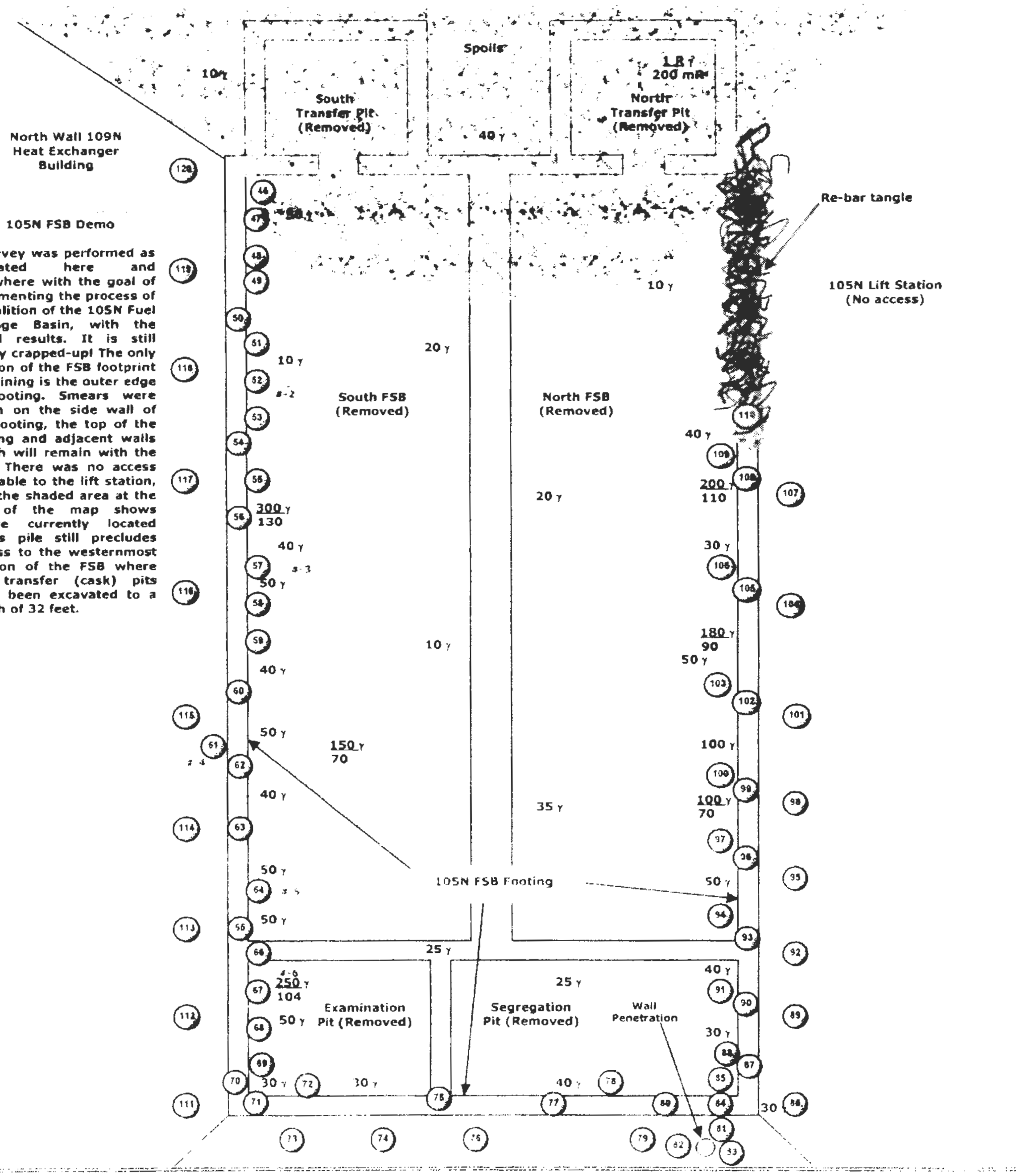
RADIOLOGICAL SURVEY RECORD (continuation)	Page: 4 of 9 Survey # RSR-100N-12-0861

Additional Information

(Drawing, Map, Etc.)

105N FSB Demo

A survey was performed as indicated here and elsewhere with the goal of documenting the process of demolition of the 105N Fuel Storage Basin, with the listed results. It is still pretty crapped-up! The only portion of the FSB footprint remaining is the outer edge or footing. Smears were taken on the side wall of the footing, the top of the footing and adjacent walls which will remain with the SSE. There was no access available to the lift station, and the shaded area at the top of the map shows where currently located spoils pile still precludes access to the westernmost portion of the FSB where the transfer (cask) pits have been excavated to a depth of 32 feet.



WCH DM 2005 (03/15/2006)

RADIOLOGICAL SURVEY RECORD (continuation) **Contamination**	Page: 6 of 9 Survey # RSR-100N-12-0861

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
35	Smear on spoils pile	1,351	7	41,490	10	NA	NA	NA	NA
36	Smear on spoils pile	581	7	18,000	10	NA	NA	NA	NA
37	Smear on spoils pile	1630	7	64,860	10	NA	NA	NA	NA
38	Smear on spoils pile	586	7	19,000	10	NA	NA	NA	NA
39	Smear on spoils pile	1183	7	42,200	10	NA	NA	NA	NA
40	Smear on spoils pile	161	7	7,220	10	NA	NA	NA	NA
41	Smear on spoils pile	< 20	7	< 1,000	10	NA	NA	NA	NA
42	Smear on spoils pile	217	7	6,100	10	NA	NA	NA	NA
43	Smear on spoils pile	100	7	31,000	10	NA	NA	NA	NA
44	Komat'su™ 800 bucket HTD-1, #100N-12-0861-44	140	7	4,390	10	NA	NA	NA	NA
45	Komat'su™ 800 bucket HTD-2, #100N-12-0861-45	231	7	4,119	10	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1]Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above

WCH-TM R0061 (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation) Contamination	Page: 7 of 9 Survey # RSR-100N-12-0861

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
46	Smear on footing side	2,200	7	157,000	10	NA	NA	NA	NA
47	Smear on footing side	480	7	22,000	10	NA	NA	NA	NA
48	Smear on footing side	518	7	18,000	10	NA	NA	NA	NA
49	Smear on footing side	590	7	30,000	10	NA	NA	NA	NA
50	Smear on footing top	175	7	11,000	10	NA	NA	NA	NA
51	Smear on piece of concrete	371	7	31,000	10	NA	NA	NA	NA
# -2,52	Smear on footing side	580	7	38,000	10	NA	NA	2 M	10
53	Smear on footing side	300	7	22,000	10	NA	NA	NA	NA
54	Smear on footing top	300	7	18,000	10	NA	NA	NA	NA
55	Smear on footing side	3,200	7	141,000	10	NA	NA	NA	NA
56	Smear on footing top	420	7	28,000	10	NA	NA	NA	NA
# -3,57	Smear on footing side	490	7	47,000	10	NA	NA	> 10 M	10
58	Smear on footing side	320	7	26,000	10	NA	NA	NA	NA
59	Smear on footing side	1,700	7	350,000	10	NA	NA	NA	NA
60	Smear on footing top	750	7	40,000	10	NA	NA	NA	NA
# -4,61	Smear on 109N north wall	6,700	7	296,000	10	140 K	7	> 10 M	10
62	Smear on footing top	1,300	7	50,000	10	NA	NA	NA	NA
63	Smear on footing top	1,100	7	44,000	10	NA	NA	NA	NA
# -5,64	Smear on footing side	670	7	28,000	10	NA	NA	2.5 M	10
65	Smear on footing top	2,300	7	111,000	10	NA	NA	NA	NA
66	Smear on footing side	1,000	7	330,000	10	NA	NA	NA	NA
# -6,67	Smear on footing side	4,200	7	296,000	10	49 K	7	2.5 M	10
68	Smear on footing side	680	7	51,000	10	NA	NA	NA	NA
69	Smear on footing side	4,600	7	280,000	10	NA	NA	NA	NA
70	Smear on footing top	620	7	37,000	10	NA	NA	NA	NA

[1]Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above

WCH-TM-R005f (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation)

Contamination

Page: 8 of 9

Survey # RSR-100N-12-0861

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
71	Smear on footing side	19,000	7	315,000	10	NA	NA	NA	NA
72	Smear on black mastic	2,900	7	56,000	10	NA	NA	NA	NA
73	Smear on 105N west wall	740	7	31,000	10	NA	NA	NA	NA
74	Smear on black mastic	1,700	7	61,000	10	NA	NA	NA	NA
75	Smear on footing top	1,800	7	161,000	10	NA	NA	NA	NA
76	Smear on 105N west wall	570	7	100,000	10	NA	NA	NA	NA
77	Smear on footing top	400	7	17,000	10	NA	NA	NA	NA
78	Smear on footing side	540	7	22,000	10	NA	NA	NA	NA
79	Smear on 105N west wall	4,300	7	135,000	10	NA	NA	NA	NA
80	Smear on footing top	530	7	325,000	10	NA	NA	NA	NA
81	Smear on 105N west wall	1,800	7	60,000	10	NA	NA	NA	NA
82	Smear on 105N west wall, pipe	1,300	7	36,000	10	NA	NA	NA	NA
83	Smear on 105N west wall, pipe	570	7	20,000	10	NA	NA	NA	NA
84	Smear on footing top	840	7	15,000	10	NA	NA	NA	NA
85	Smear on footing side	600	7	20,000	10	NA	NA	NA	NA
86	Smear on 105N north wall	3,000	7	162,000	10	NA	NA	NA	NA
87	Smear on footing top	1,100	7	60 000	10	NA	NA	NA	NA
88	Smear on footing side	790	7	27 000	10	NA	NA	NA	NA
89	Smear on 105N north wall	2,400	7	175,000	10	NA	NA	NA	NA
90	Smear on footing top	710	7	23,000	10	NA	NA	NA	NA
91	Smear on footing side	770	7	68.000	10	NA	NA	NA	NA
92	Smear on 105N north wall	2,300	7	81,000	10	NA	NA	NA	NA
93	Smear on footing top	780	7	38,000	10	NA	NA	NA	NA
94	Smear on footing side	24.000	7	561,000	10	NA	NA	NA	NA
95	Smear on 105N north wall	3,800	7	155,000	10	NA	NA	NA	NA

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above

WCH-TM R0C6F (06/30/2009)

RADIOLOGICAL SURVEY RECORD (continuation) Contamination	Page: 9 of 9 Survey # RSR-100N-12-0861

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
96	Smear on top of footing	730	7	26,000	10	NA	NA	NA	NA
97	Smear on side of footing	8,600	7	230,000	10	NA	NA	NA	NA
98	Smear on 105N north wall	2,400	7	100,000	10	NA	NA	NA	NA
99	Smear on top of footing	830	7	33,000	10	NA	NA	NA	NA
100	Smear on side of footing	2,100	7	173,000	10	NA	NA	NA	NA
101	Smear on 105N north wall	2,900	7	91,000	10	NA	NA	NA	NA
102	Smear on top of footing	900	7	32,000	10	NA	NA	NA	NA
103	Smear on side of footing	1,300	7	105,000	10	NA	NA	NA	NA
104	Smear on 105N north wall	730	7	65,000	10	NA	NA	NA	NA
105	Smear on top of footing	550	7	23,000	10	NA	NA	NA	NA
106	Smear on side of footing	950	7	44,000	10	NA	NA	NA	NA
107	Smear on 105N north wall	620	7	46,000	10	NA	NA	NA	NA
108	Smear on top of footing	930	7	23,000	10	NA	NA	NA	NA
109	Smear on side of footing	1,700	7	132,000	10	NA	NA	NA	NA
110	Smear on top of broken wall	2,300	7	76,000	10	NA	NA	NA	NA
111	Smear on 109N north wall	6,300	7	111,000	10	NA	NA	NA	NA
112	Smear on 109N north wall	1,000	7	80,000	10	NA	NA	NA	NA
113	Smear on 109N north wall	1,000	7	107,000	10	NA	NA	NA	NA
114	Smear on 109N north wall	2,400	7	115,000	10	NA	NA	NA	NA
115	Smear on 109N north wall	3,600	7	186,000	10	NA	NA	NA	NA
116	Smear on 109N north wall	8,300	7	319,000	10	NA	NA	NA	NA
117	Smear on 109N north wall	580	7	18,000	10	NA	NA	NA	NA
118	Smear on 109N north wall	1,500	7	28,000	10	NA	NA	NA	NA
119	Smear on 109N north wall	670	7	17,000	10	NA	NA	NA	NA
120	Smear on 109N north wall	270	7	16,000	10	NA	NA	NA	NA

[1]Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above

WCH-FM-R006f (06/30/2009)

RADIOLOGICAL SURVEY RECORD

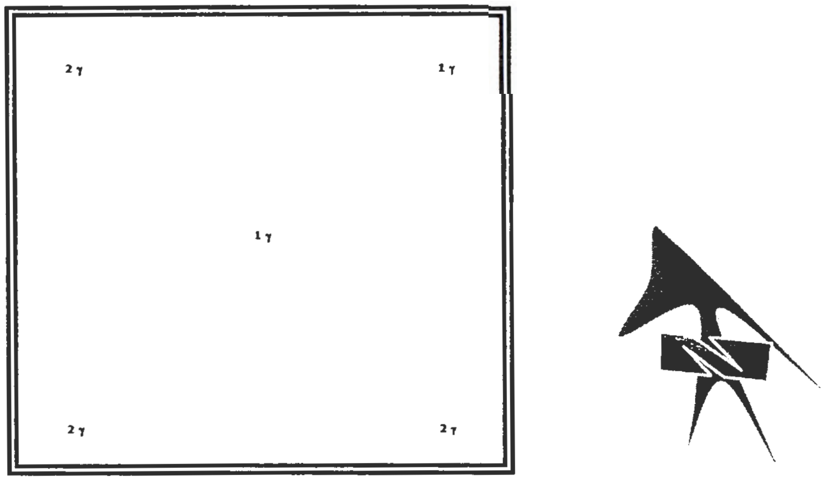
Page 1 of 2

Type of Survey ☐ Routine	☒ Work Progress		Survey # RSR –100N-12-1359
RWP # / Rev. # 100N-10-013/05	Date 04-26-2012	Time 1600	Location 100N/ 105N Sump

Description:
Survey of Valve Pit Sump

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/ Revision 7

A dose rate survey was performed of the Sump remains north of 109N with the below listed results. Dose rates are general area and were performed with a telescoping dose rate meter as access to the sump was unavailable due to subsidence risk.



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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

○	Technical Smear	#	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 (mRem/hr)	Δ	Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x----x----x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
Ludlum Model 78	**XELL2-0002**	**08-10-2012**	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: GL Eppling/ [signature] /04-26-2012	RCT Supervisor Name/Signature/Date: 5-31-12 [signature]

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100N-12-1359

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] Unless stated otherwise in the "Feferences" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR

WCH-TM-R006a (06/30/2009)

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey: ☒ Routine W2, W3 ☒ Work Progress			Survey #: RSR – 100N-12-2224
RWP # / Rev. #: 100N-10-001/ 04	Date: 10-16-2012	Time: 1400	Location: 100N/ FSB

Description: Routine Survey and Re-post of RBA Ramp to FSB

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)

TA-07-SR-07/ Revision 7

W2, W3 Routine Survey

The ramp to the FSB is posted RBA for both dose and contamination control. Background levels entering the below grade portion of the ramp exceed 1200 CPM, rendering direct survey data less than dramatically significant. Dose rates, technical smears and transferability surveys were also performed to satisfy routine W2 and W3 requirements.

Re-post Survey

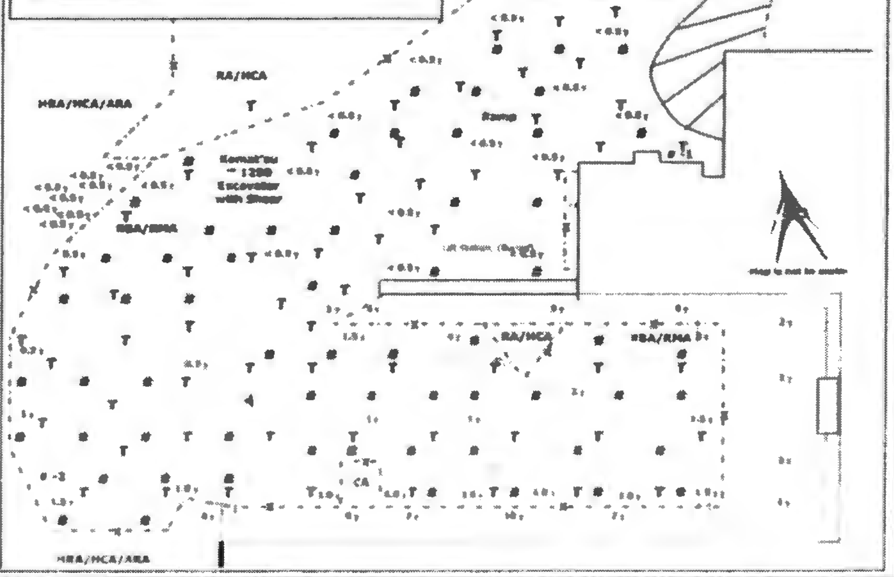
In addition to the routine surveys, entry was made with the goal in mind of removing the RBA for contamination control posting, while leaving the RBA for dose control posting in place, along with the RMA/SCA/URMA posting currently encompassing that area.

Towards this end a shielded GM probe was used to perform direct surveys of the ground, with particular attention being paid to the HCA boundary and numerous transferability surveys were performed as personnel transmigrated the area. These direct surveys were accompanied by more direct surveys with dual channel probes surveying for alpha contamination, (see #-2 on survey map). Technical smears were taken on items greater than 1 inch in diameter, (approximately 60 smears, not depicted for clarity), and no removable contamination above WCH RC-200 Appendix A values was found.

At the location where #-1 was performed, a technical smear was taken resulting in approximately 400 dpm/100cm² $\beta\gamma$, < 20 dpm/100cm² α removable contamination. This area will remain inside a posted RBA.

Work Progress Survey

A Johnson Extender was used to survey an area containing grout debris from the Fuel Storage Basin dome project, (long ago completed), and no significant dose was found there. Additionally, general area dose rates were checked and confirmed at the RA boundary although no entry was made to the radiation area.



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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
○ Technical smear	# [illegible]	M Large Area Wipe	T Transferability	General Area Dose Rates / Meter Reading	All radiation readings are / dose rates in units of mR/hr unless otherwise indicated	Contact [illegible]	N [illegible]	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2224-3/43-93	SCLLB-0099/DTLLP-0044	7-26-13 07-26-2013	Johnson Extender	XEWB2-0014	11-17-2012
RO-20	ICEB4-0586	05-09-2013	L-2224-1/43-93	SCLL9-0003/DTLLP-0115	9-6-13 09-06-2013
Lud Mod 3	CMLL2-0018	12-12-2012	HP-210T	DTEB5-0046	02-13-2013

RCT Name/Signature/Date: S. Kropla/ [signature] /10-16-2012 BJ Massie/ [signature] /10-16-2012 CR Maynard/ [signature] /10-16-2012 GL Eppling/ [signature] /10-16-2012 JA Conrad/ [signature] /10-16-2012	RCT Supervisor Name/Signature/Date: K B Burns [signature] 10-17-12

WCH FM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey #: RSR -100N-12-2224

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O, T, #	All smears, transferability, directs except below	< 20	7	< 1,000	10	< 500	7	< 5,000	10
O, # - 1	Ledge on north side of reactor	< 20	7	< 1,000	10	< 500	7	197,440	10
O, # - 2	Ground by west boundary	< 20	7	< 1,000	10	4,550	7	230,000	10
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

MCH-FM-R0064 (06/30/2009)

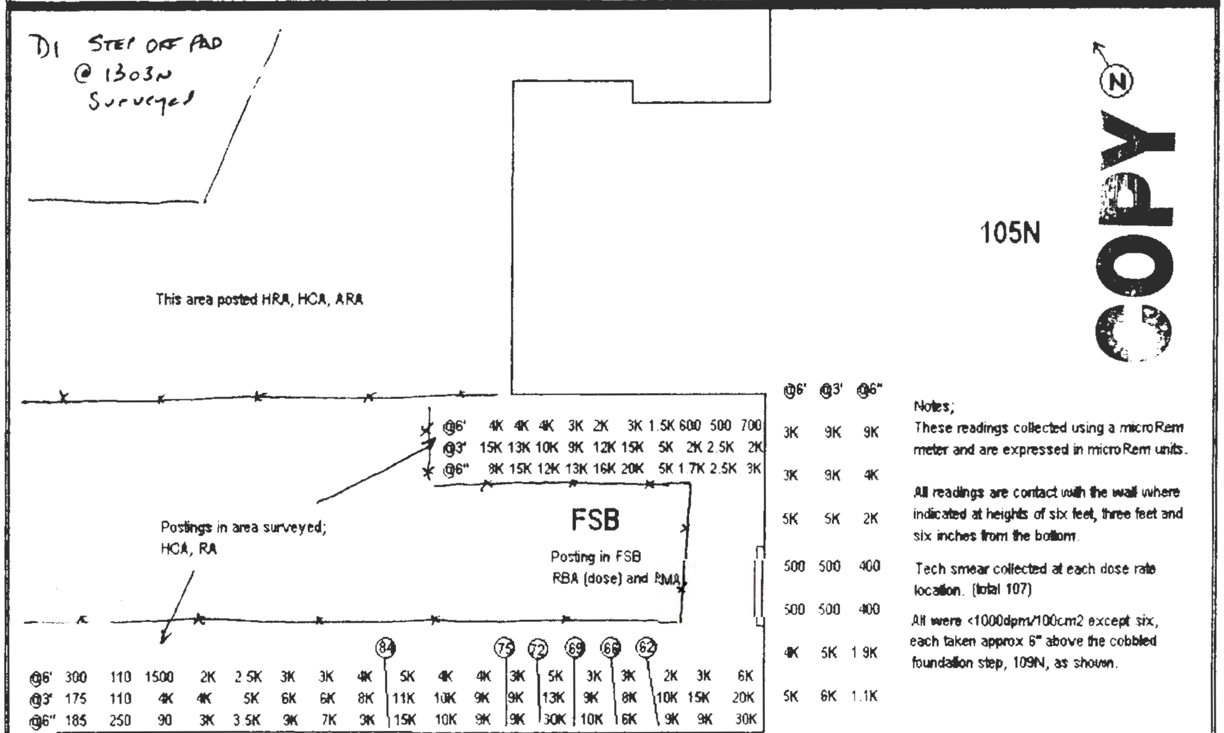
RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☑ Routine D1	☑ Work Progress		Survey # RSR – 100N-12-2302
RWP # / Rev. # 100N-10-013 06	Date October 25th, 2012	Time 1600	Location 100N 105N FSB

Description
Survey of FSB walls

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07 R7



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

○ Technical Smear	# 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 (mRem/hr)	\ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
RO20	1506	5-9-13	2360	0100	6-3-13
LMBC3	0111	10-16-13	43-93	0211	6-3-13
N/A			N/A		

RCT Name/Signature/Date: Jack Conrad, October 25th, 2012	RCT Supervisor Name/Signature/Date: K.C. Burns / [signature] / 10-31-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100N-12-2302

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
62	Smear taken on wall, 6" height	<20	7	1500	10	N/A			
66	Smear taken on wall, 6" height	35	7	1500	10	N/A			
69	Smear taken on wall, 6" height	<20	7	1500	10	N/A			
72	Smear taken on wall, 6" height	42	7	3000	10	N/A			
75	Smear taken on wall, 6" height	42	7	2000	10	N/A			
84	Smear taken on wall, 6" height	21	7	1500	10	N/A			
O	Smears taken on wall elsewhere	<20	7	<1000	10	N/A			
N/A									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
N/A				

WCH-TM-R006a (06/30/2009)

Attachment 18

Agreement Between DOE and Ecology - 109-N Below-Grade Structures (CCN 166796)

166796

^WCH Document Control

From:	McCurley, Clay D
Sent:	Thursday, July 26, 2012 6:59 AM
To:	^WCH Document Control
Cc:	Trevino, Ruben A; Flannery, Michael (Mike) D; Warren, David J; Landon, Roger J; Bigby, Daniel A; Allen, Mark E
Subject:	Agreement Between DOE-RL and Ecology for 109-N Below-Grade Structures
Attachments:	Agreement Between DOE and Ecology - 109-N Below-Grade Structures.doc

Please print the attachment (in color), attach to this email, and chron as an agreement between DOE/RL and Ecology that various below-grade structures associated with the 109-N Heat Exchanger Building will remain in place. Also, please let me know which chron number has been assigned.

Thanks. Clay

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Wednesday, July 25, 2012 4:30 PM
To: McCurley, Clay D; Guercia, Rudolph F (Rudy) (rudolph.guercia@RL.gov)
Subject: FW: Agreement Between DOE-RL and Ecology for 109-N Below-Grade Structures

Clay and Rudy,

Ecology approves this action as written. As Rudy states, please be sure that this decision is properly documented.

Rick Bond
Facility Transition Project Manager

Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Blvd.
Richland, WA 99354
Mail Stop: HO-57
Phone: (509) 372-7885
Fax: (509) 372-7971
Email: fbon461@ecy.wa.gov

From: Guercia, Rudolph F (Rudy) [mailto:rudolph.guercia@rl.gov]
Sent: Wednesday, July 25, 2012 5:18 AM
To: McCurley, Clay D; Bond, Rick (ECY)
Subject: FW: Agreement Between DOE-RL and Ecology for 109-N Below-Grade Structures

This looks fine to me. If Rick approves, make sure you place this in the FSCF

R. F. Guercia, Field Engineering
U.S. Dept. of Energy, Richland Operations Office
PH: (509) 376-5494
Fax: (509) 373-0726

Facility Status Change Form

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Monday, July 23, 2012 3:58 PM
To: Bond, Rick; Guercia, Rudolph F (Rudy)
Subject: Agreement Between DOE-RL and Ecology for 109-N Below-Grade Structures

Rick/Rudy. By responding to this email, please let me know if DOE and Ecology concur with the attached subject document. If so, I will chron the document and attach it, along with your concurrence emails, to the Facility Status Change Form for the 109-N Heat Exchanger Building. Contact me if you have any questions.

Thanks.
Clay

<<Agreement Between DOE and Ecology - 109-N Below-Grade Structures.doc>>

109-N Below-Grade Structures to Remain

July 19, 2012

This white paper documents an agreement between DOE/RL and Ecology to leave in place various below-grade portions of the 109-N Heat Exchanger Building including the west, south and east below-grade perimeter foundation walls of the 109-N Heat Exchanger Building, six (6) drive turbine foundations (pedestals) adjacent the wall shared with the 105-N Reactor Facility, and the foundation of former rooms 33 and 34 near the southeast corner. It also documents an agreement to leave in place some radiological contamination inside pipes/penetrations at two locations at the base of the east below grade perimeter foundation. Activity levels inside these penetrations most likely exceed the cleanup criteria specified in the *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities*, August 2009, (DOE/RL-2005-43, Rev. 1) and these areas of the wall will be deferred to a future remedial action. These below grade structures are described in more detail below.

In 2009, during demolition activities to reduce the footprint of the 109-N Heat Exchanger Building, it was determined that parts of the building below the bottom floor would likely be uncontaminated and could potentially be left in place in accordance with provisions in the *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities*, August 2009, (DOE/RL-2005-43, Rev. 1). Leaving these below-grade structures in place during demolition would significantly reduce the quantity of material requiring excavation, transport and disposal, provide support for the fill material around the SSE, and reduce the amount of clean fill needed to backfill the excavation to original grade.

The shaded area in Figure 1 shows the area of the 109-N that was demolished above and below grade. Figure 2 depicts the general plan that was followed to leave the below-grade foundation and structures in place. This plan was discussed with DOE and Ecology prior to demolition.

The photographs in Figures 3 and 4 document the "as left" condition of the east and south side excavations on September 2, 2009 and September 15, 2009, respectively. The turbine drive foundations can be seen in Figure 4 adjacent the wall shared with the 105-N Reactor Building. The photograph in Figure 5 documents the "as left" condition of the west side foundation wall. Visual inspections of the below-grade foundation walls identified no unusual staining or anomalies. Documented radiological screening surveys (RSRs) reviewed for these areas identified no contamination outside areas that were sealed with grout plugs or pour backs (e.g., pipes, penetrations). Forms were set and concrete pourbacks were established to seal all pipe penetrations.

For the foundation of rooms 33 and 34, radiological contamination had previously been identified on the floor of the sump in room 33. The photographs in Figures 6 and 7 document the "as left" condition of the foundation and the "as left" condition of the sump in room 33 after its floor had been demolished, loaded out, and downposted. Internally contaminated pipes from outside the foundation wall tied into the east wall of the sump and, as shown in Figure 7, the openings were plugged with grout or covered with concrete pourbacks. Removal of the pipes themselves would be performed later during FRs remediation of WIDS sites 100-N-61:2, 100-N-62, 100-N-64:2 and 100-N-84:4 during which time it was expected that FR would be able to pull the contaminated pipes horizontally out of the penetration sleeves. This strategy was repeated for another set of pipes that penetrated the wall farther to the north as shown in Figure 8.

Figures 9 through 14 document the GPERS surveys inside the building footprint at the end of demolition activities in 2009. The surveys identified no radiological contamination greater than two (2) times background concentrations for alpha and beta. The excavations were then inspected by Ecology and backfilled to facilitate construction of the SSE.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

July 19, 2012

More than two years later, as part of WIDS site remediation, FR excavated around the outside of the south and east below-grade perimeter foundation walls thus exposing their outer sides. The photographs in Figures 15 and 16 document their appearance. Visual inspections of the outer sides of the walls identified no unusual staining or anomalies and, as shown in Figures 17 and 18, radiological screening surveys identified no detectable radiological contamination.

As planned, FR attempted to pull the contaminated pipes horizontally out of the penetration sleeves but years of corrosion prevented their removal. The pipes had to be sheared at the wall face leaving short sections still embedded in the walls. The "as left" radiological contamination of the pipes/penetrations is documented in Figure 19. The only option now available for removal is hammering and removing the contaminated areas out of the wall. This option is undesirable in that it would likely spread contamination from the pipes/penetrations to areas of the excavation recently cleaned and could jeopardize the integrity of the fill material compacted between the wall and SSE. As a result, additional fixative will be applied to the inside of the pipe/penetrations prior to backfill and the areas will be deferred to a future remedial action.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

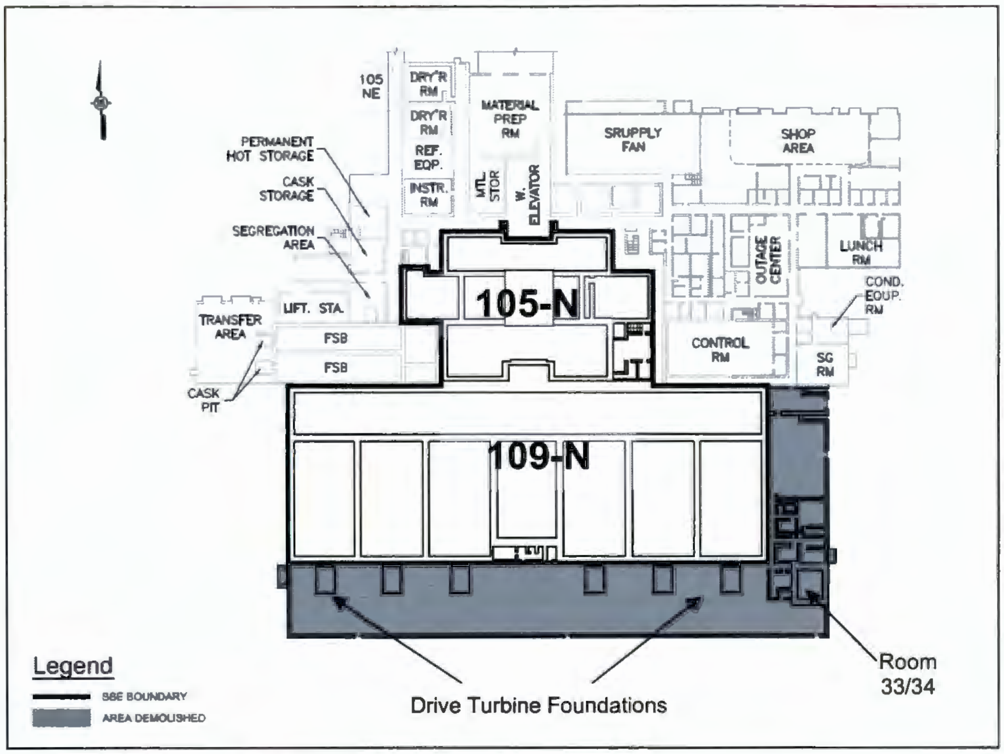


Figure 1. Area (shaded) demolished above and below grade.

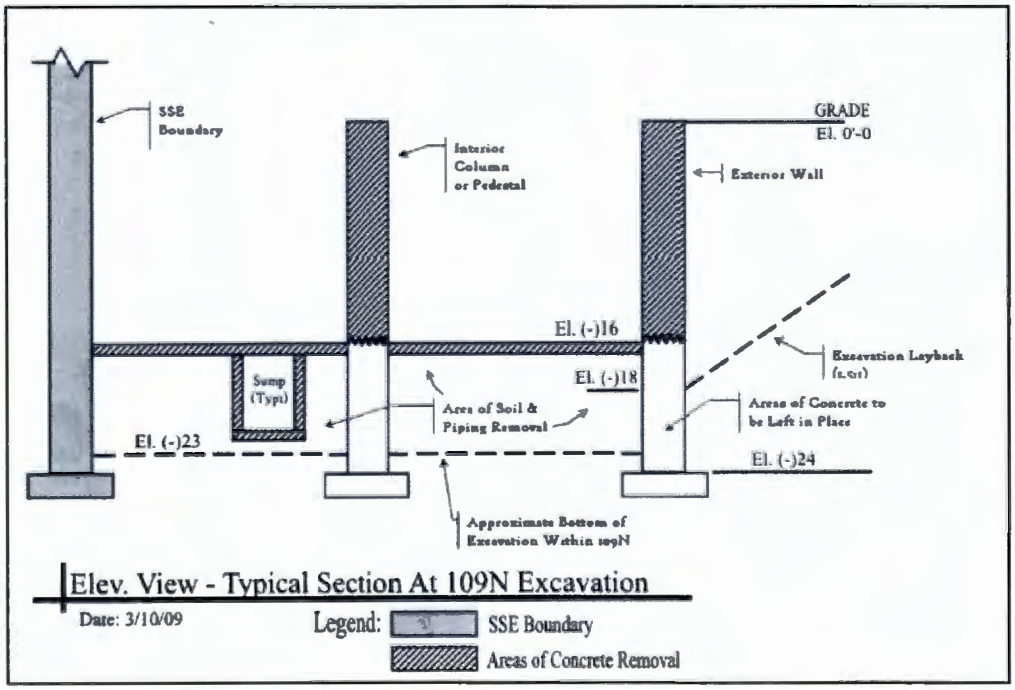


Figure 2. Concrete foundations to remain below grade after demolition.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

Figure 3. View of below grade foundation on east side of 109-N on (facing north).

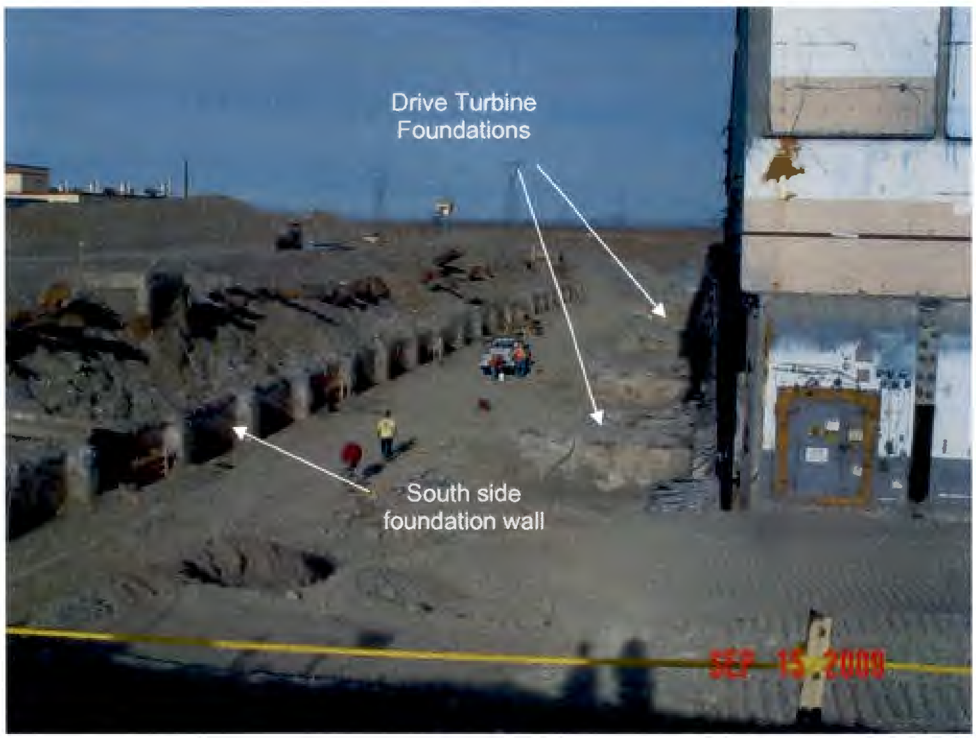


Figure 4. View of below grade foundation on south side of 109-N (facing west).

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

Figure 5. View of below grade foundation on west side of 109-N (facing north) on 08/18/2009.

Figure 6. View of room 33/34 foundation (facing south) on 08/18/2009.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

Figure 7. View of former sump in room 33.

Figure 8. View of pipe penetrations grouted near northeast corner of below grade wall.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

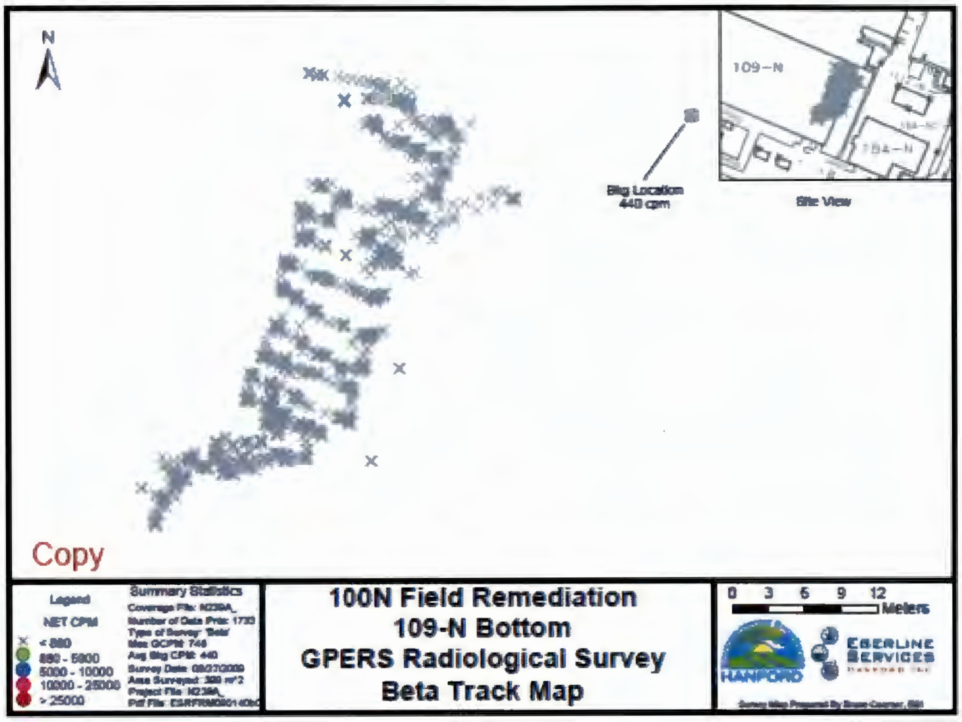


Figure 9. GPERS Beta Track Map of east side of 109-N.

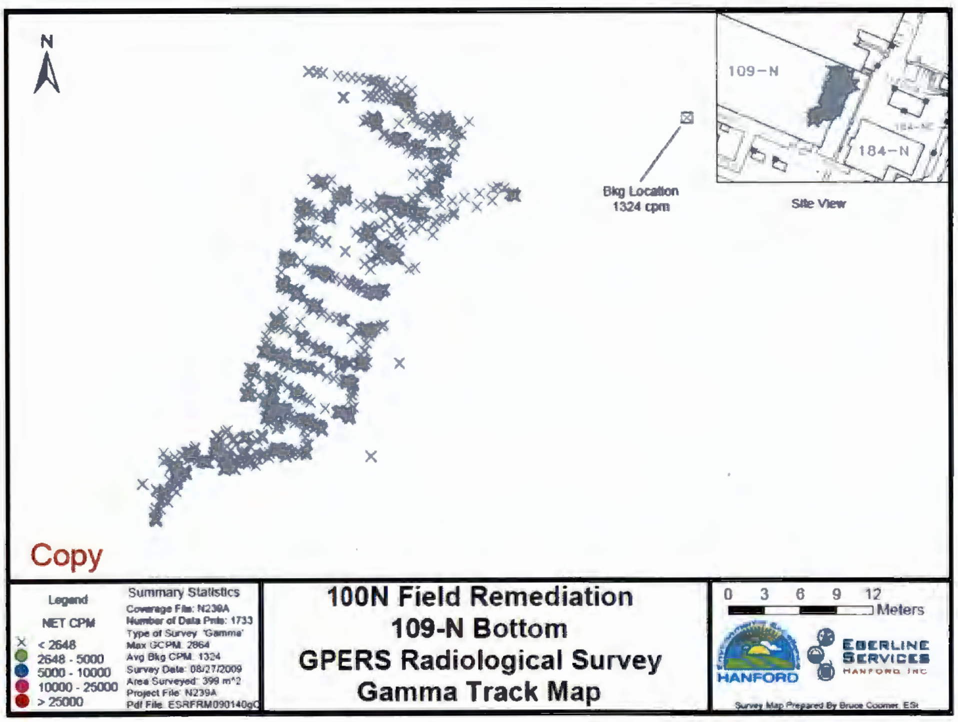


Figure 10. GPERS Gamma Track Map of east side of 109-N.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

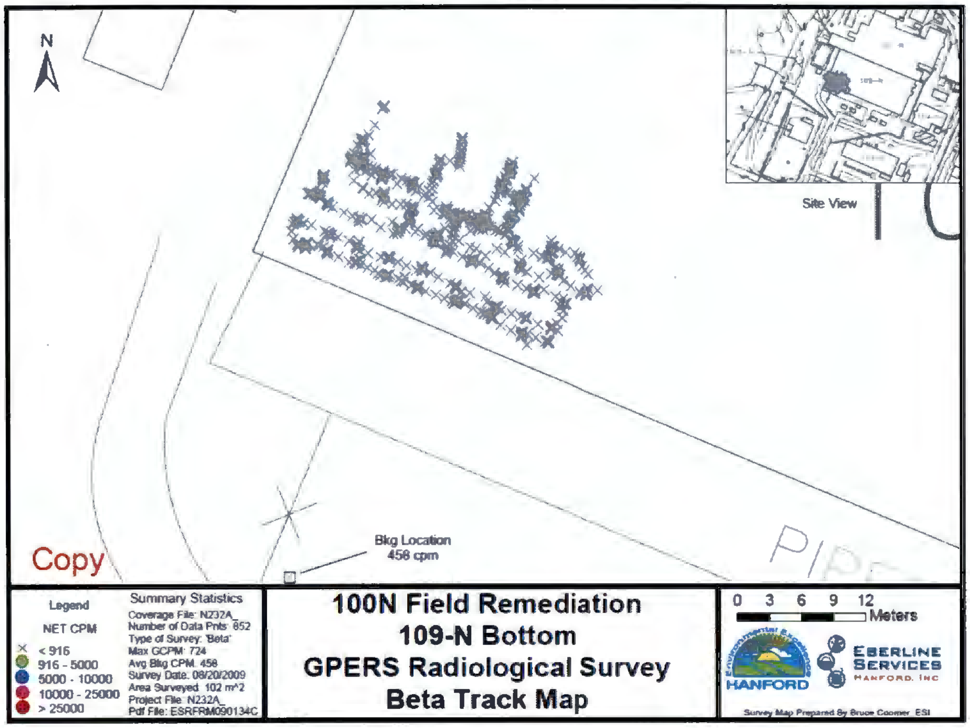


Figure 11. GPERS Beta Track Map of south side of 109-N.

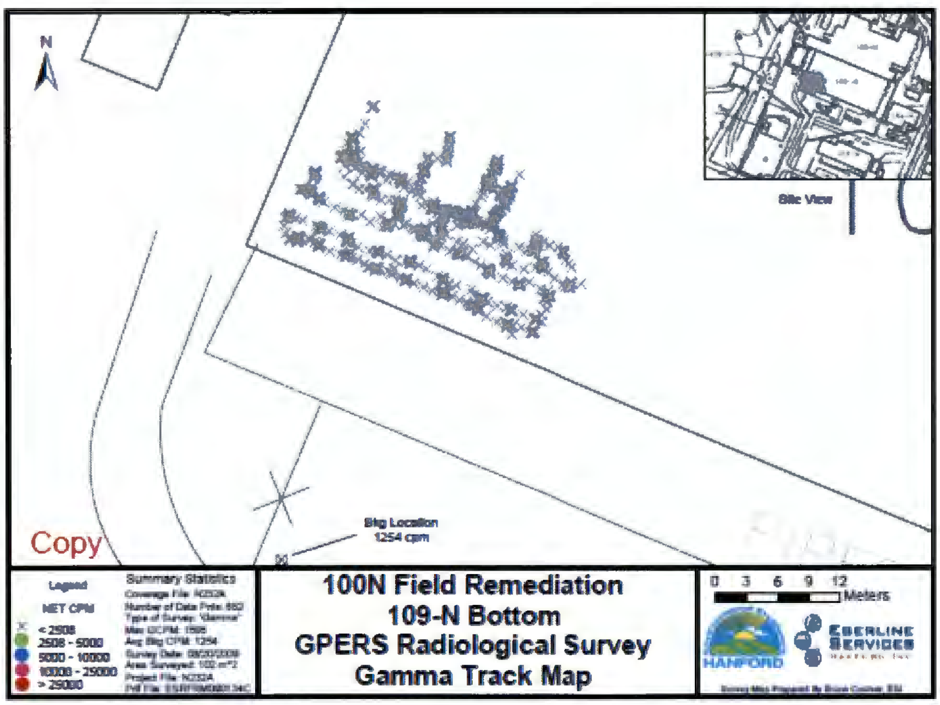


Figure 12. GPERS Gamma Track Map of south side of 109-N.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

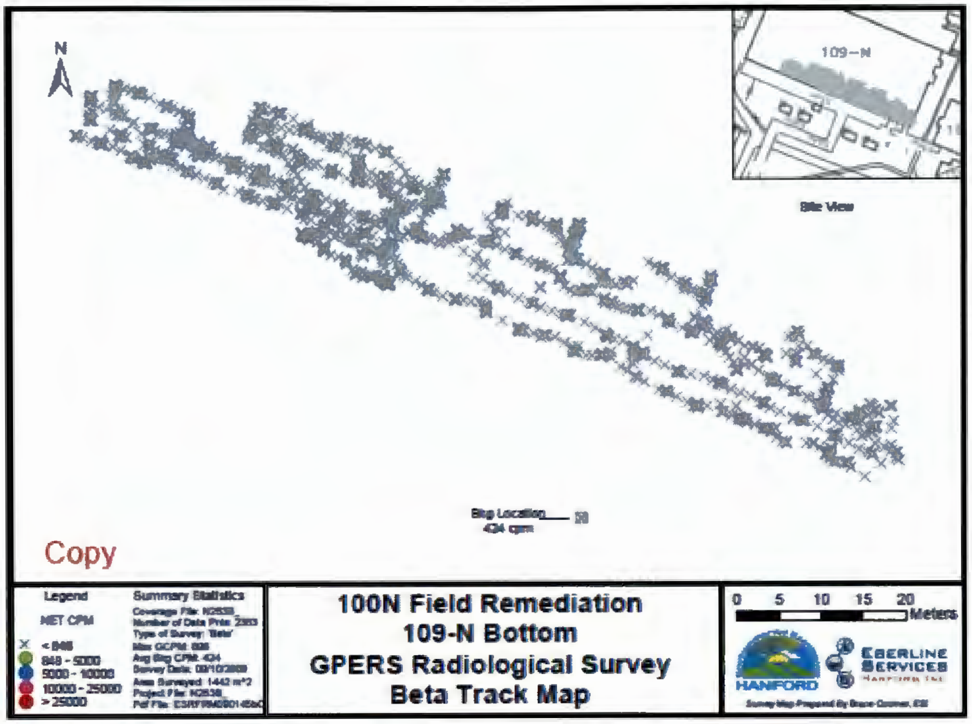


Figure 13. GPERS Beta Track Map of south side of 109-N.

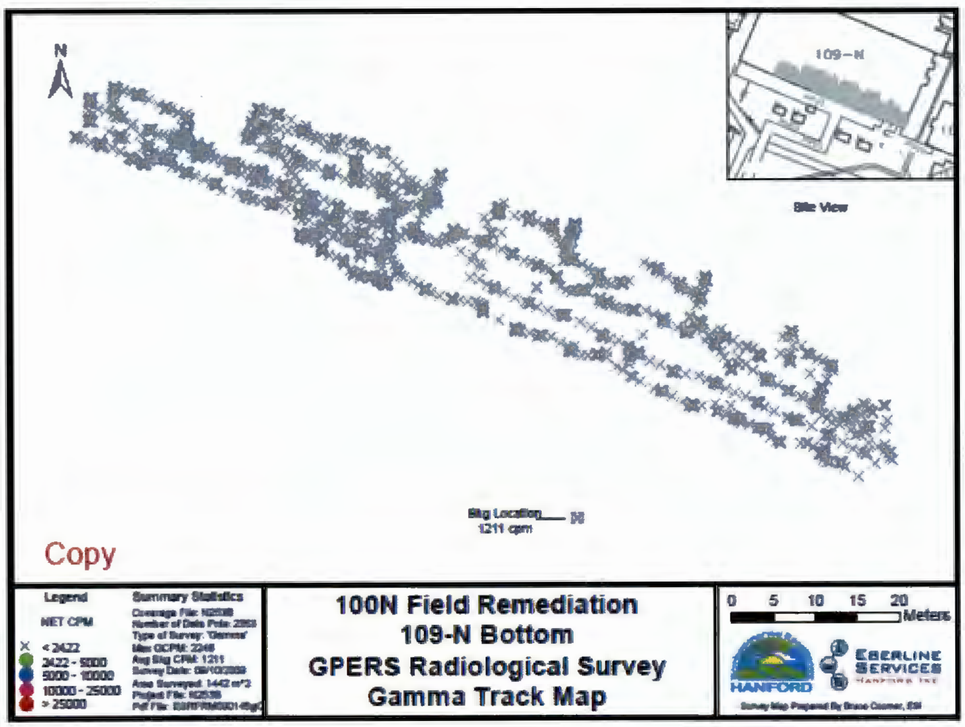


Figure 14. GPERS Gamma Track Map of south side of 109-N.

Agreement Between DOE/RL and Ecology

109-N Below-Grade Structures to Remain

Figure 15. View of east side of below grade foundation (facing south) on 04/09/2012.

Figure 16. View of south side of below grade foundation (facing west) on 12/12/2011.

COPY

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey: ☐ Routine ☒ Work Progress			Survey #: RSR – 100NFR-11-1379
RWP # / Rev. #: 100NFR-10-002/3	Date: 12-21-11	Time: 1400	Location: 100NFR / N-61

Description: Survey of concrete wall Southeast of 109 BLDG

References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-10-SR-01

CA Contamination Area | HCA High Contamination Area | RBA Radiological 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

○ Technical Smear | # Direct | M Large Area Wipe | T Transferable | General Area Dose Rates in Uncorrected Meter Reading | All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated | Contact 30 cm | N Neutron | SCA Soil Contamination Area | Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/43-93	0059/0053	10-28-12 / 10-28-12		N	
N/A					A

RCT Name/Signature/Date: Kyle Nelson / [signature] / 12-29-11

RCT Supervisor Name/Signature/Date: SSkeschenmann / [signature] / 12-29-11

WCH-TM-R006a (08/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

COPY

COPY

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100NFR-11-1379

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F	Total (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F
#	All Directs	N/A →				<500	7	<5000	10
0	All Smears	<20	7	<1000	10	N/A →			
				N		A			

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings: β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	30 cm Readings: β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
		N	A	

WCH-TM-R006a (08/30/2009)

COPY

Figure 17. Radiological Survey Record of outside surface of 109-N below-grade foundation walls.

RADIOLOGICAL SURVEY RECORD Page 1 of 2

Type of Survey			Survey #
☐ Routine	☒ Work Progress		RSR –100N-12-1490
RWP # / Rev. # NA	Date 06-19-2012	Time 0900	Location 100N/ 109N

Description: Survey of Southeast Below Grade Wall, 109N

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/ Revision 7

Survey of Below Grade Wall and Footing, Southeast Corner of 109N

An RCT performed direct surveys, removable surveys and transferability surveys of the wall pictured and the footing shown below. No contamination, fixed or removable above RC 200 Appendix A limits was found. There are two small areas posted as Contamination Areas as indicated- these areas were not surveyed.
Prior to access to the area, asbestos competent person B. Rigby inspected the area for asbestos and allowed entry to the area. The excavation was inspected by Mr. Louis McIlroy, a competent person for excavation access control.
Smears numbered 1-20 were taken on the wall and footing below, but not depicted.

CA Contamination Area | HCA High Contamination Area | RBA Radiological 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

○ Technician Smear | # Smear | M Large Area Wipe | T Transferable | General Area Dose Rates | All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated | Contact 30 cm | N Neutron | Δ Micro Rem (μR/hr) | SCA Soil Contamination Area | Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/4393	SCLLB-0009/DTLLP-0097	12-07-2012	NA	NA	NA
NA	NA	NA			NA
NA	NA	NA		NA	NA

COPY

RCT Name/Signature/Date: CR Maynard C R Maynard 06-19-2012

RCT Supervisor Name/Signature/Date: 6-19-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD Page: 2 of 2
Survey # RSR -100N-12-1490

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F	Total (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F
O, T, #	All smears, transferability and directs except as listed below	< 20	7	< 1,000	10	< 500	7	< 5,000	10
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted

Location	Contact Readings β (mrad/hr) (WO-WC) X CF = DR	Contact Readings γ (mR/hr) WC X CF = DR	30 cm Readings β (mrad/hr) (WO-WC) X CF = DR	30 cm Readings γ (mR/hr) WC X CF = DR
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

WCH-TM-R006a (06/30/2009)

Figure 18. Radiological Survey Record of outside surface of 109-N below-grade east foundation wall.

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

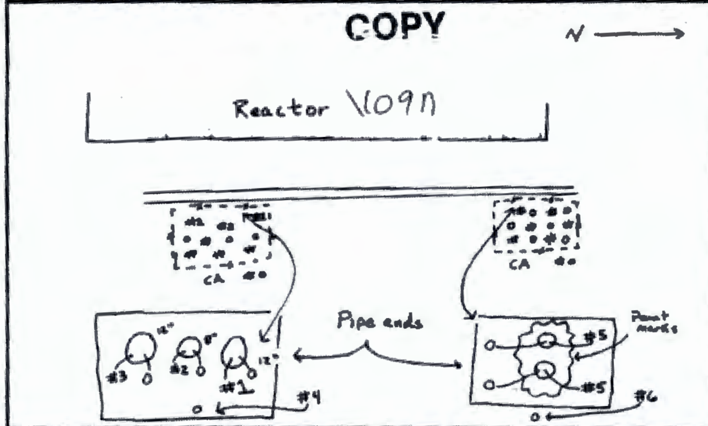
Type of Survey: ☐ Routine ☒ Work Progress			Survey #: RSR – 100NFR-12-0433
RWP # / Rev. #: 100NFR-10-002/4	Date: 4-11-12	Time: 1330	Location: 100NFR\ 100-N-62

Description: Entry into 100-N-62

References: (e.g. SRTA, ASER, LASER, RSP, Work Package) TA-10-SR-01/0

COPY

COPY



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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
○ Technical Smear / # Direct / LA Large Area Wipe	T Transferable	General Area Dose Rates	All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated	Contact / 30 cm	N Neutron (mRem/hr)	μ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
Electra/[illegible]	0053 / 0178	10-28-12 / 10-29-12		N	
N/A				A	

RCT Name/Signature/Date: Kyle Nelson/[signature]/4-11-12

RCT Supervisor Name/Signature/Date: Ray Beasley [signature] 4-11-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC 300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100NFR-12-0433

COPY

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F	Total (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F
#1	Direct frisk					<500	7	450,000	10
#2	" "					<500	7	10,000	10
#3	" "		N	A		<500	7	25,000	10
#4	" "					<500	7	6,000	10
#5	" "					<500	7	100,000	10
#6	" "					<500	7	40,000	10
#	" "					<500	7	<5000	10
0	all smears	<20	7	<1000	10	N/A			
				N		A			

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings: β (mrad/hr) (WO-WC) X CF = DR	Contact Readings: γ (mR/hr) WC X CF = DR	30 cm Readings: β (mrad/hr) (WO-WC) X CF = DR	30 cm Readings: γ (mR/hr) WC X CF = DR
		N	A	

WCH-TM-R006a (06/30/2009)

Figure 19. Radiological Survey Record of outside surface of 109-N below-grade east side pipe penetrations.

Facility Status Change Form

Attachment 19

Agreement Between DOE and Ecology - 105-N East Side Below Grade SSE Wall Contamination (CCN 153078)

153078

^WCH Document Control

From:	McCurley, Clay D
Sent:	Thursday, September 02, 2010 2:15 PM
To:	^WCH Document Control
Subject:	Agreement Between DOE and Ecology - 105-N East Side Below Grade SSE Wall Contamination
Attachments:	Resolution - Wall Contamination 105-N East Side.doc; RE: 105-N - East Side Below Grade SSE Wall Contamination

Please print this email and it's attachments and chron all together per the subject. Thanks. Clay

---

From: Guercia, Rudolph F (Rudy) [mailto:Rudolph_F_Rudy_Guercia@RL.gov]
Sent: Tuesday, May 25, 2010 6:44 AM
To: McCurley, Clay D; Bond, Fredrick W; Eberlein, Elis
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J; Thompson, Wendy S; Clark, Steven W; Vedder, Barry L
Subject: RE: 105-N - East Side Below Grade SSE Wall Contamination

The approach below and attached is acceptable to RL

Rudy
Fuel Supply System Shutdown
300/400 Area Surveillance, Demolition, and Remediation
River Corridor Project
(509) 376-5494

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Monday, May 24, 2010 12:09 PM
To: Bond, Rick; Eberlein, Elis; Guercia, Rudolph F (Rudy)
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J; Thompson, Wendy S; Clark, Steven W; Vedder, Barry L
Subject: 105-N - East Side Below Grade SSE Wall Contamination

Rudy/Rick/Elis. I believe it was generally agreed during a meeting on May 13, 2010, that the thin strip of contamination stuck to the outside east wall of the SSE (below the former control room) does not present a threat to groundwater. We have prepared a position paper (attached) describing the issue, summarizing the results, and stating that "since the contamination is "fixed" in concrete and the estimated volume is less than 0.5 ft^3 (<0.25 in. thick by 3 in. wide by 25 ft long), there is insufficient mass to result in any impact to groundwater. Therefore, this residual radiological contamination does not exceed removal action objectives and no further remediation is necessary prior to backfill of the location."

As a result, we intend to apply additional fixative and backfill. Please let me know (via email) that you concur with this approach and I will combine your responses together with this email and submit to the AR as an agreement between DOE and Ecology. Contact me if you have any questions. Clay

---

From: McCurley, Clay D
Sent: Tuesday, May 11, 2010 1:28 PM

153078

To: Bond, Fredrick W; Eberlein, Elis; Guercia, Rudolph F
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J
Subject: FW: RC-006: SDG K2029 rad (105-N Control Room Excavation Wall Concrete)

Rudy/Rick/Elis. Attached are the results of the concrete chips we collected from the outside wall of the 105-N SSE (east side near building footer). I've also attached photos to refresh your memories about the location. I'll send you a meeting request. Hopefully I can get a room tomorrow afternoon at the Fermi Building so we can figure out what we need to do. Clay

---

From: Edmundson, Thomas R
Sent: Tuesday, May 11, 2010 8:05 AM
To: Drago, Patricia A; McCurley, Clay D
Cc: Butler, Sheila M; Harrie, John P
Subject: FW: RC-006: SDG K2029 rad (105-N Control Room Excavation Wall Concrete)

Ooops, I accidently included this data with the FSB pipe water data in yesterday's email. The Rad data for the FSB pipe water should have been distributed already. Let me know if you need me to re-send it.

For the record (Clay), this is Rad data for the concrete sample collected from the 105-N Control Room excavated wall.

Tom Edmundson
Sampling & Characterization Lead
947-5192

From: Kessner, Joan H
Sent: Monday, May 10, 2010 5:47 AM
To: Harrie, John P; Edmundson, Thomas R
Cc: Wendt, Kathleen M
Subject: RC-006: SDG K2029 rad (105-N Control Room Excavation Wall Concrete)

John/Tom--
Attached please find your rad data for SDG K2029.
If you have any questions about your data please give me a call.
Joan

Evaluation of Residual Radiological Contamination Located on SSE Outside Wall Below 105-N Control Room

Background Information

On March 9, 2010, radiological contamination was identified on the outer concrete wall below the location of the former 105-N Control Room at a depth of approximately 21 ft below surface grade. The highest radiological measurement was 17,000 dpm/100 cm^2. The strip of contamination was noted to be approximately 3 inches wide and 25 ft long (Figures 1 and 2).

In order to support evaluation of this residual contamination in terms of meeting removal action objectives as provided in the *Removal Action Work Plan for the 105-N/109-N Buildings Interim Safe Storage and Related Facilities* (DOE/RL-2005-43), a sample of the concrete was collected on April 20, 2010, to determine the individual isotopes comprising the activity. After resurveying the wall, the sample was collected from the area of highest radiological activity (38,000 dpm/100 cm^2). A post-sampling survey of this area indicated no residual activity after the collection of the concrete sample.

Results

A summary of the laboratory results for the concrete sample is provided in Table 1. Strontium-90 was detected at 54 pCi/g, exceeding the soil cleanup criteria of 27.6 pCi/g for protection of groundwater. However, since the contamination is "fixed" in concrete and the estimated volume is less than 0.5 ft^3 (<0.25 in. thick by 3 in. wide by 25 ft long), there is insufficient mass to result in any impact to groundwater. Therefore, this residual radiological contamination does not exceed removal action objectives and no further remediation is necessary prior to backfill of the location.

Table 1. 105-N Control Room Concrete Sample (J19WT2) Radionuclide Sample Results

Americium-241			Carbon-14			Cesium-137			Cobalt-60			Europium-152		
pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
0.026	U	0.287	2.25	U	5.88	2.86		0.033	0.079		0.028	U	U	0.073

Europium-154			Europium-155			Gross alpha			Gross beta			Nickel-63		
pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
0.636		0.095	U	U	0.146	4.07	U	4.42	111		8.18	-0.572	U	2.91

Potassium-40			Plutonium-238			Plutonium-239/240			Plutonium-241			Potassium-40		
pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
8.61		0.255	0.008	U	0.190	-0.025	U	0.112	1.82	U	15.0	8.61		0.255

Radium-226			Radium-228			Strontium-90			Technetium-99			Thorium-228		
pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
0.362		0.061	0.355		0.106	54.6		0.535	0.074	U	0.38	0.589		0.47

Thorium-230			Thorium-232			Tritium			Uranium-233/234			Uranium-235		
pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
1.18		0.831	0.294	U	0.375	2.60	U	7.39	0.396		0.047	0.017		0.041

Uranium-238		
pCi/g	Q	MDA
0.505		0.027

Evaluation of Residual Radiological Contamination Located on SSE Outside Wall Below 105-N Control Room

Figure 1. View of East Side of 105-N Below Control Room (Facing Northwest).

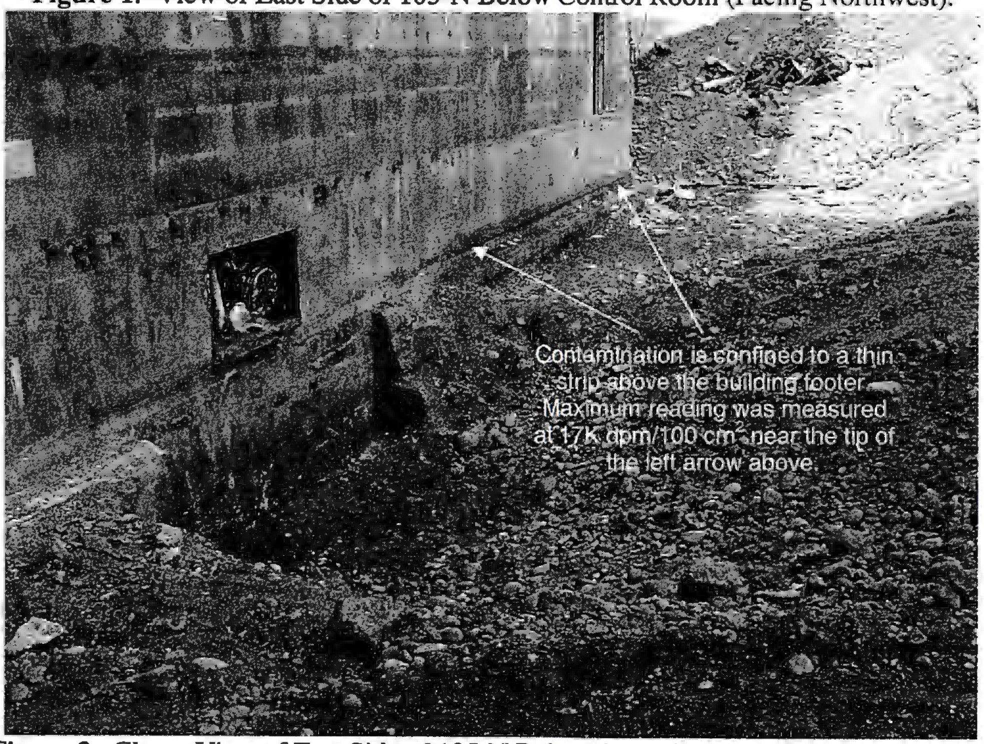


Figure 2. Closer View of East Side of 105-N Below Control Room (Facing Northwest).

^WCH Document Control

From: Bond, Fredrick W
Sent: Tuesday, June 01, 2010 2:44 PM
To: McCurley, Clay D; Eberlein, Elis
Cc: Guercia, Rudolph F
Subject: RE: 105-N - East Side Below Grade SSE Wall Contamination

Yes. We looked at it and concluded that it was a non-problem and to go ahead and backfill. I thought I sent you an email last week to that effect but maybe not. In any event – non-issue, proceed with backfill.

Rick Bond
Facility Transition Project Manager
Washington State
Department of Ecology
FBON461@ECY.WA.GOV
(509) 372-7885

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Tuesday, June 01, 2010 2:41 PM
To: Bond, Rick (ECY); Eberlein, Elis (ECY)
Cc: Guercia, Rudolph F
Subject: FW: 105-N - East Side Below Grade SSE Wall Contamination

Rick. Have you and Elis had a chance to further review this? The contamination stuck to the outside wall appears to be superficial. In any event, the quantity (mass) appears to be insufficient to result in any impact to groundwater. Clay

---

From: McCurley, Clay D
Sent: Tuesday, May 25, 2010 10:50 AM
To: Bond, Fredrick W; Eberlein, Elis
Cc: Moran, Frank L
Subject: RE: 105-N - East Side Below Grade SSE Wall Contamination

Good questions Rick. We got that comment from Kevin Finucane's sample report (attached). I just sent our rad tech supervisor, Frank Moran, back out there to verify Kevin's statement. Frank came back saying technically "not true" but that it's very close (to being a true statement). Frank's survey showed very slight contamination (now 5K dpm vs. 38K dpm before sampling). Frank also said this reading could be shine from the adjacent contamination. In any event, Frank indicated the contamination does not go deep into the concrete. Clay

---

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Tuesday, May 25, 2010 8:36 AM
To: McCurley, Clay D; Eberlein, Elis
Subject: RE: 105-N - East Side Below Grade SSE Wall Contamination

Elis,
Please have a look at this and let me know what you think.

Clay and Elis,

I think it looks good but have one question. What does "A post-sampling survey of this area indicated no residual activity after the collection of the concrete sample" mean? (the last sentence in the background).

Does that mean that after you took the sample, you resurveyed that spot and didn't find any contamination, insinuating that the contamination was removed as the sample?

Thanks,
Rick

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Mon 5/24/2010 12:09 PM
To: Bond, Rick (ECY); Eberlein, Elis (ECY); Guercia, Rudolph F
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J; Thompson, Wendy S; Clark, Steven W; Vedder, Barry L
Subject: 105-N - East Side Below Grade SSE Wall Contamination

Rudy/Rick/Elis. I believe it was generally agreed during a meeting on May 13, 2010, that the thin strip of contamination stuck to the outside east wall of the SSE (below the former control room) does not present a threat to groundwater. We have prepared a position paper (attached) describing the issue, summarizing the results, and stating that "since the contamination is "fixed" in concrete and the estimated volume is less than 0.5 ft^3 (<0.25 in. thick by 3 in. wide by 25 ft long), there is insufficient mass to result in any impact to groundwater. Therefore, this residual radiological contamination does not exceed removal action objectives and no further remediation is necessary prior to backfill of the location."

As a result, we intend to apply additional fixative and backfill. Please let me know (via email) that you concur with this approach and I will combine your responses together with this email and submit to the AR as an agreement between DOE and Ecology. Contact me if you have any questions. Clay

---

From: McCurley, Clay D
Sent: Tuesday, May 11, 2010 1:28 PM
To: Bond, Fredrick W; Eberlein, Elis; Guercia, Rudolph F
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J
Subject: FW: RC-006: SDG K2029 rad (105-N Control Room Excavation Wall Concrete)

Rudy/Rick/Elis. Attached are the results of the concrete chips we collected from the outside wall of the 105-N SSE (east side near building footer). I've also attached photos to refresh your memories about the location. I'll send you a meeting request. Hopefully I can get a room tomorrow afternoon at the Fermi Building so we can figure out what we need to do. Clay

---

From: Edmundson, Thomas R
Sent: Tuesday, May 11, 2010 8:05 AM
To: Drago, Patricia A; McCurley, Clay D
Cc: Butler, Sheila M; Harrie, John P
Subject: FW: RC-006: SDG K2029 rad (105-N Control Room Excavation Wall Concrete)

Ooops, I accidently included this data with the FSB pipe water data in yesterday's email. The Rad data for the FSB pipe water should have been distributed already. Let me know if you need me to re-send it.

For the record (Clay), this is Rad data for the concrete sample collected from the 105-N Control Room excavated wall.

Tom Edmundson
Sampling & Characterization Lead
947-5192

From: Kessner, Joan H
Sent: Monday, May 10, 2010 5:47 AM
To: Harrie, John P; Edmundson, Thomas R
Cc: Wendt, Kathleen M
Subject: RC-006: SDG K2029 rad (105-N Control Room Excavation Wall Concrete)

John/Tom--
Attached please find your rad data for SDG K2029.
If you have any questions about your data please give me a call.
Joan

Facility Status Change Form

Attachment 20

105-N Visual Examination of Stair 4 Excavation and Demolition of F Elevator (CCN 168639)

Facility Status Change Form

168639

^WCH Document Control

From: McCurley, Clay D
Sent: Thursday, November 15, 2012 2:27 PM
To: ^WCH Document Control
Subject: 105-N Visual Examination of Stair 4 Excavation and Demolition of F Elevator

Attachments: Visual Inspection of Excavation 03-30-10.doc; FW: 100N / 105N NE Corner; F Elevator Story.doc; MO802.pdf

Folks. Please print the attachments **(in color)** and attach them to this message in the order they appear below. Then chron this message in accordance with the subject above. Please let me know which chron number is assigned.

Thank you.
Clay

From: McCurley, Clay D
Sent: Wednesday, March 31, 2010 4:19 PM
To: Guercia, Rudolph F; Bond, Fredrick W
Cc: Dieterle, Steven E; Trevino, Ruben A; Allen, Mark E; Warren, David J; Bigby, Daniel A
Subject: Excavation at NE Corner 105-N

Rudy/Rick. I have two stories to brief you on.

- Our subcontractor, Dickson, finished D4 of structures at the NE corner of the 105-N (see "Visual Inspection of Excavation" below). GPERS was conducted last Thursday and GPS was completed yesterday. I conducted a visual examination of the area yesterday and observed no stains. Looks clean. However, the GPERS crew found two elevated gamma spots on the east slope of the excavation (see email "FW: 100N / 105N NE Corner" below). This specific location is too steep to access on foot. To further survey the spots (for verification) Dickson's crew needs to partially fill in the excavation and re-establish the entrance so they can get their man lift back down in the excavation.

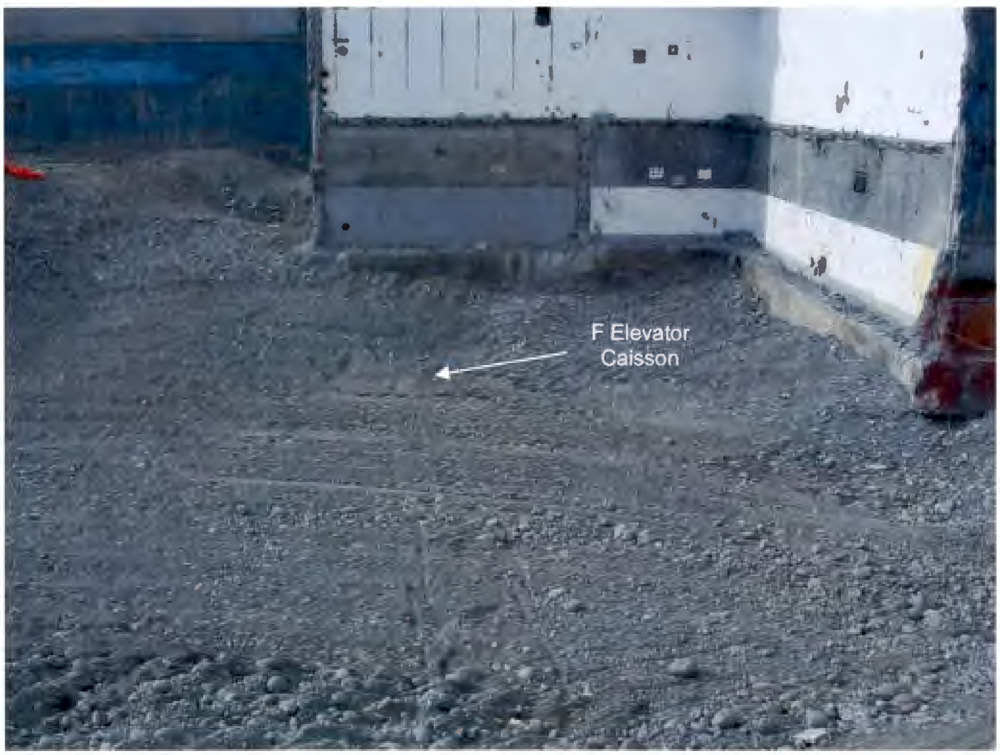
- In February, Dickson conducted D4 of F elevator (see "F Elevator Story" below). Once they got demolition debris cleared away from the caisson and it was safe to enter the area, they observed the caisson was already nearly full of material (e.g., sand). A small amount of demolition debris fell into the cassion during the demolition process. They also found approximately 75 gallons of hydraulic oil present inside the elevator's actuator. The oil was transferred into drums prior to removing the actuator from the caisson. No staining was observed inside the caisson and the external casing of the actuator showed no evidence of leakage. A radiological survey of the caisson and actuator showed no contamination (see "MO802" below).

If either or both of you would like to view the excavation, please let me know and we'll hold it open for you. Otherwise, let me know if it looks OK and I'll give Dickson approval to begin backfill and conduct hand surveys of the area where the elevated gamma spots were found. Thanks. Clay

/isual Inspection of Excavatio... FW: 100N / 105N NE Corner F Elevator Story.doc (2 MB) MO802.pdf (109 KB)

March 30, 2010

View of excavation at NE corner of 105-N (facing west).



View of excavation at NE corner of 105-N (facing south).

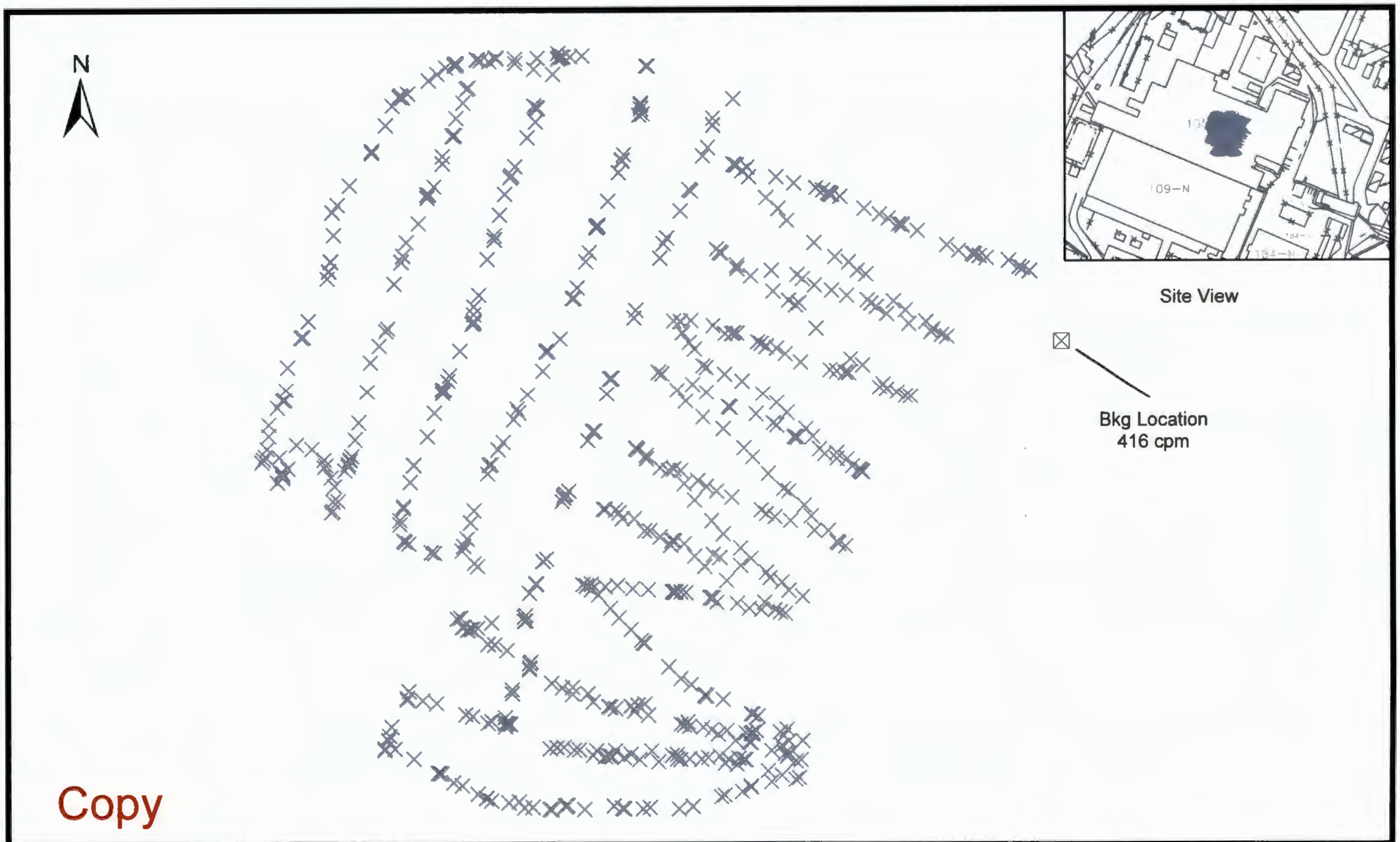
^WCH Document Control

From:	Finucane, Kevin G
Sent:	Monday, March 29, 2010 11:24 AM
To:	McCurley, Clay D; Warren, David J
Subject:	FW: 100N / 105N NE Corner
Attachments:	ESRFRM100031GC.pdf; ESRFRM100031G.dwg; ESRFRM100031BC.pdf; ESRFRM100031B.dwg

There appears to be a couple elevated gamma spots. I'm checking with Barry.
KGF

From: Headley, Barry G
Sent: Monday, March 29, 2010 11:21 AM
To: Finucane, Kevin G; Kobierowski, Mitchell S; Moran, Frank L
Subject: 100N / 105N NE Corner

Facility Status Change Form



Legend

NET CPM

- X < 832
- 832 - 5000
- 5000 - 10000
- 10000 - 25000
- > 25000

Summary Statistics

Coverage File: N084_
Number of Data Pnts: 1419
Type of Survey: 'Beta'
Max GCPM: 786
Avg Bkg CPM: 416
Survey Date: 03/25/2010
Area Surveyed: 496 m^2
Project File: N084_
Pdf File: ESRFRM100031BC

100N D4 Field Remediation
105N NE Corner 9-12 D-E Column Line
LARADS Radiological Survey
Beta Track Map

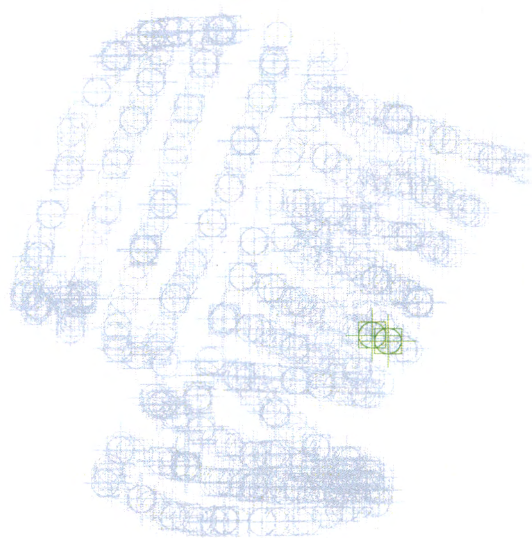
0 2 4 6 8 Meters

Environmental Excellence HANFORD

EBERLINE SERVICES HANFORD, INC.

Survey Map Prepared By Bruce Coomer, ESI

Facility Status Change Form



Legend

NET CPM

- × < 2374
- ● 2374 - 5000
- ● 5000 - 10000
- ● 10000 - 25000
- ● > 25000

Summary Statistics

Coverage File: N084
Number of Data Pnts: 1414
Type of Survey: 'Gamma'
Max GCPM: 3789
Avg Bkg CPM: 1187
Survey Date: 03/25/2010
Area Surveyed: 496 m^2
Project File: N084
Pdf File: ESRFRM100031GC

100N D4 Field Remediation
105N NE Corner 9-12 D-E Column Line
LARADS Radiological Survey
Gamma Track Map

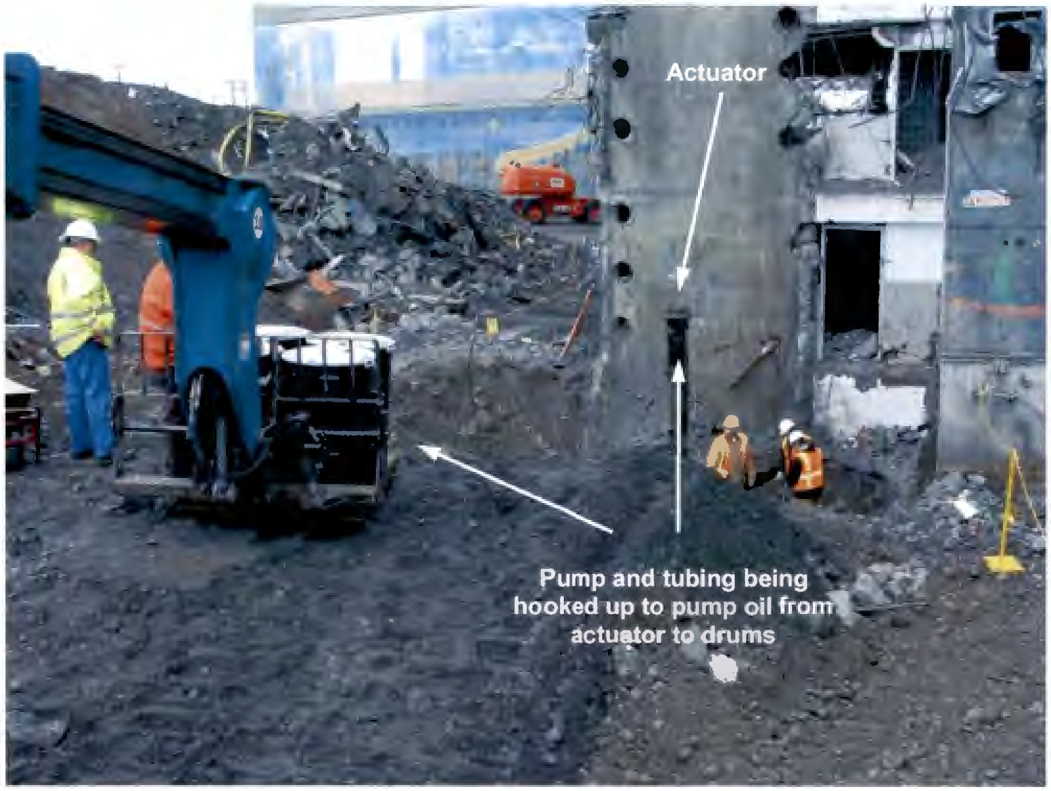
0 2 4 6 8 Meters

HANFORD

EBERLINE SERVICES HANFORD, INC.

Survey Map Prepared By Bruce Coomer, ESI

February 11, 2010



View of F elevator actuator at NE corner of 105-N prior to removal (facing southeast).

View of F elevator caisson after actuator removal (facing southwest).

D4 Activities at 100-N Area

February 11, 2010

View inside actuator caisson after actuator removal (facing down approx. 6 feet).

View of actuator after it was drained of oil and removed from caisson (facing northeast).

RADIOLOGICAL SURVEY RECORD

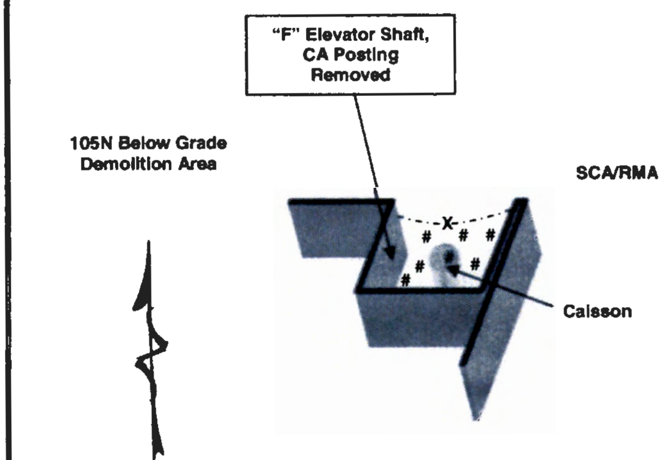
Page 1 of 2

Type of Survey ☐ Routine NA ☒ Work Progress			Survey # RSR –100ISS-10-0161
RWP # / Rev. # 100ISS-10-001/ 00	Date 02-11-2010	Time 1000	Location 100N

Description: Survey of Casing for Hydraulic Oil Pumping

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07

"F" Elevator Shaft work area was surveyed for down-post after placing clean fill into elevator shaft. RCT surveyed around the rim of the caisson and the top exposed portion of the hydraulic ram with direct survey methods and no contamination was found. Hydraulic Oil was then removed from the innermost caisson by pumping the oil into drums located nearby. (Note: "F" Elevator shaft was posted RMA prior to demolition of adjacent rooms, at which time it was up-posted to CA for the convenience of removing CA rubble from the area. Contaminated material was never found in or near the elevator shaft.)



CA Contamination Area	HCA High Contamination Area	RBA Radiological 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	
◯ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/43-93	SCLLB-0080/DTLLP-0090	01-28-2011	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
G.L. Eppling/ [signature] /02-11-2010	Mark Sims [signature] 2-16-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR -100ISS-10-0161

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#	All Directs	N/A	N/A	N/A	N/A	< 500	7	< 5,000	10
			N						
				A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

Facility Status Change Form

Attachment 21

105-N Soil Contamination at Zone I Supply Plenum
(CCN 167658)

167658

^WCH Document Control

From:	McCurley, Clay D
Sent:	Tuesday, September 04, 2012 9:01 AM
To:	^WCH Document Control
Cc:	Trevino, Ruben A; Flannery, Michael (Mike) D; Brown, Mary K; Allen, Mark E; Warren, David J; Landon, Roger J
Subject:	105-N Soil Contamination at Zone 1 Supply Plenum
Attachments:	105-N Contamination at Zone 1 Supply Plenum.doc; RE: 105-N Soil Contamination at Zone 1 Supply Plenum

Please print the attached documents and file together per the subject as CCN 167658. This CCN was provided to me by Mary Brown.

Thanks. Clay

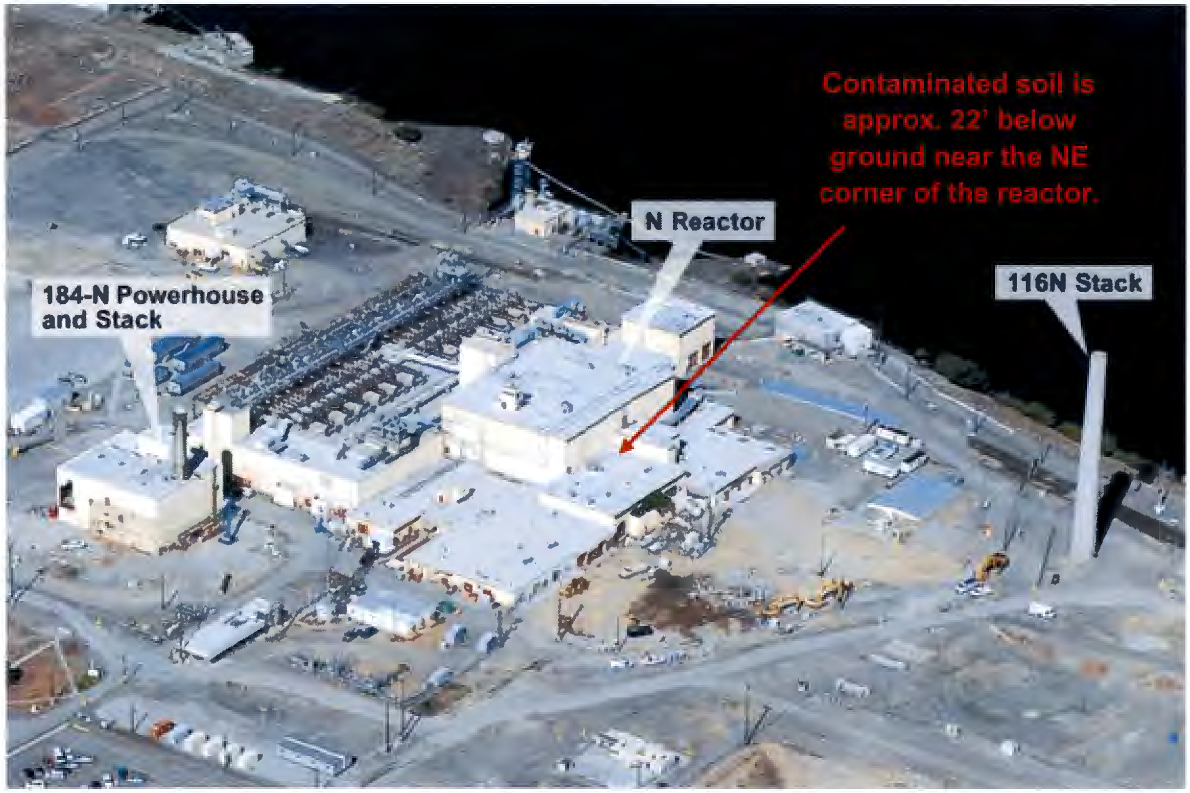
105-N ımination at Zon€ RE: 105-N Soil Contamination a..

167658

105-N Soil Contamination at Zone 1 Supply Plenum

On March 3, 2010, radiological control technicians (RCTs) were performing a survey of the below grade demolition/excavation area on the north side of the 105-N Building just to the east of room 181 and the W elevator (Figure 1). This survey is documented in RSR-100ISS-10-0199. A previous survey (RSR-100ISS-10-0185) had found fixed and removable contamination on the concrete air vanes of the Zone 1 supply plenum. The purpose of the March 3, 2010 survey was to evaluate residual contamination in the area, and collect and bag contaminated material (e.g., paint chips, concrete debris). Upon further investigation during this survey, soil located below the concrete air vanes was found to exhibit contamination levels measuring up to 130,000 dpm/100 cm^2. Fixed contamination measured on the concrete air vanes ranged from 100,000 dpm/100 cm^2 to 340,000 dpm/100 cm^2. Apparent water level marks from staining were observed on the concrete vanes, with higher contamination levels measured below, rather than above the water mark. An attempt was made on March 3, 2010, to remove the contaminated soil (Figure 2); however, contamination levels appeared to increase with depth.

Figure 1. Photograph (Prior to Decommissioning) Showing Approximate Location of Soil Contamination.



105-N Soil Contamination at Zone 1 Supply Plenum

Figure 2. Photograph Showing Concrete Plenum and Location of Soil Contamination

To evaluate the levels of radiological contamination a gridded soil sampling scheme was proposed and accepted by Washington Department of Ecology and the Department of Energy (WCH 2010).

Grid Soil Sampling

On March 9 and 10 of 2010, a gridded radiological survey of the excavation was performed in order to evaluate the distribution of residual contamination over the base of the excavation and to identify locations of elevated radiological activity for soil sampling. The results of this survey are documented in RSR-100ISS-I0-217 and RSR-100ISS-10-220. Additionally, Global Positioning Environmental Radiological Surveyor (GPERS) of the area was performed on 3-10-2012. The GPERS survey results are included in Attachment A. The following sampling strategy was used;

• One soil sample was collected from each of the 5 grid locations shown in Figure 3. Table 1 summarizes the sample locations.

105-N Soil Contamination at Zone 1 Supply Plenum

Table 1. Gridded Sample Location Summary Table

Grid location	Radiological field survey activity measured dpm/100cm^2	Sample Number
A10	140,000	J19LC4
B5	125,000	J19LC6
B9	100,000	J19LC5
D1	<5000	J19LC8
D4	185,000	J19LC7

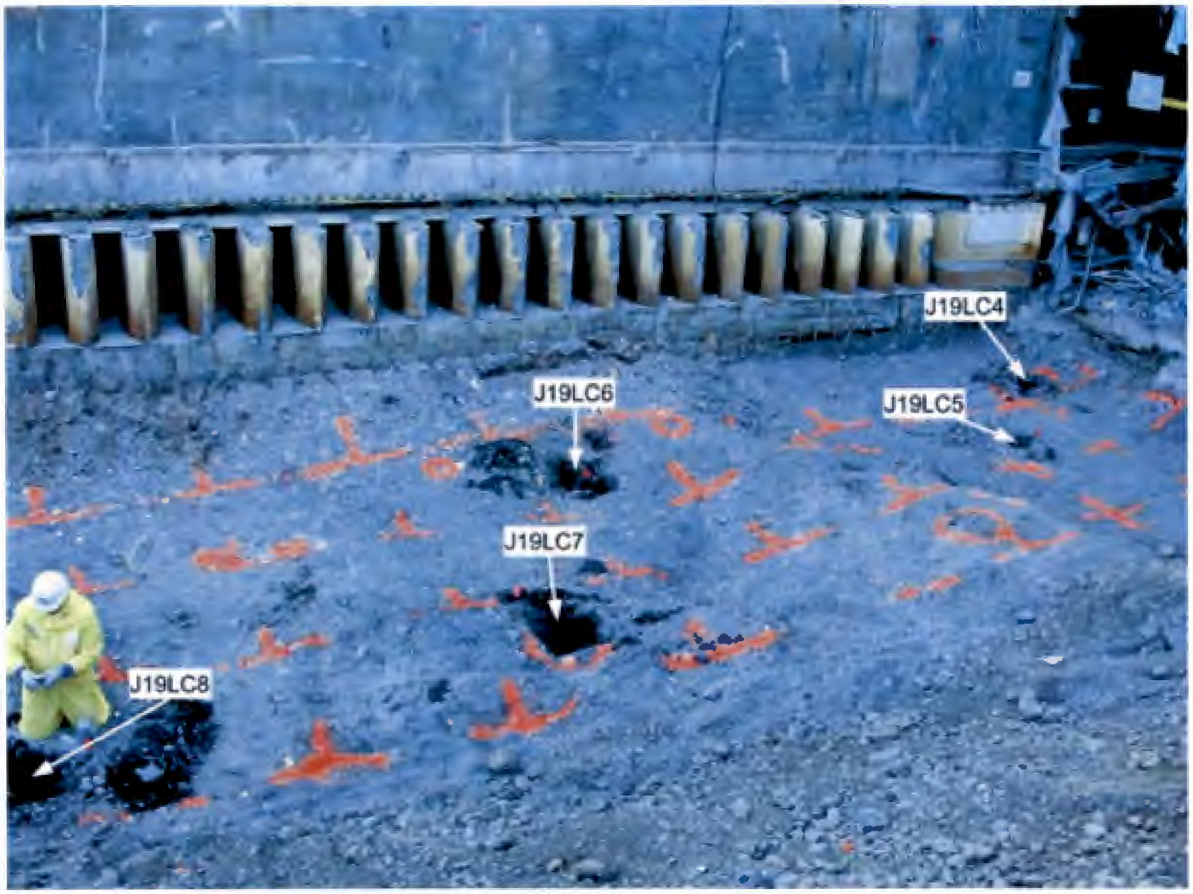
• The samples were collected below the surface soil at a depth of approximately 3 to 6 inches to preclude potential cross-contamination at the surface (Figure 4).

• Each sample was analyzed for Am-241, Cs-137, Co-60, Eu-152, Eu-154, Eu-155, isotopic plutonium, isotopic uranium, Sr-90, isotopic thorium, Ni-63, Tc-99, gross alpha, gross beta, tritium, C-14, ICP metals, mercury, hexavalent chromium, and PCBs. These COPCs are consistent with those identified in the *100-N Sampling and Analysis Plan for CERCLA Waste Sites* (DOE-RL-2005-92).

Figure 3. Photograph Showing Soil Sample at Survey Grid

105-N Soil Contamination at Zone 1 Supply Plenum

Figure 4. Photograph Showing Soil Sampling at Survey Grid Locations



After the samples were collected, fixative was applied to the plenum's vanes and plastic sheeting was placed on the surface of the excavation as shown in Figure 5. Fill material from a nearby borrow pit was then added to cover the area until the sample results could be reviewed.

Gridded Soil Sample Results

The results of the 5 soil samples collected from the grid shown in Figure 3 are provided in Attachment B. Sample results using gamma emitting analysis (GEA) are included for Am-241, and U-235. The isotope specific analysis was also performed and the results were used during the evaluation of the sample results. To demonstrate that the residual contamination is protective of groundwater and the river at 118m (DOE-RL-2011-010), Table 2 lists the maximum sample result in comparison to the soil activity clean up levels.

105-N Soil Contamination at Zone 1 Supply Plenum

Figure 5. Photograph Showing Plastic Covering Contaminated Soil

The RESRAD model was used to determine if the radionuclide activities detected in the soil are protective of groundwater exposure pathways. The results are included in Table 2. The radionuclide distribution coefficient (K_d) values for Ni-63, Sr-90 and tritium (30, 0 and 0 mL/g respectively) were used to determine if the drinking water concentration predicted in the graphical output of the concentration report would display zero for the full 1,000 years, signifying that the contaminant would not impact groundwater within 1,000 years time. Because of the mobility of Sr-90 and tritium (low K_ds) it was determined that a test pit to look at the variance in concentrations of radionuclides was needed to better understand the extent of the contamination in this area.

Chromium, zinc, and polychlorinated biphenyls concentrations (aroclor-1254 and aroclor-1260) are also above the RAGs but are generally immobile (large K_ds).

105-N Soil Contamination at Zone 1 Supply Plenum

Table 2. Comparison of Gridded Soil Samples Detected Contaminant Concentrations to Action Levels. (2 Pages)

COPC	Maximum Result [b] (pCi/g)	Soil Lookup Values (pCi/g) [a]			Does the Result Exceed Lookup Values?	Does the Result Pass RESRAD Modeling?
		Shallow Zone Lookup Value	Soil Lookup Value for Groundwater Protection	Soil Lookup Value for River Protection		
Americium-241	11.4	32.1	--	--	No	--
Carbon-14	6.4	8.69	--	--	No	--
Cesium-137	145	6.2	1,465	2,930	No	--
Cobalt-60	265	1.4	13,900	27,800	No	--
Nickel-63	628	4, 013	83	106	Yes	Yes [h]
Plutonium-238	1.43	38.8	--	--	No	--
Plutonium-239/240	10.7	35.1	--	--	No	--
Radium-226	0.325	1.05	--	--	No	--
Radium-228	0.523	1.69	--	--	No	--
Strontium-90	41.2	4.5	27.6	55.2	Yes	No
Tritium	31.1	459	12.6	25.2	Yes	No
Thorium-232	0.523 (<BG)	1.3 [c]	--	--	No	--
Thorium-228	0.587	2.26	--	--	No	--
Uranium-233/234	0.653 (<BG)	1.1 [c]	1.1 [c]	1.1 [c]	No	--
Uranium-238	0.572 (<BG)	1.1 [c]	1.1 [c]	1.1 [c]	No	--
COPC	**Maximum Result [b] (mg/kg)**	**Remedial Action Goals (mg/kg) [a]**			**Does the Result Exceed RAGs?**	**Does the Result Pass RESRAD Modeling?**
		Direct Exposure	**Soil Cleanup Level for Groundwater Protection**	**Soil Cleanup Level for River Protection**		
Arsenic	1.3 (<BG)	20 [c]	20 [c]	20 [c]	No	--
Barium	84.8 (<BG)	5,600 [d]	200	400	No	--
Beryllium	0.119 (<BG)	10.4 [e]	1.51 [c]	1.51 [c]	No	--
Boron [g]	1.08	7,200 [d]	320	--	No	--
Cadmium	0.577 (<BG)	13.9 [e]	0.81 [c]	0.81 [c]	No	--
Chromium	26.4	80,000	18.5 [c]	18.5 [c]	Yes	Yes [h]
Cobalt	8.39 (<BG)	24 [d]	15.7	--	No	--
Copper	14.6 (<BG)	2,960 [d]	59.2	22.0 [c]	No	--
Lead	7.26 (<BG)	353 [f]	10.2 [c]	10.2 [c]	No	--
Lithium	1.38 (<BG)	160 [d]	33.5 [c]	--	No	--
Manganese	345 (<BG)	3,760 [d]	512 [c]	512 [c]	No	--

105-N Soil Contamination at Zone 1 Supply Plenum

Table 2. Comparison of Gridded Soil Samples Detected Contaminant Concentrations to Action Levels. (2 Pages)

Molybdenum [g]	0.493	400 [d]	8	--	No	--
Nickel	5.44 (<BG)	1,600 [d]	19.1 [c]	27.4	No	--
Silver	0.187 (<BG)	400 [d]	8	0.73 [c]	No	--
Strontium [g]	25.1	48,000	960	- -	No	--
Tin [g]	4.05	48,000	960	- -	No	--
Vanadium	67.8 (<BG)	560 [d]	85.1 [c]	--	Yes	Yes [h]
Zinc	77.6	24,000 [d]	480	67.8 [c]	No	--
Aroclor-1254	0.240	0.5	0.017 [c]	0.017 [c]	Yes	Yes [h]
Aroclor-1260	0.341	0.5	0.017 [c]	0,017 [c]	Yes	Yes [h]
Total PCBs	0.581	0.5	0.017 [c]	0.017 [c]	Yes	Yes [h]

[a] Lookup values and RAGs obtained from the 100-N Area RDR/RAWP (DOE-RL-2006) or the 100 Area RDR/RAWP (DOE-RL 2009).

[b] Maximum concentration is based on detected values only.

[c] Where cleanup levels are less than background or RDLs, cleanup levels default to background or RDLs per Ecology 1996, WAC 173-340-700(4)(d) and WAC 173-340-707(2), respectively. The Washington State Department of Ecology has established a cleanup level of 20 ppm for arsenic in soil at most hazardous waste sites. The arsenic cleanup level of 20 mg/kg has been agreed to by the Tri-Party Agreement Project Managers.

[d] Noncarcinogenic cleanup level calculated from WAC 173-340-740(3). Method B, Ecology 1996.

[e] Carcinogenic cleanup level calculated based on the inhalation exposure pathway (WAC 173-340-750[3], Ecology 1996).

[f] Use EPA, 1994, *Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children*, EPA/540/R-93/081, Publication No. 9285.7, U.S. Environmental Protection Agency, Washington, D.C.

[g] No Hanford site-specific or Washington State background value available.

[h] Based on the constituents with the lowest distribution coefficient (nickel-63, lead, and zinc with a K_d of 30 mL/g), the contaminants are not expected to migrate vertically more than 1.8 m over 1,000 years. The soil column beneath the contamination zone is approximately 12 m thick. Therefore, nickel-63, lead, zinc, aroclor-1254, aroclor-1260, and total PCB levels are predicted to be protective of underlying groundwater and the Columbia River.

--	= not applicable
BG	= background
COPC	= contaminant of potential concern
EPA	= U.S. Environmental Protection Agency
RAG	= remedial action goal
RDL	= required detection limit
RDR/RAWP	= *Remedial Design Report/Remedial Acton Work Plan for the 100-N (or 100) Area*
RESRAD	= RESidual RADioactivity (dose model)
WAC	= *Washington Administrative Code*

Test Pit Soil Sampling

Based on the results from the gridded soil samples, sample location B9 (sample J19LC5) was identified for excavation of a test pit to determine if contamination increases or decreases with depth. Soil samples were collected at the original surface (directly below the plastic), 3-foot, and 6-foot depths. The samples were analyzed for GEA, Ni-63, C-14, Sr-90 (total strontium), isotopic plutonium, Tc-99, Tritium, isotopic uranium, Gross alpha, Gross beta, and PCBs.

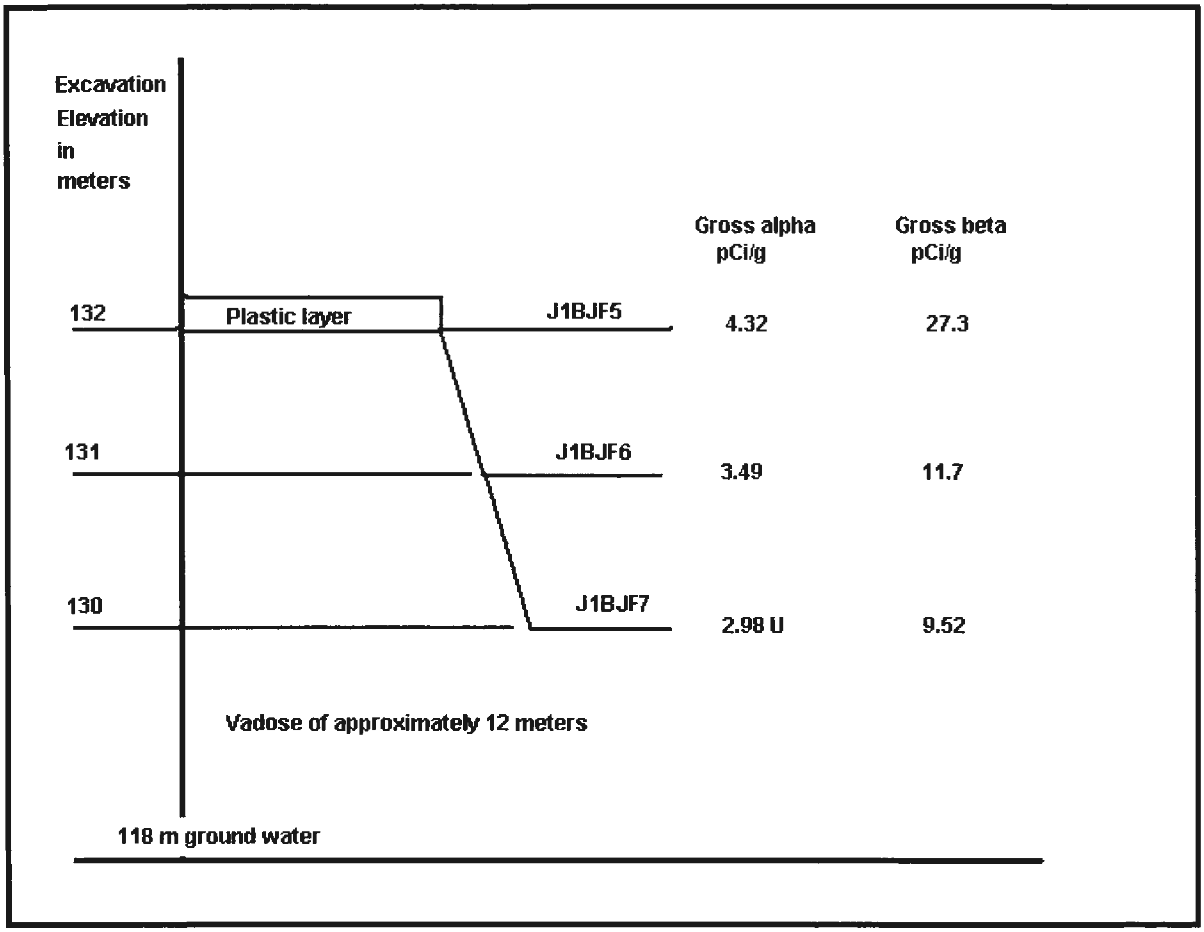
On July 20, 2010, the test pit was completed by removing the fill material above the plastic and sampling soil underneath to a depth of 6 feet (Figure 6). Radiological surveys of the buckets showed beta/gamma levels of 28,000 dpm/100 cm^2 right under the plastic and less than 5,000 dpm/100 cm^2 at the 3-foot and 6-foot depths (RSR-100ISS-10-0677).

Figure 6. 105N North Side Radiological Contamination Test Pit

Test Pit Soil Sample Results

The analytical results for the test pit soil samples are provided in Attachment C. Results indicate no significant changes in concentrations for any of the analytes tested with change in depth. Figure 7 presents a profile of the test pit and the gross alpha and gross beta trends. These trends indicate that the contamination levels from the original event are decreasing with depth. Results indicate Ni-63, Sr-90 and tritium are present above the RAGs in the gridded soil samples but not detected at the 3-foot and 6-foot depths in the test pit.

Figure 7. Test Pit Profile with Elevations above Sea level.



Completion and Backfill

In late July 2010, the concrete pourback over the air vanes was complete and other pourbacks were under construction (Figure 8). Discussions with DOE and Ecology, determined that further excavation adjacent the SSE could undermine the facility's structural integrity. It was determined that the contamination should be left in place for future remediation. Scheduled demolition activities could not continue until the area in front of the Zone 1 supply plenum was backfilled to original grade so, by late August 2010, all below-grade work was complete and the area was backfilled with fill material from a local borrow pit (Figure 9).

105-N Soil Contamination at Zone 1 Supply Plenum

Figure 8. Photograph Showing Status of Pourbacks on 07-20-2010.

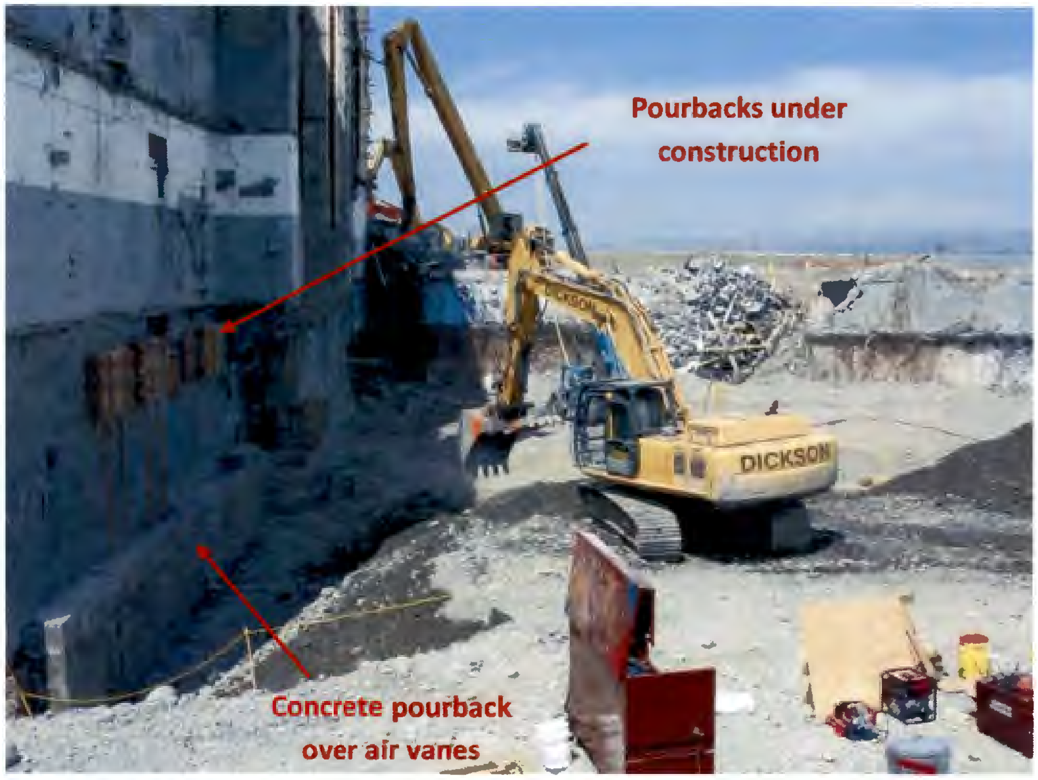


Figure 9. Photograph Showing Area After Backfill on 08-30-2010.

105-N Soil Contamination at Zone 1 Supply Plenum

Additional Information

Research into what may have caused the soil contamination under the floor of the Zone 1 supply plenum identified a possible source. The demolition crew for this part of the reactor noted that the expansion joint directly below the concrete air vanes (as shown in Figure 2) did not appear to be constructed of material that would have formed a water-tight seal (e.g., fiber board). They also noted that the joint material appeared to be in poor condition. This expansion joint could have provided a path for primary coolant to escape to ground underneath the Zone 1 supply plenum during a leak that was discovered under the reactor rear operating pipe space in 1984. The details of this discovery are provided in Larry Eyre's Story (Attachment D).

References

2010, WCH, *Soil Contamination Near 105-N Fan Room*, CCN 153233, Washington Closure Hanford, Richland, WA.

DOE-RL, 2009, *Remedial Design Report/Remedial Action Work Plan for the 100 Area,* DOE/RL-96-17, Rev. 6, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE-RL, 2006, *Remedial Design Report/Remedial Action Work Plan for the 100-N Area,* DOE/RL-2005-93, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

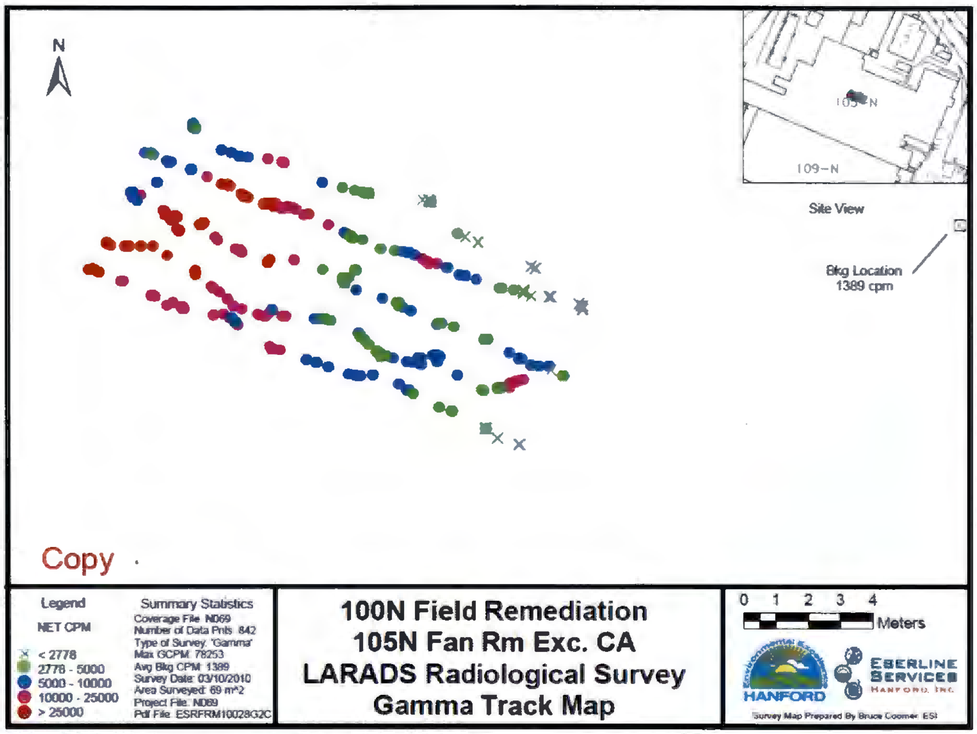
Ecology, 1996, "Model Toxics Control Act – Cleanup," *Washington Administrative Code* (WAC) 173-340, Washington State Department of Ecology, Olympia, Washington.

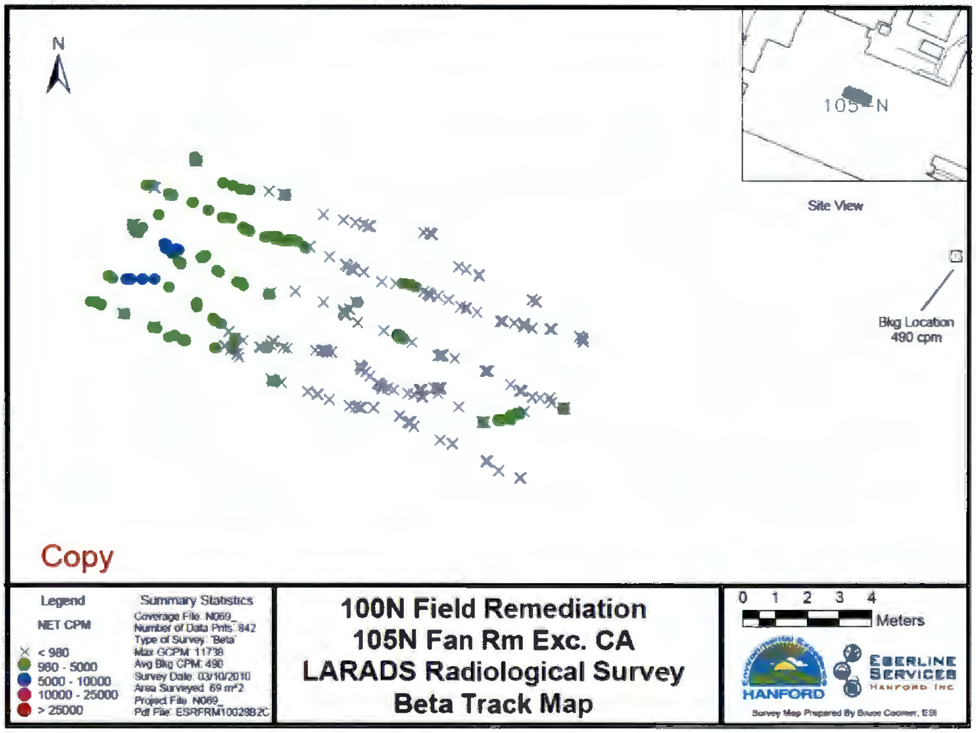
EPA, 1994, *Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children*, EPA/540/R-93/081, Publication No. 9285.7, U.S. Environmental Protection Agency, Washington, D.C.

WAC 173-340, 2007, "Model Toxics Control Act – Cleanup," *Washington Administrative Code*, as amended.

Attachment A

105N North Radiological Contamination Plenum Area GPERS


N
105-N
109-N
Site View
Bkg Location
1389 cpm
Copy
Legend
NET CPM
< 2778
2778 - 5000
5000 - 10000
10000 - 25000
> 25000
Summary Statistics
Coverage File: N069
Number of Data Pnts: 842
Type of Survey: 'Gamma'
Max GCPM: 78253
Avg Bkg CPM: 1389
Survey Date: 03/10/2010
Area Surveyed: 69 m^2
Project File: N069
Pdf File: ESRFRM10028G2C
100N Field Remediation
105N Fan Rm Exc. CA
LARADS Radiological Survey
Gamma Track Map
0 1 2 3 4
Meters
HANFORD
EBERLINE SERVICES HANFORD, INC.
Survey Map Prepared By Bruce Coomer, ESI


N
105-N
Site View
Bkg Location
490 cpm
Copy
Legend
NET CPM
< 980
980 - 5000
5000 - 10000
10000 - 25000
> 25000
Summary Statistics
Coverage File: N069_
Number of Data Pnts: 842
Type of Survey: 'Beta'
Max GCPM: 11738
Avg Bkg CPM: 490
Survey Date: 03/10/2010
Area Surveyed: 69 m^2
Project File: N069_
Pdf File: ESRFRM10028B2C
100N Field Remediation
105N Fan Rm Exc. CA
LARADS Radiological Survey
Beta Track Map
0 1 2 3 4
Meters
HANFORD
EBERLINE SERVICES HANFORD, INC.
Survey Map Prepared By Bruce Coomer, ESI

Attachment B

Gridded Soil Sample Results

Table B-1. Inorganic Sample Summary Table. (2 Pages)

HEIS Number	Sample Date	Location Description	Aluminum			Antimony			Arsenic			Barium			Beryllium		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	3570		15.1	0.757	U	0.76	1.27		0.76	84.8		0.38	0.113	B	0.15
J19LC5	3/10/10	Grid C9	3580		19.1	0.953	U	0.95	1.3		0.95	44.5		0.48	0.119	B	0.19
J19LC6	3/10/10	Grid B5	3370		15.7	0.785	U	0.79	1.21		0.79	45.1		0.39	0.117	B	0.16
J19LC7	3/10/10	Grid D4	2900		13.1	0.654	U	0.65	1.22		0.65	39.1		0.33	0.104	B	0.13
J19LC8	3/10/10	Grid D1	3130		16	0.8	U	0.8	1.22		0.8	39		0.4	0.115	B	0.16

HEIS Number	Sample Date	Location Description	Bismuth			Boron			Cadmium			Calcium			Chromium		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	1.14	U	1.14	0.845	B	1.51	0.111	B	0.15	8400		15.1	2.89		0.23
J19LC5	3/10/10	Grid C9	1.43	U	1.43	1.08	B	1.91	0.577		0.19	11100		19.1	26.4		0.29
J19LC6	3/10/10	Grid B5	1.18	U	1.18	1.57	U	1.57	0.1	B	0.16	5620		15.7	2.69		0.24
J19LC7	3/10/10	Grid D4	0.981	U	0.98	1.31	U	1.31	0.086	B	0.13	4480		13.1	2.07		0.2
J19LC8	3/10/10	Grid D1	1.2	U	1.2	1.6	U	1.6	0.096	B	0.16	4590		16	2.01		0.24

HEIS Number	Sample Date	Location Description	Cobalt			Copper			Hexavalent Chromium			Iron			Lead		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	8.39		2.27	14.6		1.51	0.21	U	0.21	23300		15.1	2.25		0.38
J19LC5	3/10/10	Grid C9	7.84		2.86	14.5		1.91	0.21	U	0.21	23100		19.1	7.26		0.48
J19LC6	3/10/10	Grid B5	7.75		2.36	12.5		1.57	0.21	U	0.21	22500		15.7	1.39		0.39
J19LC7	3/10/10	Grid D4	6.74		1.96	12.3		1.31	0.21	U	0.21	19900		13.1	1.02		0.33
J19LC8	3/10/10	Grid D1	6.87		2.4	12.8		1.6	0.21	U	0.21	20800		16	1.28		0.4

HEIS Number	Sample Date	Location Description	Lithium			Magnesium			Manganese			Mercury			Molybdenum		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	1.38	B	1.51	3730		3.79	345		0.76	0.025	U	0.02	0.426	B	0.76
J19LC5	3/10/10	Grid C9	1.17	B	1.91	3590		4.77	263		0.95	0.029	U	0.03	0.493	B	0.95
J19LC6	3/10/10	Grid B5	0.912	B	1.57	3430		3.93	254		0.79	0.027	U	0.03	0.326	B	0.79
J19LC7	3/10/10	Grid D4	1.11	B	1.31	2910		3.27	255		0.65	0.026	U	0.03	0.302	B	0.65
J19LC8	3/10/10	Grid D1	0.478	B	1.6	3130		4	255		0.8	0.027	U	0.03	0.377	B	0.8

HEIS Number	Sample Date	Location Description	Nickel			Phosphorus			Potassium			Selenium			Silicon		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	5.44		1.89	1090		15.1	522		75.7	0.757	U	0.76	432		4.54
J19LC5	3/10/10	Grid C9	5.15		2.38	1290		19.1	496		95.3	0.953	U	0.95	686		5.72
J19LC6	3/10/10	Grid B5	4.81		1.96	1100		15.7	497		78.5	0.785	U	0.79	152		4.71
J19LC7	3/10/10	Grid D4	4.01		1.63	1240		13.1	437		65.4	0.654	U	0.65	51.8		3.92
J19LC8	3/10/10	Grid D1	4.35		2	1050		16	398		80	0.8	U	0.8	65.7		4.8

Table B-1. Inorganic Sample Summary Table. (2 pages)

HEIS Number	Sample Date	Location Description	Silver			Sodium			Strontium			Thallium			Thorium		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	0.187		0.15	284		37.9	21.1		0.38	0.757	U	0.76	2.26	B	3.79
J19LC5	3/10/10	Grid C9	0.191	U	0.19	270		47.7	25.1		0.48	0.953	U	0.95	4.77	U	4.77
J19LC6	3/10/10	Grid B5	0.18		0.16	332		39.3	18.6		0.39	0.785	U	0.79	0.967	B	3.93
J19LC7	3/10/10	Grid D4	0.142		0.13	227		32.7	14.9		0.33	0.654	U	0.65	0.939	B	3.27
J19LC8	3/10/10	Grid D1	0.176		0.16	288		40	18.6		0.4	0.8	U	0.8	0.846	B	4

HEIS Number	Sample Date	Location Description	Tin			Titanium			Uranium			Vanadium			Zinc		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	3.87		3.79	2360		0.38	7.57	U	7.57	65.5		0.76	64.6		2.27
J19LC5	3/10/10	Grid C9	4.05	B	4.77	2340		0.48	9.53	U	9.53	67.8		0.95	77.6		2.86
J19LC6	3/10/10	Grid B5	4.04		3.93	2440		0.39	7.85	U	7.85	63.5		0.79	47		2.36
J19LC7	3/10/10	Grid D4	3.41		3.27	2250		0.33	6.54	U	6.54	57.2		0.65	37.2		1.96
J19LC8	3/10/10	Grid D1	3.75	B	4	2330		0.4	8	U	8	58.1		0.8	37.8		2.4

HEIS Number	Sample Date	Location Description	Zirconium		
			mg/kg	Q	PQL
J19LC4	3/10/10	Grid A4	22.1		0.76
J19LC5	3/10/10	Grid C9	23.8		0.95
J19LC6	3/10/10	Grid B5	22		0.79
J19LC7	3/10/10	Grid D4	20.8		0.65
J19LC8	3/10/10	Grid D1	21.8		0.8

B = Detected below reporting limit

J = estimated result

MDA = minimum detectable activity

NA = not analyzed

Q = qualifier

PQL = practical quantization limit

U = undetected

Table B-2. Radionuclide Sample Summary Table. (2 pages)

HEIS Number	Sample Date	Location Description	Americium-241 (GEA)			Americium-241			Carbon-14			Cesium-137		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	0.873		0.221	7.85		0.108	3.75	U	5.49	126		0.313
J19LC5	3/10/10	Grid C9	1.81		0.388	11.4		0.102	6.4		5.53	145		0.509
J19LC6	3/10/10	Grid B5	0.103	U	0.103	0.2		0.081	0.549	U	5.53	0.721		0.041
J19LC7	3/10/10	Grid D4	0.244	U	0.244	0.048	U	0.112	0.108	U	4.88	0.293		0.048
J19LC8	3/10/10	Grid D1	0.076	U	0.076	0.023	U	0.09	-0.486	U	5.51	0.023		0.02

HEIS Number	Sample Date	Location Description	Cobalt-60			Europium-152			Europium-154			Europium-155		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	170		0.286	0.528	U	0.528	0.476	U	0.476	0.418	U	0.418
J19LC5	3/10/10	Grid C9	265		0.37	1.02	U	1.02	0.766	U	0.766	0.703	U	0.703
J19LC6	3/10/10	Grid B5	4.85		0.03	0.085	U	0.085	0.07	U	0.07	0.087	U	0.087
J19LC7	3/10/10	Grid D4	1.4		0.051	0.102	U	0.102	0.112	U	0.112	0.104	U	0.104
J19LC8	3/10/10	Grid D1	0.06		0.019	0.049	U	0.049	0.052	U	0.052	0.064	U	0.064

HEIS Number	Sample Date	Location Description	Nickel-63			Plutonium-238			Plutonium-239/240			Plutonium-241		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	390		2.77	1.36		0.401	8.9		0.4	65.3		18.7
J19LC5	3/10/10	Grid C9	628		2.74	1.43		0.341	10.7		0.341	86.3		17.9
J19LC6	3/10/10	Grid B5	6.66		2.76	-0.04	U	0.38	0.198	U	0.303	3.26	U	21.2
J19LC7	3/10/10	Grid D4	0.315	U	2.66	-0.05	U	0.48	0.2	U	0.383	-1.09	U	18.9
J19LC8	3/10/10	Grid D1	21.7		2.41	-0.065	U	0.618	0.065	U	0.494	0	U	18.4

HEIS Number	Sample Date	Location Description	Potassium-40			Radium-226			Radium-228			Thorium-228		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	9.57		1.31	0.419	U	0.419	1.07	U	1.07	0.578	U	0.578
J19LC5	3/10/10	Grid C9	6.48		1.9	0.621	U	0.621	1.93	U	1.93	0.538	U	0.538
J19LC6	3/10/10	Grid B5	8.65		0.152	0.325		0.061	0.466		0.186	0.496		0.044
J19LC7	3/10/10	Grid D4	8.88		0.355	0.281		0.083	0.428		0.222	0.453		0.052
J19LC8	3/10/10	Grid D1	8.99		0.104	0.312		0.033	0.523		0.052	0.462		0.023

HEIS Number	Sample Date	Location Description	Thorium-232			Tritium			Technetium-99			Strontium-90		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	1.07	U	1.07	4.02	U	9.11	0.064	U	0.422	41.2		0.397
J19LC5	3/10/10	Grid C9	1.93	U	1.93	0.82	U	9.29	0.334	U	0.411	33.8		0.383
J19LC6	3/10/10	Grid B5	0.466		0.186	5.58	U	9.48	0.01	U	0.382	0.307		0.259
J19LC7	3/10/10	Grid D4	0.428		0.222	31.1		9.06	0.071	U	0.419	3.16		0.251
J19LC8	3/10/10	Grid D1	0.523		0.052	.36	U	9.26	0.026	U	0.379	0.018	U	0.316

Table B-2. Radionuclide Sample Summary Table. (2 pages)

HEIS Number	Sample Date	Location Description	Thorium-228			Thorium-230			Thorium-232			Uranium-233/234		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	0.249	U	0.344	0.093	U	0.614	0.311		0.238	0.653		0.312
J19LC5	3/10/10	Grid C9	0.328	U	0.402	-0.036	U	0.695	0.4		0.278	0.448		0.19
J19LC6	3/10/10	Grid B5	0.587		0.264	0.276	U	0.636	0.345		0.264	0.372		0.258
J19LC7	3/10/10	Grid D4	0.344	U	0.411	0.172	U	0.76	0.429		0.328	0.54		0.243
J19LC8	3/10/10	Grid D1	0.315	U	0.498	0.09	U	0.796	0.405		0.344	0.359		0.196

HEIS Number	Sample Date	Location Description	Uranium-235 (GEA)			Uranium-235			Uranium-238 (GEA)			Uranium-238		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	0.958	U	0.958	0	U	0.378	34.5	U	34.5	0.572		0.312
J19LC5	3/10/10	Grid C9	1.71	U	1.71	0.09	U	0.231	60.2	U	60.2	0.523		0.19
J19LC6	3/10/10	Grid B5	0.18	U	0.18	0	U	0.313	4.88	U	4.88	0.405		0.258
J19LC7	3/10/10	Grid D4	0.195	U	0.195	0.038	U	0.294	5.98	U	5.98	0.222	U	0.243
J19LC8	3/10/10	Grid D1	0.122	U	0.122	0.031	U	0.238	2.14	U	2.14	0.436		0.196

HEIS Number	Sample Date	Location Description	Gross alpha			Gross beta		
			pCi/g	Q	MDA	pCi/g	Q	MDA
J19LC4	3/10/10	Grid A4	23.3		2.68	1570		8.08
J19LC5	3/10/10	Grid C9	21.8		2.81	2010		8.11
J19LC6	3/10/10	Grid B5	9.08		2.61	25.4		5
J19LC7	3/10/10	Grid D4	5.38	U	5.73	15.8		5.38
J19LC8	3/10/10	Grid D1	4.4		2.69	28.2		5.2

Table B-3. Polychlorinated Biphenyls Sample Summary Table.

HEIS Number	Sample Date	Location Description	Aroclor-1016			Aroclor-1221			Aroclor-1232			Aroclor-1242		
			ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
J19LC4	3/10/10	Grid A4	41.7	UD	41.7	41.7	UD	41.7	41.7	UD	41.7	41.7	UD	41.7
J19LC5	3/10/10	Grid C9	13.9	U	13.9	13.9	U	13.9	13.9	U	13.9	13.9	U	13.9
J19LC6	3/10/10	Grid B5	13.8	U	13.8	13.8	U	13.8	13.8	U	13.8	13.8	U	13.8
J19LC7	3/10/10	Grid D4	13.9	U	13.9	13.9	U	13.9	13.9	U	13.9	13.9	U	13.9
J19LC8	3/10/10	Grid D1	13.8	U	13.8	13.8	U	13.8	13.8	U	13.8	13.8	U	13.8

HEIS Number	Sample Date	Location Description	Aroclor-1248			Aroclor-1254			Aroclor-1260		
			ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
J19LC4	3/10/10	Grid A4	41.7	UD	41.7	240	D	41.7	341	D	41.7
J19LC5	3/10/10	Grid C9	13.9	U	13.9	10.3	J	13.9	25.2		13.9
J19LC6	3/10/10	Grid B5	13.8	U	13.8	12.2	J	13.8	28.6		13.8
J19LC7	3/10/10	Grid D4	13.9	U	13.9	13.9	U	13.9	13.9	U	13.9
J19LC8	3/10/10	Grid D1	13.8	U	13.8	13.8	U	13.8	13.8	U	13.8

Attachment C

Test Pit Soil Sample Results

Table C-1. Radionuclide Sample Summary Table. (2 pages)

HEIS Number	Sample Date	Location Description	Americium-241 (GEA)			Americium-241			Carbon-14			Cesium-137		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	0.229	U	0.229	0.246	U	0.59	-0.159	U	3.23	7.42		0.146
J1BJF6	7/20/10	3 feet below plastic	0.107	U	0.107	-0.05	U	0.478	-0.657	U	2.92	0.422		0.125
J1BJF7	7/20/10	6 feet below plastic	0.058	U	0.058	0.055	U	0.304	-0.066	U	3.11	0.069	U	0.069

HEIS Number	Sample Date	Location Description	Cobalt-60			Europium-152			Europium-154			Europium-155		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	16.3		0.123	0.272	U	0.272	0.299	U	0.299	0.172	U	0.172
J1BJF6	7/20/10	3 feet below plastic	0.933		0.14	0.281	U	0.281	0.346	U	0.346	0.206	U	0.206
J1BJF7	7/20/10	6 feet below plastic	0.083	U	0.083	0.137	U	0.137	0.224	U	0.224	0.112	U	0.112

HEIS Number	Sample Date	Location Description	Nickel-63			Plutonium-238			Plutonium-239/240			Plutonium-241		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	11		4.43	-0.093	U	1.03	-0.093	U	0.71	5.56	U	20.5
J1BJF6	7/20/10	3 feet below plastic	1.08	U	4.38	0.068	U	0.655	0	U	0.523	5.46	U	20.9
J1BJF7	7/20/10	6 feet below plastic	0.249	U	4.13	0	U	0.535	0.07	U	0.535	10.5	U	23.8

HEIS Number	Sample Date	Location Description	Potassium-40			Radium-226			Radium-228			Strontium-90		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	9.63		0.917	0.269		0.232	1.06		0.753	0.223	U	0.264
J1BJF6	7/20/10	3 feet below plastic	11.8		1.11	0.383		0.217	0.626		0.442	0.135	U	0.282
J1BJF7	7/20/10	6 feet below plastic	10.7		0.792	0.324		0.121	0.554		0.238	0.004	U	0.394

Table C-1. Radionuclide Sample Summary Table. (2 pages)

HEIS Number	Sample Date	Location Description	Thorium-228 (GEA)			Thorium-228			Thorium-230			Thorium-232 (GEA)		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	0.487		0.113	0.302	U	0.371	0.503	U	0.663	1.06		0.753
J1BJF6	7/20/10	3 feet below plastic	0.928		0.214	0.484		0.309	0.678		0.638	0.626		0.442
J1BJF7	7/20/10	6 feet below plastic	0.689		0.101	0.193	U	0.356	0.257	U	0.636	0.554		0.238

HEIS Number	Sample Date	Location Description	Thorium-232			Tritium			Technetium-99			Uranium-233/234		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	0.335		0.256	1.7	U	5.49	0.148	U	0.324	0.325		0.249
J1BJF6	7/20/10	3 feet below plastic	0.42		0.247	1.71	U	5.24	0.0.39	U	0.312	0.459		0.251
J1BJF7	7/20/10	6 feet below plastic	0.322		0.246	0.166	U	5.37	0.052	U	0.39	0.422		0.321

HEIS Number	Sample Date	Location Description	Uranium-235 (GEA)			Uranium-235			Uranium-238 (GEA)			Uranium-238		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	0.413	U	0.413	0.039	U	0.301	20.6	U	20.6	0.325		0.2
J1BJF6	7/20/10	3 feet below plastic	0.509	U	0.509	0.079	U	0.304	14.6	U	14.6	0.426		0.251
J1BJF7	7/20/10	6 feet below plastic	0.24	U	0.24	0.036	U	0.279	7.5	U	7.5	0.362		0.231

HEIS Number	Sample Date	Location Description	Gross alpha			Gross beta		
			pCi/g	Q	MDA	pCi/g	Q	MDA
J1BJF5	7/20/10	Original Excavated surface	4.32		3.82	27.3		5.09
J1BJF6	7/20/10	3 feet below plastic	3.49		3.48	11.7		5.17
J1BJF7	7/20/10	6 feet below plastic	2.98	U	3.37	9.52		5.25

J = estimated result

MDA = minimum detectable activity

Q = qualifier

PQL = practical quantization limit

U = undetected

Table C-2. Polychlorinated Biphenyls Sample Summary Table.

HEIS Number	Sample Date	Location Description	Aroclor-1016			Aroclor-1221			Aroclor-1232			Aroclor-1242		
			ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
J1BJF5	7/20/10	Original Excavated surface	26.2	U	26.2	26.2	U	26.2	26.2	U	26.2	26.2	U	26.2
J1BJF6	7/20/10	3 feet below plastic	12.7	U	12.7	12.7	U	12.7	12.7	U	12.7	12.7	U	12.7
J1BJF7	7/20/10	6 feet below plastic	13	U	13	13	U	13	13	U	13	13	U	13

HEIS Number	Sample Date	Location Description	Aroclor-1248			Aroclor-1254			Aroclor-1260		
			ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
J1BJF5	7/20/10	Original Excavated surface	26.2	U	26.2	26.2	U	26.2	217	D	26.2
J1BJF6	7/20/10	3 feet below plastic	12.7	U	12.7	8.16	J	12.7	4.21	J	12.7
J1BJF7	7/20/10	6 feet below plastic	13	U	13	13	U	13	13	U	13

Attachment D

Larry Eyre's Story

153079

^WCH Document Control

From:	McCurley, Clay D
Sent:	Thursday, September 02, 2010 1:51 PM
To:	^WCH Document Control
Subject:	105-N Zone 1 Air Supply Inlet Vanes - Explanation of Staining Observed on Vanes
Attachments:	Shift Manager's Logbook.pdf; EXPLANATION OF THE BATHTUB RINGS ON N.doc

Please print this email and it's attachments and chron all in accordance with the subject. Thanks. Clay

Shift Manager's Logbook.pdf (2...

From:	Eyre, Larry E
Sent:	Tuesday, August 24, 2010 7:48 AM
To:	McCurley, Clay D
Cc:	Frank, Michael V; Ames, Charles Paul; Gaulden, Gerald M
Subject:	Affidavit on N-Reactor Bathtub Rings

Clay,

Please find attached the affidavit of my personal observation as to the source of the bathtub rings on the N-reactor Zone I Air Supply Inlet Vanes.

If this does not address the question you have for closure documentation, please call 420-0344.

EXPLANATION OF THE BATHTUB RIN..

Larry

(cont'd.)

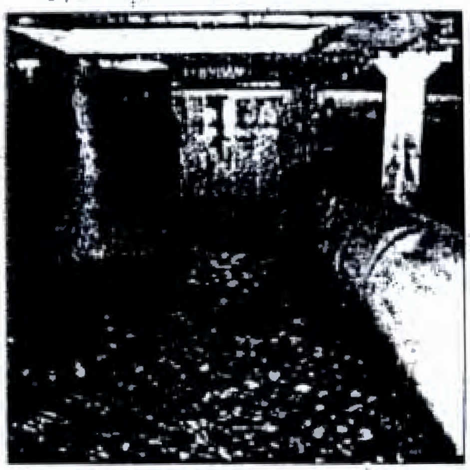
1-23-84 MCL's Completed MCL 17 and 19.

4-12 B

Pipe supports Torqued pipe supports on 24" to clear NCR 184-022.

18

Zone I Supply Plenum — has filled up to -20' with water. Water is leaking thro the -16' ROPS floor. Heavy stre water leaking through floor at hanger near 36" ROPS drain, an wall west of 36" drain 48 hour plenum was dry to -30'. Total water entering plenum in 48 hrs 25,000 gallons.



1/23/84 inlet plenum looking towards basin

1/23/84 plenum at rear

Housekeeping - Worked on Tour route - See RA

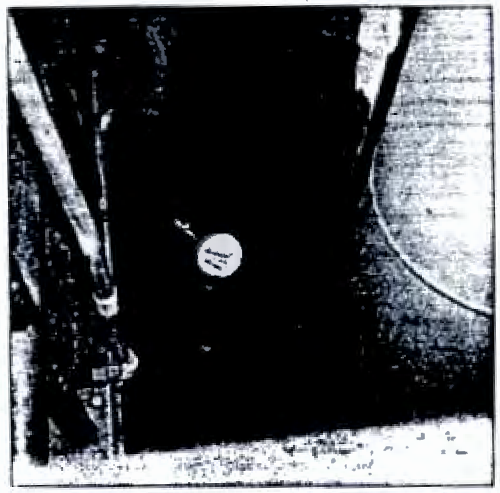
Cell 6 - #6 PC Pump repairs complete at

Valving cell 6 removed is in progress for restart to remove tag and

BEST AVAILABLE COPY

14" indicated on guage indicates pipe tunnel is drained, 80" indicates inlet plenum is beginning to flood. If reading exceeds 60" the inlet plenum drain valve should be opened. Patrol should take once/shift reading

1/24/84 – pressure gauge on 4" plenum drain – at Lift Station #1



1/24/84 – pressure gauge on 4" plenum drain – at lift station #2

IWV 6252 – verified valve was opening by putting 170 psi hydro on the loop with IWV 6252 and cell 6 hi vents open. Closed IWV 6252, hydro immediately increased to 400 psi. Cell 6 pressure dropped to 200 psi. Cell isolation valves were closed, one cell isolation valve bypass open.

4-3 – New recorder OOS, reads less than .5" ~~opens~~ steam kings. See new PCA for V 4-3.

Purge – N_2 purge complete at 0030 hrs.

6 – Bumped, completed 15 minute pony motor run in. Valve line-up checked by G Phillips and M Jones. Cell now in communication with the loop. PZR heating up for 3400 rpm run in.

BEST AVAILABLE COPY

EXPLANATION OF THE BATHTUB RINGS ON N-REACTOR ZONE I AIR INLET PLENUM CONCRETE VANES (PIERS)

Late in 1983 and extending into 1984 difficulty in maintaining the reactor compartment Zone I air temperature was experienced.

It was discovered that by pumping down the Zone I inlet plenum sump that temperature control could be recovered. This in turn led to the discovery of the influx of water into the Zone I inlet plenum space located beneath the reactor compartment.

On January 23, 1984 I (Larry Eyre, *N-Reactor A Shift, Shift Manager*) entered the Zone I inlet plenum to make a first hand observation of the conditions and try to locate the source of the water.

I took Polaroid pictures, which are pasted in the Shift Managers Logbook, UNI-N-3-65, on page 124.

<u>Observation upon removing the access deck plate:</u>
I observed approximately 1 foot of standing water all over the floor of the Zone I inlet air space which covers the whole of the reactor compartment footprint. Suited up in appropriate Personal Protection Equipment I and one other entered the Zone I Inlet Plenum space and began inspecting for the location of the incoming water. This was discovered to be below the reactor rear operating pipe space as noted in the pictures. Water could be seen pouring through the false bottom deck plates from the reactor compartment in torrents. The total volume of water entering the Zone I inlet space was calculated to be ~25,000 gallons over a 48 hour period.

Troubleshooting, now that the location of the incoming water was known, identified that a V-2 valve bonnet gasket had failed in the right rear operating pipe space. The V-2s were used to allow draining of the individual rear outlet primary coolant pipe risers.

The incoming water into the Zone I Inlet Plenum was Primary Coolant. The repair of this V-2 comprised a major outage and outside resources and was quite involved due to the V-2 being in a high radiation area.

This affidavit was written on August 24th, 2010 using a copy of a page from the Shift Managers Logbook and my rusty memory.

Larry E. Eyre

^WCH Document Control

From: Bond, Fredrick W
Sent: Friday, August 31, 2012 9:43 AM
To: Guercia, Rudolph F (Rudy); McCurley, Clay D
Subject: RE: 105-N Soil Contamination at Zone 1 Supply Plenum

The report looks very thorough to me, I believe the concept of leaving the contamination is sound, and attaching this to the FSCF is the correct approach. Ecology approves this action.

Thanks,

Rick Bond
Facility Transition Project Manager

Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Blvd.
Richland, WA 99354
Mail Stop: HO-57
Phone: (509) 372-7885
Fax: (509) 372-7971
Email: fbon461@ecy.wa.gov

From: Guercia, Rudolph F (Rudy) [mailto:rudolph.guercia@rl.gov]
Sent: Thursday, August 30, 2012 7:11 PM
To: McCurley, Clay D; Bond, Rick (ECY)
Subject: RE: 105-N Soil Contamination at Zone 1 Supply Plenum

I have no issue with this

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Thursday, August 30, 2012 2:47 PM
To: Guercia, Rudolph F (Rudy); Bond, Rick
Subject: 105-N Soil Contamination at Zone 1 Supply Plenum

Rudy/Rick. I put together a report about the contamination we found at the subject area a long time ago. I think it explains pretty well how this area (adjacent the reactor building) was left so future contractors should have enough information to be able to bid on cleaning it up. I intend to attach this report to the Facility Status Change Form (FSCF) for the 105-N. If you get a chance, take a look and let me know if anything needs to be changed.

Thanks.
Clay

<<105-N Contamination at Zone 1 Supply Plenum.doc>>

Facility Status Change Form

Attachment 22

Agreement Between DOE and Ecology - W Elevator Caissons at 105-N (CCN 168948)

168948

^WCH Document Control

From: McCurley, Clay D
Sent: Monday, December 10, 2012 6:06 AM
To: ^WCH Document Control
Subject: Agreement Between DOE and Ecology - W Elevator Caissons at 105-N

Attachments: RE: W Elevator Caissons at 105-N; Photo of W Elevator Caissons.doc; survey.pdf

All. Please print all attachments (in color), attach to this email and chron this email per the subject as an agreement between DOE and Ecology to leave in place the W Elevator caissons at 105-N. Also, please let me know which CCN has been assigned to this document. Contact me if you have any questions. Thanks. Clay

RE: W Elevator
:aissons at 105..

From: Guercia, Rudolph F (Rudy) [mailto:Rudolph_F_Rudy_Guercia@RL.gov]
Sent: Thursday, April 29, 2010 12:40 PM
To: McCurley, Clay D; Bond, Fredrick W
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J
Subject: RE: W Elevator Caissons at 105-N

I have no objection. Please make sure hat the final reactor report reflects these items

Rudy
Fuel Supply System Shutdown
300/400 Area Surveillance, Demolition, and Remediation
River Corridor Project
(509) 376-5494

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Thursday, April 29, 2010 11:05 AM
To: Guercia, Rudolph F (Rudy); Bond, Rick
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J
Subject: W Elevator Caissons at 105-N

Rudy/Rick. As you may be aware, our subcontractor, Dickson, has completed removal of the W elevator (north side of the 105-N) including removal of the four (4) actuators that drove the vertical movement of the elevator. The hydraulic oil used to operate the actuators was removed (pumped) prior to demolition. Each actuator was housed in its individual caisson. Each caisson is approximately 42 inches in diameter and 30 feet deep from the bottom of the excavation. We intend to backfill and leave each caisson in place because excavation to remove any caisson would undermine and threaten the structural integrity of the SSE.

The following *Photos of W Elevator Caissons* documents the condition of each caisson:

Photo of W
evator Caissons.d

- PHOTO 1 shows their conditon/configuration at the bottom of the excavation and in relation to the SSE.
- PHOTOs 2 through 5 show the condition inside each caisson immediately after the actuators were pulled. Water was observed at the bottom of each caisson. It is believed this water is from dust suppression during demolition. Most of the has since been removed (approximately 150 gallons) and is now being held in a tank awaiting sampling and analysis for disposal in accordance with SSWMI requirements. Oil is also visible on the water. It is believed this oil is hydraulic (drips and dribbles) from past elevator maintenance and operations. A small amount (less that 1 foot) of unrecoverable liquid (mixture of water/oil) remains in the bottom of each caisson. This liquid will be adsorbed by fill material and is not expected to migrate outside of the caissons. Facility drawings indicate the bottom of the caissons are seal welded (closed) with a 1/2 in steel plate. Further evidence that the bottoms are closed is the dust suppression water did not leak.
- PHOTOs 6 and 7 show three of the four caissons after removal. Each of the four caissons was inspected and surveyed. Radiological contamination was found only on the top cover of the actuator removed from the SW caisson (see *Survey* attached below). No radiological contamination was found inside the caissons. All actuators will be size reduced and disposed at the ERDF.

survey.pdf (222
KB)

As mentioned above, we intend to backfill and leave each caisson in place because excavation to remove any caisson would undermine and threaten the structural integrity of the SSE. Please respond back to this message that you concur with leaving the caissons in place. Your responses will be combined with this email to document final status in the 105-N Facility Status Change Form. Contact me if you have any questions.

Clay
942-8928

Facility Status Change Form

^WCH Document Control

From:	Bond, Fredrick W
Sent:	Friday, April 30, 2010 3:19 PM
To:	McCurley, Clay D; Guercia, Rudolph F; Eberlein, Elis
Cc:	Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J
Subject:	RE: W Elevator Caissons at 105-N

Clay,
After review, Ecology agrees with your assessment and evaluation of the situation and approves the approach described below. Elis will review next week and provide comments if he has any, but I think you are good to go.
Thanks,

Rick Bond
Facility Transition Project Manager
Washington State
Department of Ecology
FBON461@ECY.WA.GOV
(509) 372-7885

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Thursday, April 29, 2010 11:05 AM
To: Guercia, Rudolph F; Bond, Rick (ECY)
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J
Subject: W Elevator Caissons at 105-N

Rudy/Rick. As you may be aware, our subcontractor, Dickson, has completed removal of the W elevator (north side of the 105-N) including removal of the four (4) actuators that drove the vertical movement of the elevator. The hydraulic oil used to operate the actuators was removed (pumped) prior to demolition. Each actuator was housed in its individual caisson. Each caisson is approximately 42 inches in diameter and 30 feet deep from the bottom of the excavation. We intend to backfill and leave each caisson in place because excavation to remove any caisson would undermine and threaten the structural integrity of the SSE.

The following *Photos of W Elevator Caissons* documents the condition of each caisson:

<< File: Photo of W Elevator Caissons.doc >>

- PHOTO 1 shows their conditon/configuration at the bottom of the excavation and in relation to the SSE.
- PHOTOs 2 through 5 show the condition inside each caisson immediately after the actuators were pulled. Water was observed at the bottom of each caisson. It is believed this water is from dust suppression during demolition. Most of the has since been removed (approximately 150 gallons) and is now being held in a tank awaiting sampling and analysis for disposal in accordance with SSWMI requirements. Oil is also visible on the water. It is believed this oil is hydraulic (drips and dribbles) from past elevator maintenance and operations. A small amount (less that 1 foot) of unrecoverable liquid (mixture of water/oil) remains in the bottom of each caisson. This liquid will be adsorbed by fill material and is not expected to migrate outside of the caissons. Facility drawings indicate the bottom of the caissons are seal welded (closed) with a 1/2 in steel plate. Further evidence that the bottoms are closed is the dust suppression water did not leak.
- PHOTOs 6 and 7 show three of the four caissons?? [do you mean actuators here??] after removal. Each of the four caissons was inspected and surveyed. Radiological contamination was found only on the top cover of the actuator removed from the SW caisson (see *Survey* attached below). No radiological contamination was found inside the caissons. All actuators will be size reduced and disposed at the ERDF.

<< File: survey.pdf >>

As mentioned above, we intend to backfill and leave each caisson in place because excavation to remove any caisson would undermine and threaten the structural integrity of the SSE. Please respond back to this message that you concur with leaving the caissons in place. Your responses will be combined with this email to document final status in the 105-N Facility Status Change Form. Contact me if you have any questions.

Clay
942-8928

100-N D4 Activities
April 26, 2010

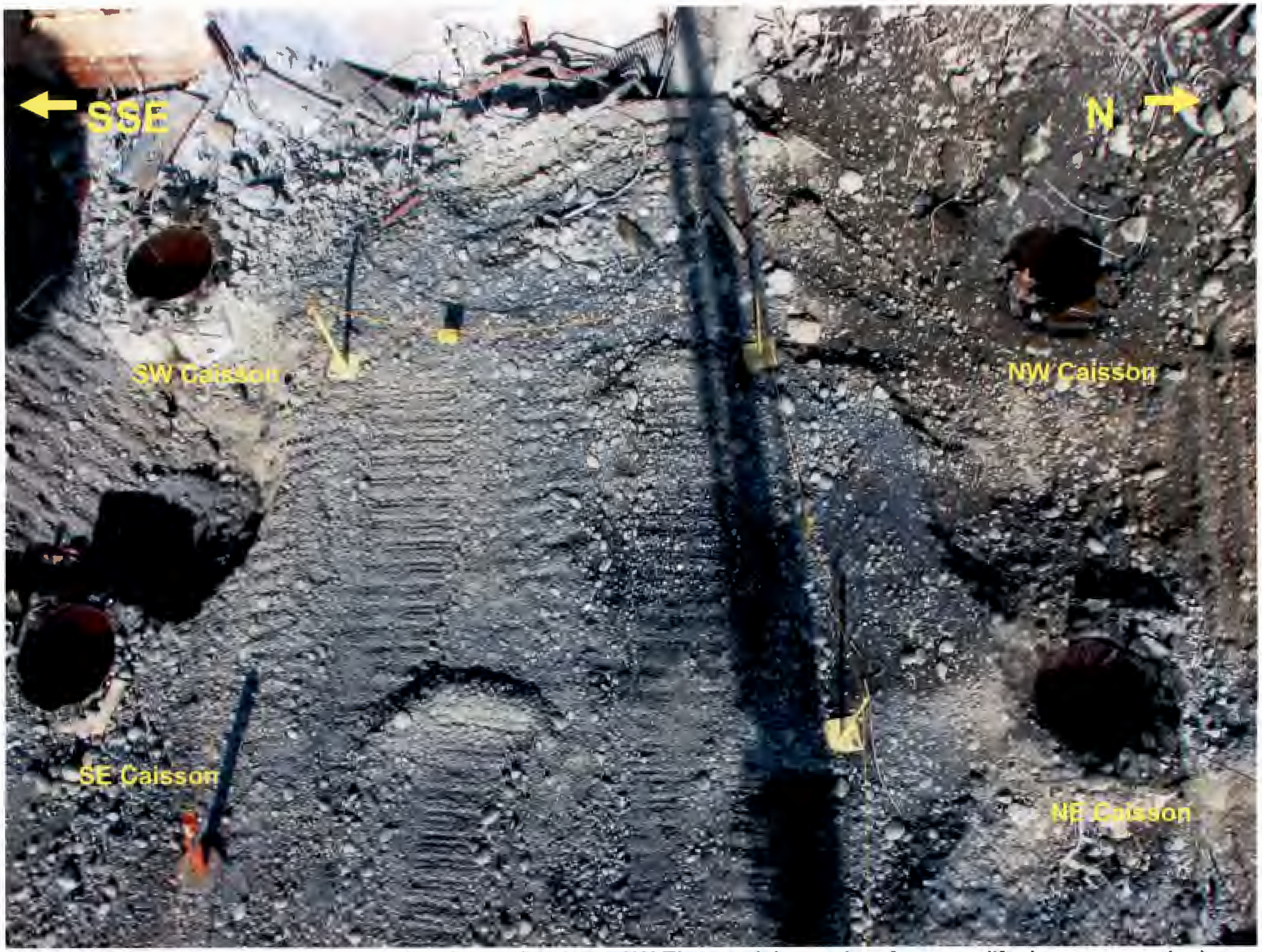


PHOTO 1. View of excavation below former location of W Elevator (photo taken from manlift above excavation)

100-N D4 Activities
April 26, 2010

PHOTO 2: NE Caisson

PHOTO 3: NW Caisson

100-N D4 Activities
April 26, 2010

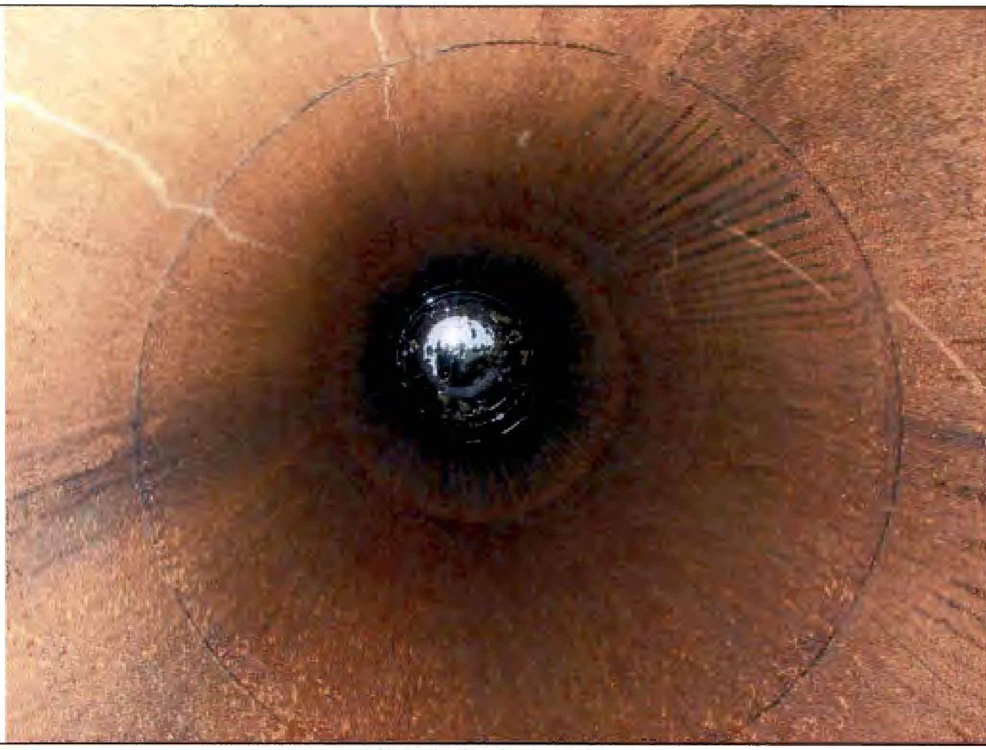


PHOTO 4: SE Caisson

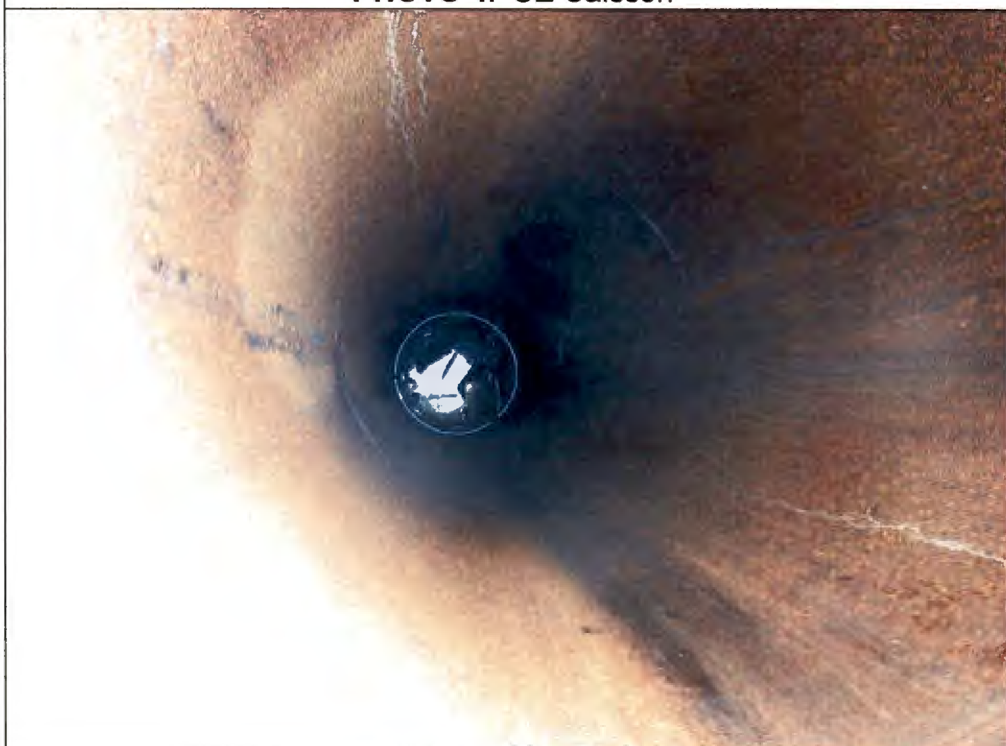


PHOTO 5: SW Caisson

100-N D4 Activities
April 26, 2010

PHOTO 6: Actuators

PHOTO 7: Actuators

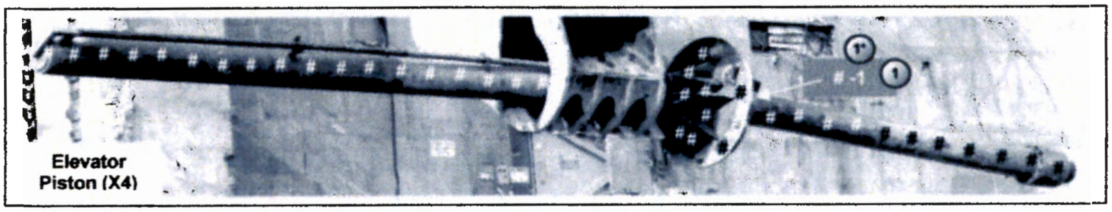
RADIOLOGICAL SURVEY RECORD

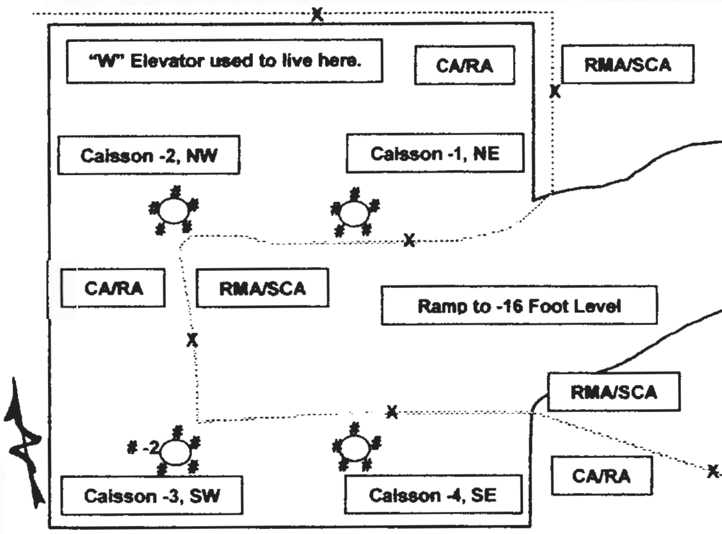
Page 1 of 2

Type of Survey ☒ Routine	☒ Work Progress		Survey # RSR –100ISS-10-0377
RWP # / Rev. # 100ISS-10-002/ 00	Date 04-26-2010	Time 1000	Location 100N

Description: Survey of "W" Elevator Pistons and Caissons

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/ Rev. 7





Survey of "W" Elevator Piston Caissons and Pistons after Removal from Caissons

Direct surveys were performed of the four pistons removed from their "W" elevator Caissons, and only the top cover of the piston removed from Caisson - 3 , (depicted above) was found to be contaminated, (see #-1 and smear 1 above), with readings of 300K dpm/100cm² βγ, < 500 dpm/100cm² α direct, and 3,000 dpm/100cm² βγ, < 20 dpm/100cm² α removable. The edge around caisson # 3 was found to be contaminated to similar levels.

A survey of the remaining pistons and caissons indicted no significant levels of contamination, fixed or removable was present. Varying levels of fluid are present in all caissons, what appears to be a mixture of hydraulic oil and water.

Direct surveys were also performed inside each of the four caissons, and there was no indication of contamination on inside surfaces.

Further, an attempt was made to absorb moisture inside the caissons by lowering absorbent socks into caissons 2, 3 & 4, and these socks were raised and surveyed by direct survey methods, and no contamination was found on any of the socks.

* Hard-to-detect smear for indication only

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

◯ Technical Smear	# 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 (mRem/hr)	Λ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary x—x—x

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3 / 43-93	0009 / 0097	08/14/2010	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
G.L. Eppling /04-26-2010	F. Moron 4-28-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100ISS-10-0377

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
O, # - 1	Smear and direct on piston from Caisson -3	< 20	7	1440	10	< 500	7	300K	10
# -2	Direct on concrete around Caisson -3, (range)	NA	NA	NA	NA	< 500	7	35K-250K	10
#	All directs on pistons and caissons 1,2,& 4	N/A	N/A	N/A	N/A	< 500	7	< 5,000	10
			N	A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N	A		

WCH-TM-R006a (06/30/2009)

Attachment 23

Agreement Between DOE and Ecology - S Elevator Caisson at 105-N (CCN 168949)

168949

^WCH Document Control

From: McCurley, Clay D
Sent: Monday, December 10, 2012 6:57 AM
To: ^WCH Document Control
Subject: Agreement Between DOE and Ecology - S Elevator Caisson at 105-N
Attachments: S Elevator 006.jpg; ElevatorCason 002.JPG; S Elevator 005.jpg; FW: Contamination Survey - S Elevator

All. Please print all attachments (in color) and chron per the subject with this email as an agreement to leave in place the S elevator caisson at 105-N. Also, please let me know which CCN has been assigned to this document. Contact me if you have any questions. Thanks. Clay

---

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Tuesday, May 18, 2010 10:52 AM
To: Thompson, Wendy S; Guercia, Rudolph F; McCurley, Clay D; Eberlein, Elis
Cc: Vedder, Barry L
Subject: RE: S Elevator - Potential need to close as if decommissioning a well

We (Ecology) have looked into it further and have found that it does not meet the definition of a well and we could not find anything in other regs regarding decommissioning such a caisson. I think we are fine with proceeding as planned.

If this was going to be completed at the surface I would suggest grouting the top couple of feet; however, since the top of the caisson is at -23 ft, I don't see any need to do this.
Rick

From: Thompson, Wendy S [mailto:WSTHOMPS@wch-rcc.com]
Sent: Monday, May 17, 2010 1:49 PM
To: Guercia, Rudolph F; Bond, Rick (ECY); McCurley, Clay D; Eberlein, Elis (ECY)
Cc: Vedder, Barry L
Subject: RE: S Elevator - Potential need to close as if decommissioning a well

Rudy,

I can't find any requirement that the elevator caisson would require decommissioning as a well. Since we know the purpose of the caison and that it was installed as part of the elevator construction, by definition it is not a well or a geotechnical boring. I called Chris Wright (groundwater drilling contact) at CHPRC to verify.

Additionally, the water table is around 71 ft below surface grade. If there were communication between the caison and the aquifer, then the hydraulic head would result in water to that depth in the caison and we might want to consider decommissioning it as we would a well. However, the caison was found dry, so it must be intact and has no communication with the aquifer.

Joe Caggiano is the Ecology contact on well requirements and Rick could contact him to verify.

Wendy

From: Guercia, Rudolph F (Rudy) [mailto:Rudolph_F_Rudy_Guercia@RL.gov]
Sent: Monday, May 17, 2010 1:40 PM
To: Bond, Fredrick W; McCurley, Clay D; Eberlein, Elis
Cc: Thompson, Wendy S; Vedder, Barry L
Subject: RE: S Elevator - Potential need to close as if decommissioning a well

Barry/Wendy: thoughts??

Rudy
Fuel Supply System Shutdown
300/400 Area Surveillance, Demolition, and Remediation
River Corridor Project
(509) 376-5494

From: Bond, Rick (ECY) [mailto:FBON461@ecy.wa.gov]
Sent: Monday, May 17, 2010 12:22 PM
To: McCurley, Clay D; Eberlein, Elis (ECY); Guercia, Rudolph F (Rudy)
Subject: S Elevator - Potential need to close as if decommissioning a well

Clay and Rudy,

Elis and I were thinking a little more about closing the S Elevator shaft and wondered if this maybe needed to be treated like we are decommissioning a well since the shaft is so deep and probably extends below the water table? If we did decommission it like a well, the major difference, and maybe the only difference, would probably be that you fill it with grout rather than clean fill. You may have to perforate the shaft but I'm not sure.

Just a thought.

What are your thoughts on this or is it too late?

Thanks,

Rick

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Thursday, May 13, 2010 12:21 PM
To: Bond, Rick (ECY); Eberlein, Elis (ECY); Guercia, Rudolph F
Cc: Dieterle, Steven E; Allen, Mark E; Warren, David J; Bigby, Daniel A
Subject: RE: S Elevator

The caisson turned out to be dry and looks pretty clean (no visible oil). The top of the caisson, and slightly down inside the caisson, was surveyed. No rad contamination found. The actuator was also surveyed and no rad contamination was found above or below its base plate. There was a small bit (sheen) of oil coated on the outer surface of the below ground actuator housing. Attached are some photos. I don't yet have the formal survey reports but will forward them to you when I get them.....if you want them. I'll be including this information and some of the photos in the Facility Status Change Form to document how we left it. I wanted to give all of you a chance to look before I release Dickson to backfill with clean fill. Do you see any reason to delay?

<< File: S Elevator 006.jpg >> << File: ElevatorCason 002.JPG >> << File: S Elevator 005.jpg >>

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]

Sent: Thursday, May 13, 2010 11:18 AM

To: McCurley, Clay D; Eberlein, Elis; Guercia, Rudolph F

Subject: RE: S Elevator

I don't think we need to come out unless you find significant liquids, oil, or some other issues. Let us know how it goes. I assume you will fill them with soil and leave them.

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Wednesday, May 12, 2010 12:05 PM
To: Bond, Rick (ECY); Eberlein, Elis (ECY); Guercia, Rudolph F
Cc: Dieterle, Steven E; Warren, David J; Allen, Mark E; Bigby, Daniel A; Delaney, Joseph P
Subject: S Elevator

Rudy/Rick/Elis. Dickson informed me this morning that they're getting ready to pull the actuator out of S elevator (today). S elevator is located at the NE corner of the room that housed the W elevator and was a normal size elevator primarily for people. The caisson is also 42" diameter (1/2" steel) but it goes below ground much deeper than the W elevator caissons. The top of the caisson is at -23' and the bottom is at -101'. It also has a steel plate welded to close off the bottom. Once Dickson gets the actuator out, they will call me to take a look. In compliance with our RAWP, we plan to conduct visual inspection down the caisson and survey as much as possible, including the actuator. We also plan to photo document the actuator and down the hole as far as the flash will go. Hopefully, we won't find any liquid.

This is your invitation to come out and take a look if you desire. Let me know. If not, I'll let you know what we find. Clay

View inside S elevator caisson.

View of hydraulic actuator removed from S elevator caisson.

View of S elevator caisson (facing north).

^WCH Document Control

From: McCurley, Clay D
Sent: Thursday, May 13, 2010 3:39 PM
To: Bond, Fredrick W; Eberlein, Elis; Guercia, Rudolph F
Cc: Dieterle, Steven E; Allen, Mark E; Bigby, Daniel A; Warren, David J
Subject: FW: Contamination Survey - S Elevator

Attachments: selevator_20100513131955.PDF

Rudy/Rick/Elis. Attached is the rad survey of the S Elevator caisson and actuator showing no radiological contamination.
Clay

From: Moran, Frank L
Sent: Thursday, May 13, 2010 1:51 PM
To: Delaney, Joseph P; McCurley, Clay D
Cc: Kobierowski, Mitchell S; Vestal, Paul R
Subject: Contamination Survey - S Elevator

Gentlemen,

The attached PDF file is the contamination survey of the S Eleveator performed by Paul Vestal. I have made a hard copy and placed it on Clay's desk.

I am sending electronically per request.

Respectfully,

selevator_20100
13131955.PDF (.

Frank Moran
RadCon Supervisor (ESHI)
MO802/100N X5-50
Cell: 942-8438

RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey ☐ Routine N/A	☒ Work Progress		Survey # RSR –100ISS-10-0436
RWP # / Rev. # 100ISS-10-002/00	Date 05/13/2010	Time 1230	Location 100N

Description : 105N – S-elevator shaft removal

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)

TA-07-SR-07/Rev.7

On 12-12-2010 the elevator shaft pictured above was removed from building 105 N where it was originally located. The shaft was from S elevator and upon removal was surveyed for direct and removable contamination. Both ends of the shaft had tech smears performed and direct surveys were performed along the entire length of the shaft. No contamination was detected on the shaft during this survey. On 12-13-2010 the caisson from S-elevator shaft had removable surveys performed. Due to the demolition hazards in the area personnel were not allowed to enter the area. A man-lift was used to perform a survey which had to be done using an extension to reach into the hole / caisson where the shaft had been located (not pictured). Smears were attached to the end of the extension and removable contamination smears were taken and counted. No removable contamination was detected on the smears.

CA Contamination Area	HCA High Contamination Area	RBA Radiological 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

○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3 / 43-93	0009 / 0097	8-14-2010	N/A		
NA					
NA					

RCT Name/Signature/Date: Paul Vestal / Paul R Vestal / 5-13-2010	RCT Supervisor Name/Signature/Date: F. MORON [signature] 5-13-10

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-10-0436

Contamination Measurement Information[1]
Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm^2)				Total (dpm/100 cm^2)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
◕	All smears	< 20	7	< 1000	10	N/A	N/A	N/A	N/A
#	Direct on shaft	N/A	N/A	N/A	N/A	<500	7	<5000	10
			N	A					

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations
Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N	A		

WCH-TM-R006a (06/30/2009)

Facility Status Change Form

Attachment 24

105-N West Side Excavation - Ecology Approval to Leave Anomaly in Soil (CCN 169290)

Facility Status Change Form

169290

^WCH Document Control

From:	McCurley, Clay D
Sent:	Wednesday, January 16, 2013 10:25 AM
To:	^WCH Document Control
Subject:	105-N West Side Excavation - Ecology Approval to Leave Anomaly in Soil
Attachments:	105-N Anomaly.doc; RSR-100ISS-12-0028.pdf

All. Please chron this email per the subject as Ecology's approval for an anomaly, found in the excavation adjacent the west side of 105-N, to remain with the SSE. Please print the attachments (at the bottom of this email) in color, attach them, and assign a chron number. Also, I would like to receive a copy of this chroned document when available.

Thank you.
Clay

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Wednesday, January 16, 2013 9:58 AM
To: McCurley, Clay D; Guercia, Rudolph F
Subject: RE: ECY Approval for leaving rad soil contamination anomaly on West Side of 105-N - near fuel storage basin.

Rudy and Clay,

Ecology approves leaving the soil contamination anomaly on the West side of the 100-N Reactor (if it is still there) as described below and deferring possible remedial action to be addressed in the future as part of the 100-N-6 WIDs site and/or with final disposition of the 105/109-N Reactor core.

Rick Bond
Facility Transition Project Manager

Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Blvd.
Richland, WA 99354
Mail Stop: HO-57
Phone: (509) 372-7885
Fax: (509) 372-7971
Email: fbon461@ecy.wa.gov

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Tuesday, January 15, 2013 11:07 AM
To: Bond, Rick (ECY)
Cc: Guercia, Rudolph F; Kobierowski, Mitchell S
Subject: ECY Approval for leaving rad soil contamination anomaly on West Side of 105-N - near fuel storage basin.

Thanks Mitch.

Rick. Is Ecology in agreement to leave the anomaly (if still there) in place for future remediation with the reactor? Just to summarize:

- Activity associated with the anomaly is approximately half the activity of the contamination left at the Zone I Supply

Plenum.

- The anomaly is small (consists of two side-by-side 3-ft diameter discolored spots).
- The anomaly is deep (expected to be buried under 21 feet of soil when the west side of the reactor is backfilled in the future).
- The anomaly is within the 100-N-66 WIDS site to be addressed in the future.
- The proximity of the anomaly to the reactor and lift station place it such that it will likely be removed with those structures in the future.

Let me know if you need more information.

Thanks. Clay

From: Kobierowski, Mitchell S
Sent: Tuesday, January 15, 2013 7:43 AM
To: McCurley, Clay D; Bond, Fredrick W
Cc: Guercia, Rudolph F
Subject: RE: Anomaly on West Side of 105-N

Clay,

The oil spots found on the ISS ramp had a maximum level of 90k dpm/100cm2. The two areas were approx 3ft in diamater. The amount of activity identified compared to what was left in front of the intake plenum is approximately half, and occupies a much smaller area. It will eventually be buried below approximately 21ft of backfill, and is within the 100-N-66 WIDS site and the foot print of the 105N Reactor Building. Due to its depth and location, I do not think it will pose any additional hazards when the Reactor is finally dispositioned. Please let me know if you need additional information on these areas.

Mitch Kobierowski
WCH Radiological Engineer
100 Areas D-4 / Field Remediation

From: McCurley, Clay D
Sent: Friday, January 11, 2013 2:21 PM
To: Kobierowski, Mitchell S; Bond, Fredrick W
Cc: Guercia, Rudolph F
Subject: FW: Anomaly on West Side of 105-N

Mitch. Would you read the correspondence below and reply to Rick Bond's concern regarding the oily spots we found at the bottom of the ramp we installed for Intermech?

Rick. Mitch Kobierowski is the D4 Radiological Engineer for the 100-N Area.

Thanks. Clay

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Thursday, December 27, 2012 11:15 AM
To: McCurley, Clay D
Cc: Guercia, Rudolph F
Subject: RE: Anomaly on West Side of 105-N

Clay,

As I told you on the phone, I think we should not spend any time looking, leave them, and they can be addressed way in the future if they even find anything. They don't appear to be any big deal. I will respond in an email and say essentially the same thing, but before I do, I wonder if you or Rudy can get more information on the level of rad contamination. I assume it is very low and not a problem to be concerned about, but I'm not well versed in these dpm numbers and how they compare to other levels we have left behind before. Can you have someone look at them and hopefully have them tell us that they very low and of minimal to no concern. I would feel more comfortable having an "expert" tell us. As soon as we do that, I will respond with an email saying I agree with your proposed approach below.

Thanks,

Rick

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Wednesday, December 26, 2012 1:48 PM
To: Bond, Rick (ECY)
Cc: Guercia, Rudolph F
Subject: Anomaly on West Side of 105-N

Rick.

Here's some information on the two side-by-side oily spots I described to you on the phone last week. I'm calling them an anomaly since I don't know for sure that it was a spill. Back in May, we observed these spots at the bottom of the ramp that we built down to the excavation on the west of the 105-N (see attached Word file). The anomaly was in the fill material we had placed there. At that time, Intermech was mobilizing to start their final work on the SSE and there was a big push to get them going. So, instead of digging up that portion of the ramp, and impeding Intermech's access to the FSB, we opted to cover the anomaly, and come back and investigate it later (after Intermech was finished). The anomaly had an oily appearance and registered some activity (see attached Radiological Survey Record). Each spot was about 3 feet in diameter.

We returned to that spot about 3 weeks ago and dug down at several locations on and around it. We estimate it was covered with no more than 2 feet of material and we dug down as deep as 4 feet. We didn't observe any discolored soil and our RCTs didn't detect any activity above background. It may have gotten removed since we last saw it but I have no documentation to substantiate that. I personally think it may still be there but we haven't been able to find it. Because of this, I'm proposing we leave it. It's within the footprint of the 105-N and the 100-N-66 WIDS site. It'll be removed when the facility is removed in the future.

Your thoughts?

Clay

105-N omaly.doc (177 | RSR-100ISS-12-I028.pdf (121 KB.

105-N West Side

May 2012

Anomaly observed inside or adjacent to white circle in above photograph.

RADIOLOGICAL SURVEY RECORD

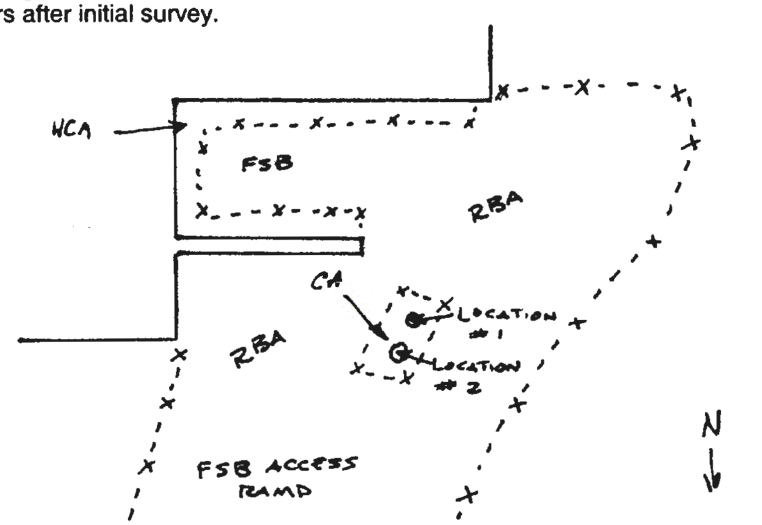
Page 1 of 2

Type of Survey ☐ Routine	☒ Work Progress		Survey # RSR – 100ISS-12-0028
RWP # / Rev. # 100ISS-10-002/Rev 04	Date 05-08-12	Time 1000	Location 100N/FSB access ramp

Description
Contamination found on FSB access ramp

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-07/ Rev 7

Technician was asked to survey oil stains on Fuel Storage Basin access ramp, at which time two contaminated areas were found. Transferable surveys and direct surveys were completed on both spots. Readings listed on page two of this report. RCS notified, as well as project Management. Area was posted as Contamination area while awaiting final disposition. This area is located within an RBA/Underground Radioactive Materials Area. Diagram below shows approximate location on FSB access ramp. The two locations are noted as locations #1 & #2. Readings on page two are designated likewise. Original survey showed higher transferable alpha readings than what is shown on page two. Levels shown on page two are final decay counts taken several hours after initial survey.



CA	Contamination Area	HCA	High Contamination Area	RBA	Radiological 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														

○ Technical Smear	# 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 (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area
Radiological Boundary x—x—x									

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2360/43-93	0078/0179	09-06-12	Ludlum model 12	0050	03-30-13
N/A	N/A	N/A	HP 210	0074	04-27-13
N/A	N/A	N/A	N/A	N/A	N/A

RCT Name/Signature/Date: Terry Parker/ [signature] /05-09-12	RCT Supervisor Name/Signature/Date: [signature] 5-9-12

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

RADIOLOGICAL SURVEY RECORD	Page: 2 of 2 Survey # RSR - 100ISS-12-0028

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
#1	Transferable/Direct readings, location #1	35	7	<1000	10	<500	7	50,000	10
#2	Transferable/Direct readings, location #2	42	7	4000	10	<500	7	90,000	10
				N					
					A				

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
	N			
		A		

WCH-TM-R006a (06/30/2009)

Attachment 25

UPR-100-N-35 Unplanned Sub-Basin Drain Line in 105N (CCN-166302)

Facility Status Change Form

166302

^WCH Document Control

From: Faust, Toni L
Sent: Wednesday, June 20, 2012 12:39 PM
To: ^WCH Document Control
Cc: Collom, Landon R; Habel, Leonard D
Subject: FW: UPR-100-N-35 unplanned sub-basin drain line in 105N

Attachments: Picture (Device Independent Bitmap)

Please chron the below email series and the figure in this email showing where the UPR-100-N-35 unplanned release is located. Please notify me when document is in Content Management.

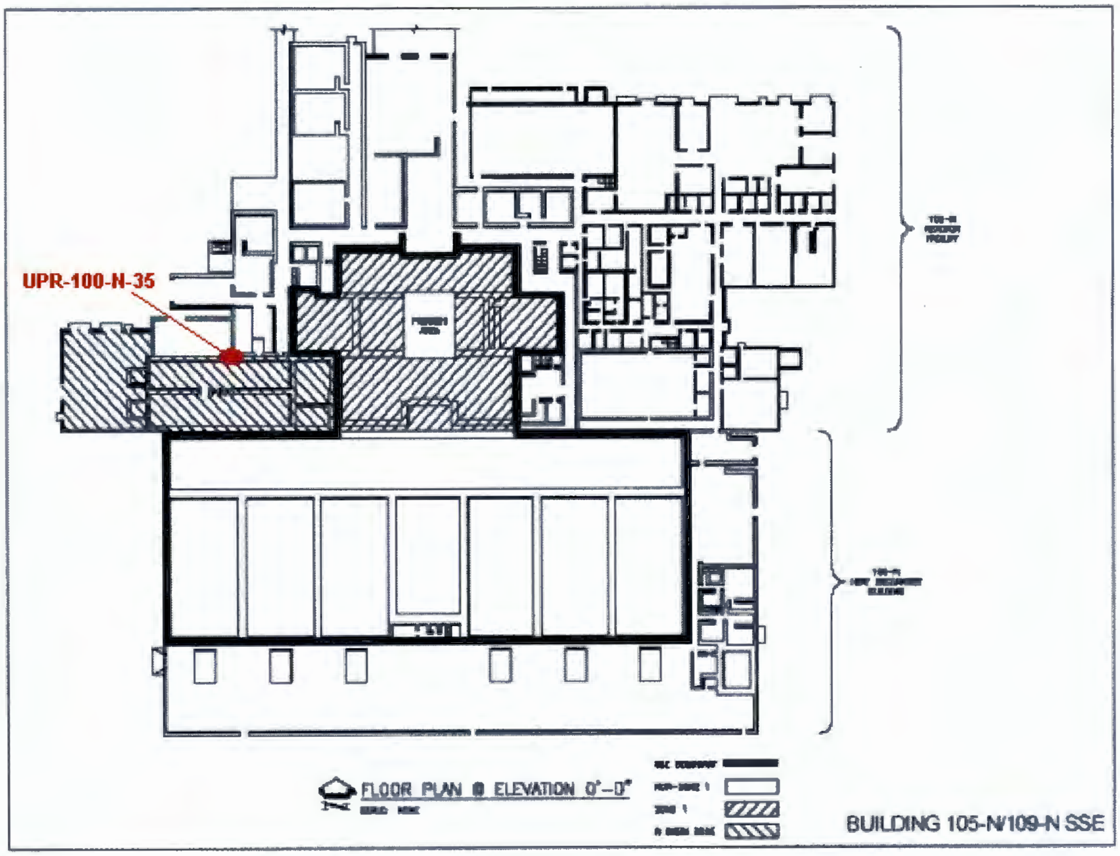


Figure 1-3. Floor Plan of the 105-N Reactor Facility and 109-N Heat Exchanger Building.

From: Schilperoort, Daryl L
Sent: Tuesday, June 19, 2012 7:51 AM
To: Faust, Toni L
Subject: RE: UPR-100-N-35 unplanned sub-basin drain line in 105N

A video camera was set up when I did the inspection. I have no idea of any photos or the location of either a video or photos.

From: Faust, Toni L
Sent: Monday, June 18, 2012 2:54 PM

To: Schilperoort, Daryl L
Subject: RE: UPR-100-N-35 unplanned sub-basin drain line in 105N

Was there a camera or any photos taken that you can remember or know the location of?

Thanks toni

From: Schilperoort, Daryl L
Sent: Wednesday, June 13, 2012 3:32 PM
To: Faust, Toni L
Cc: Delaney, Joseph P
Subject: RE: UPR-100-N-35 unplanned sub-basin drain line in 105N

Toni,

Sometime in the early 1980s during a reactor core charge-discharge outage, I was requested by the N Reactor Shift Manger to inspect the area where a leak from the Fuel Storage Basin had been identified to confirm that a camera and light that had been set up in that area was properly positioned. The leak was identified as being in the Lift Station pipe tunnel in the wall between the FSB and the Lift Station. When I got into the Lift Station pipe tunnel I observed a spray of water coming out of a crack in the south concrete wall with water flowing on the floor of the pipe tunnel and falling into the Lift Station Valve Pit.

I was informed that one of the drain lines from a FSB overflow weir had cracked and water would leak from this crack when the amount of water flowing though these drains increased during charge-discharge activity of the reactor core. This happen because there was a significant increase in the amount of water being added to the FSB when 9 process tubes were uncapped on the Discharge elevator and the water from these tubes flowed into the FSB.

Shortly after my visit to the pipe tunnel the leaking weir drain pipe was grouted closed. Let me know if you need additional information.

Daryl

From: Faust, Toni L
Sent: Wednesday, June 13, 2012 2:06 PM
To: Schilperoort, Daryl L
Subject: UPR-100-N-35 unplanned sub-basin drain line in 105N

Daryl

Can you please give me a description of the leak you observed in the 105N Drain Pipe Tunnel that may be the source of the unplanned release UPR-100-N-35. Please include a description of the pipe, the location, the date and anything you think pertinent. Your email will be reviewed to determine if the current SIS description is complete and accurate. From GIS and SIS it looks like the release may be in the wrong location.

Thanks toni

Attachment 26

Agreement Between DOE and Ecology - 105-N West Side Below Grade Pipe Tunnel (CCN 153055)

^WCH Document Control 153055

From: McCurley, Clay D
Sent: Wednesday, September 01, 2010 4:26 PM
To: ^WCH Document Control
Subject: Agreement Between DOE and Ecology - 105-N West Side Below Grade Pipe Tunnel
Attachments: RE: Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures; Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures

Please print this email and the attachments and chron them all together as an "Agreement Between DOE and Ecology for the 105-N West Side Below Grade Pipe Tunnel."

Thanks. Clay

From: Guercia, Rudolph [mailto:Rudolph.Guercia@rl.doe.gov]
Sent: Thursday, July 08, 2010 8:01 AM
To: Chance, Joanne C; McCurley, Clay D
Subject: RE: Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures

I agree with Joanne. This appears to be an appropriate description of the clarification agreement

---

From: Chance, Joanne
Sent: Wednesday, July 07, 2010 11:07 AM
To: McCurley, Clay D
Cc: Guercia, Rudolph
Subject: FW: Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures

HI Clay,

For your record, the interpretation points are in the minutes. Thanks.

Joanne C. Chance
U.S. Department of Energy
Office of Assistant Manager for the River Corridor
825 Jadwin Ave / MSIN A3-04
Richland, WA 99352
(509) 376-0811

From: Guercia, Rudolph
Sent: Wednesday, June 30, 2010 4:17 PM
To: McCurley, Clay D; Chance, Joanne; Bond, Fredrick W; Eberlein, Elis E; Kobierowski, Mitchell S
Cc: Reese, Dennis E; Flannery, Michael (Mike) D; Allen, Mark E; Warren, David J; Faust, Toni L; Hulquist, Jeremy D
Subject: RE: Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures

Clay, this is consistent with my recollection, but I had some fine points of interpretation of the RAWP that were addressed. Joanne, are all of the interpretation points in the message?

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Wednesday, June 30, 2010 12:57 PM
To: Guercia, Rudolph; Chance, Joanne; Bond, Fredrick W; Eberlein, Elis E; Kobierowski, Mitchell S
Cc: Reese, Dennis E; Flannery, Michael (Mike) D; Allen, Mark E; Warren, David J; Faust, Toni L; Hulquist, Jeremy D
Subject: Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures

Rudy/Rick. Attached are the minutes I developed from our meeting last Thursday at Ecology's office. Please review and let me know if the document accurately reflects the agreements reached during the meeting. If the document is accurate, I will chron it, its attachment, and your responses and submit to the Administrative Record as an agreement between DOE and Ecology. Thanks. Clay

<< File: Meeting Minutes 06-24-10.doc >> << File: 105-N West Side Below Ground Structures Outside SSE.msg >>

^WCH Document Control

From: Bond, Fredrick W
Sent: Wednesday, June 30, 2010 4:24 PM
To: McCurley, Clay D; Guercia, Rudolph F; Chance, Joanne C; Eberlein, Elis
Subject: RE: Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures

This looks good to me. Thanks.

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Wednesday, June 30, 2010 12:57 PM
To: Guercia, Rudolph F; Chance, Joanne C; Bond, Rick (ECY); Eberlein, Elis (ECY); Kobierowski, Mitchell S
Cc: Reese, Dennis E; Flannery, Michael (Mike) D; Allen, Mark E; Warren, David J; Faust, Toni L; Hulquist, Jeremy D
Subject: Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures

Rudy/Rick. Attached are the minutes I developed from our meeting last Thursday at Ecology's office. Please review and let me know if the document accurately reflects the agreements reached during the meeting. If the document is accurate, I will chron it, its attachment, and your responses and submit to the Administrative Record as an agreement between DOE and Ecology. Thanks. Clay

<< File: Meeting Minutes 06-24-10.doc >> << File: 105-N West Side Below Ground Structures Outside SSE.msg >>

^WCH Document Control

From:	McCurley, Clay D
Sent:	Wednesday, June 30, 2010 12:57 PM
To:	Guercia, Rudolph F; Chance, Joanne C; Bond, Fredrick W; Eberlein, Elis; Kobierowski, Mitchell S
Cc:	Reese, Dennis E; Flannery, Michael (Mike) D; Allen, Mark E; Warren, David J; Faust, Toni L; Hulquist, Jeremy D
Subject:	Meeting Minutes - Documenting Agreements Between DOE and Ecology for West Side 105-N Below Grade Structures
Attachments:	Meeting Minutes 06-24-10.doc; 105-N West Side Below Ground Structures Outside SSE.msg

Rudy/Rick. Attached are the minutes I developed from our meeting last Thursday at Ecology's office. Please review and let me know if the document accurately reflects the agreements reached during the meeting. If the document is accurate, I will chron it, its attachment, and your responses and submit to the Administrative Record as an agreement between DOE and Ecology. Thanks. Clay

Meeting Minutes 06-24-10.doc (...

105-N West Side Below Ground S...

WCH Washington Closure Hanford

CCN

Meeting Minutes

SUBJECT	105-N West Side –Below-Grade Structures to Remain with Reactor Building
TO	Attendees (See Below)
FROM	Clay McCurley (WCH)
DATE	June 29, 2010

	DISTRIBUTION
Attendees:	Dennis Reese (WCH)
Rudy Guercia (DOE)	Mark Allen (WCH)
Joanne Chance (DOE)	Mike Flannery (WCH)
Rick Bond (Ecology)	Toni Faust (WCH)
Elis Eberlein (Ecology)	Jeremy Hulquist (WCH)
Mitch Kobierowski (WCH)	Document Control H4-11

A meeting was held with DOE and Ecology on June 24, 2010 to ensure both are in agreement with three issues identified in a May 11, 2010 electronic message from Clay McCurley to Rudy Guercia, Rick Bond and Elis Eberlein (see attachment). Section 1.3.3 of DOE/RL-2005-43, *Removal Action Work Plan for 105-N/109-N Building Interim Safe Storage and Related Facilities*, Rev. 1 (RAWP), August 2009 requires concurrence of the lead regulatory agency to leave below-grade structures. The results of the meeting are as follows:

- DOE and Ecology agreed with Issue 1 and Issue 3.
- DOE and Ecology did not agree with Issue 2. WCH radiological engineers indicate that radiological contamination on floors of the pipe tunnel and valve pit at the completion of demolition is likely to exceed two (2) times background. If this proves true, then DOE and Ecology require that a minimum of four (4) concrete samples be collected from the floor of the pipe tunnel and at least one (1) sample be collected from the floor of the valve pit. The samples will be "in process" samples for information only and the pipe tunnel can be backfilled (with clean fill) immediately after the samples have been collected.

  The samples are to focus on areas with stains and where radiological screening indicates the highest values. Samples will be analyzed for the COPCs identified for deep zone below-grade concrete (WS #4 on page I-52) in DOE/RL-2005-92, *100-N Area Sampling and Analysis Plan for CERCLA Waste Sites*, Rev. 0, October 2006.
- DOE and Ecology also requested the placement of a moisture barrier (e.g., plastic sheeting or concrete slab) sloped out and down from the SSE overlapping the pipe tunnel and valve to move water away.
- Other tasks requested by DOE and Ecology during the meeting were already in the plans and included applying fixative to the pipe tunnel and valve pit and sampling/analyzing the water/sediments at the bottom of the valve pit.

Distribution
Page 2

CCN

ATTACHMENT

Email message: *105-N West Side Below Grade Structures Outside SSE*, From Clay McCurley to Rudy Guercia, Rick Bond, and Elis Eberlein, May 11, 2010

^WCH Document Control

From: McCurley, Clay D
Sent: Tuesday, May 11, 2010 10:43 AM
To: Guercia, Rudolph F; Bond, Fredrick W; Eberlein, Elis
Cc: Dieterle, Steven E; Allen, Mark E; Warren, David J; Thompson, Wendy S; Flannery, Michael (Mike) D; Delaney, Joseph P
Subject: 105-N West Side Below Ground Structures Outside SSE

Attachments: Below Grade Plan.doc; Plan - West Side 105-N.doc

Rudy/Rick. To date, we've had a couple of meetings to discuss the need to leave below-ground portions of the pipe tunnel and valve pit walls and floors to provide structural support for the west side of the 105-N Reactor Building. The structures would remain in place until demolition of the N Reactor some time in the future. Joe Delaney and I have developed a brief description of the plan for leaving these structures (see attachments).

Below Grade Plan.doc (52 KB)   Plan - West Side 105-N.doc (28...

My objective with this email is to obtain DOE and Ecology agreement with this plan and submit that agreement to the Administrative Record and the next UMM. In particular, I'm looking for agreement on three issues:

ISSUE 1: The underground structures need to remain in place to provide structural support of the SSE until future demolition of the 105-N Reactor Building.

ISSUE 2: It is acceptable to backfill over underground structures after application of fixative only. There is no need to sample and analyze concrete because contamination is fixed on concrete and not expected to migrate. The contaminated concrete will be removed when the 105-N Reactor Building is removed.

ISSUE 3: It is acceptable to place clean fill in the pipe tunnel excavation to -16', overlay with plastic sheeting, and backfill to grade with previously excavated (contaminated) soil. Note: The reason for this is to eliminate the need to again excavate below the footer of the 105-N (in the pipe tunnel) and further jeopardize the structural integrity of the 105-N and the concrete wall constructed against the SSE. The contaminated soil, plastic sheeting, and approximately top two (2) feet of clean fill will be excavated and transported to the ERDF during the demolition of the Fuel Storage Basin.

Please review the attached information and let me know via email if you agree with the issues described above. If you would like to further discuss any of the issues, let me know and I will be happy arrange another meeting. Contact me if you have any questions.

Clay McCurley
942-8928

Attachment 27

105-N Fuel Storage Basin Excavation - Ecology Approval to Pad In (CCN 165487)

Facility Status Change Form

165487

^WCH Document Control

From: McCurley, Clay D
Sent: Wednesday, April 25, 2012 3:37 PM
To: ^WCH Document Control
Subject: 105-N Fuel Storage Basin Excavation - Ecology Approval to Pad In

Please chron this email per the subject and provide me with the chron number. Thanks. Clay

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Wednesday, April 25, 2012 3:17 PM
To: McCurley, Clay D
Subject: RE: Padding In 105-N Fuel Storage Basin

Clay,

Thank you for meeting with me yesterday to explain your request to use the soils from the two nearby excavations as padding material to place over the FSB. Thank you also for sharing the considerable amount of radiological survey information with me that shows that the soils do not contain any appreciable contamination. Based on the fact that these soils are essentially clean and that they will being placed over a pad that contains higher contamination levels, and in the interest of not wasting tax payer money, I concur with your plan to use soil from these two locations to create a pad over the FSB excavation.

Thanks,

Rick Bond
Facility Transition Project Manager

Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Blvd.
Richland, WA 99354
Mail Stop: HO-57
Phone: (509) 372-7885
Fax: (509) 372-7971
Email: fbon461@ecy.wa.gov

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Wednesday, April 25, 2012 2:52 PM
To: Bond, Rick (ECY)
Subject: Padding In 105-N Fuel Storage Basin

Rick. As we discussed yesterday afternoon in your office, a recent radiological survey of the soil in the 105-N Fuel Storage Basin (FSB) excavation indicates significant contamination and we need to place an approximate 1 foot thick layer of soil (pad) on top of the excavation to provide safe access for our subcontractor to complete the Reactor ISS. We estimate that approximately 300 cubic yards of soil will be needed to create the pad.

We have identified two locations to obtain the padding material; 1) around the 1303-N spacer silos and 2) soil between the southern edge of the FSB excavation (west of the 109-N) and the northern edge of the 1300-N dump basin excavation. Radiological surveys of the soil near the north end of the dump basin excavation, performed during FRs recent remediation activities, have not shown any appreciable contamination to date. Radiological surveys of the soil being removed from around the 1303-N spacer silos also have not shown any appreciable contamination to date. I will be happy to provide you with copies of these survey reports if requested. It is intended that the pad will remain within the FSB excavation until final remediation many years from now. Placement of this pad will not unduly hinder future remediation efforts and the pad material will be appropriately characterized and documented in the Facility Status Change Form for this facility. Please provide Ecology's concurrence with our plan to use soil from these two locations to create the pad over the FSB excavation.

Please contact me if you need more information.

Clay

Attachment 28

MSDSs for Fixatives Applied to 105-N Pipe Tunnel

MATERIAL SAFETY DATA SHEET

REVISION DATE: 02-06-2006 SUPERSEDES: 12-09-2003

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY INFORMATION
Specialty Construction Brands, Inc.
(formerly Foster Products Corporation
an H.B. Fuller Company Subsidiary)
315 South Hicks Road
Palatine, IL 60067
Phone: 847-358-9500

Medical Emergency Phone Number (24 Hours): 1-888-853-1758
Transport Emergency Phone Number (CHEMTREC): 1-800-424-9300

PRODUCT INFORMATION

PRODUCT IDENTIFIER:	802291PM
PRODUCT NUMBER:	FD3261
PRODUCT NAME:	FOSTER 32-61
PRODUCT DESCRIPTION:	Lockdown

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Unlisted ingredients are not 'hazardous' per the Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200) and/or are not found on the Canadian Workplace Hazardous Materials Information System ingredient disclosure list. See Section 8 for any additional exposure limit guidelines.

Chemical Name	CAS #	PERCENT	OSHA PEL

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS RATING: HEALTH -- 0 FLAMMABILITY -- 0 REACTIVITY -- 0
See SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for personal protective equipment recommendations.

POTENTIAL HEALTH EFFECTS BY ROUTE OF ENTRY
EYE: No irritation hazard in normal industrial use.
SKIN: No irritation hazard in normal industrial use.

INHALATION: No irritation hazard in normal industrial use.

INGESTION: Ingestion is not an anticipated route of exposure. No hazard in normal industrial use.

LONG-TERM (CHRONIC) HEALTH EFFECTS
TARGET ORGAN(S): No organs known to be damaged from exposure to this product.

MATERIAL SAFETY DATA SHEET

REGULATED CARCINOGEN STATUS:
Unless noted below, this product does not contain regulated levels of NTP, IARC, ACGIH, or OSHA listed carcinogens.

EXISTING HEALTH CONDITIONS AFFECTED BY EXPOSURE: No medical conditions affected by exposure.

SECTION 4: FIRST AID MEASURES

IF IN EYES: None expected to be needed, however, use an eye wash to remove a chemical from your eye regardless of the level of hazard.

IF ON SKIN: Wash with soap and water.

IF VAPORS INHALED: Remove individual to fresh air after an airborne exposure if any symptoms develop, as a precautionary measure.

IF SWALLOWED: Do not induce vomiting. Seek medical attention if symptoms develop. Provide medical care provider with this MSDS. Induced vomiting may lead to aspiration of the material into the lungs potentially causing chemical pneumonitis that may be fatal.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT:	Non flammable
AUTOIGNITION TEMPERATURE:	Not established
LOWER EXPLOSIVE LIMIT (% in air):	Not established
UPPER EXPLOSIVE LIMIT (% in air):	Not established
EXTINGUISHING MEDIA:	Use water spray, foam, dry chemical or carbon dioxide.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	There is a possibility of pressure buildup in closed containers when heated. Water spray may be used to cool the containers.
SPECIAL FIRE FIGHTING INSTRUCTIONS:	Persons exposed to products of combustion should wear self-contained breathing apparatus and full protective equipment.
HAZARDOUS COMBUSTION PRODUCTS:	Carbon dioxide, Carbon monoxide

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPECIAL PROTECTION:	No adverse health effects expected from the clean-up of spilled material. Follow personal protective equipment recommendations found in Section 8 of this MSDS.
CLEAN-UP:	Dike if necessary, contain spill with inert absorbent and transfer to containers for disposal. Keep spilled product out of sewers, watersheds, or water systems.

Transport Emergency Phone Number (CHEMTREC): 1-800-424-9300

SECTION 7: HANDLING AND STORAGE

Handling: No special handling instructions due to toxicity.

This product contains an ingredient that may release formaldehyde at heated cure temperatures.

Storage: Store in a cool, dry place.

Consult the Technical Data Sheet for specific storage instructions.

MATERIAL SAFETY DATA SHEET

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION:	Wear safety glasses when handling this product.
SKIN PROTECTION:	Not normally considered a skin hazard. Where use can result in skin contact, practice good personal hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
GLOVES:	Not normally required. Use nitrile gloves if conditions warrant.
RESPIRATORY PROTECTION:	No respiratory protection required under normal conditions of use. Respirators should be selected by and used following requirements found in OSHA's respirator standard (29 CFR 1910.134).
VENTILATION:	No exposure limits exist for the constituents of this product. No engineering controls are likely to be required to maintain operator comfort under normal conditions of use.

EXPOSURE LIMITS:

Chemical Name	ACGIH EXPOSURE LIMITS	AIHA WEEL

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	White
ODOR:	Sweet Mild
ODOR THRESHOLD:	Not established
WEIGHT PER GALLON (lbs.):	8.4
SPECIFIC GRAVITY:	1.01
SOLIDS (% by weight):	7.4
pH:	Not established
BOILING POINT (deg. C):	Not established
FREEZING/MELTING POINT (deg. C):	Not established
VAPOR PRESSURE (mm Hg):	Not established
VAPOR DENSITY:	Not established
EVAPORATION RATE:	Not established
OCTANOL/WATER COEFFICIENT:	Not established

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	Stable under normal conditions.
CHEMICAL INCOMPATIBILITY:	Not established
HAZARDOUS POLYMERIZATION:	Will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon monoxide, carbon dioxide

SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	LD50/LC50

TOXICOLOGY SUMMARY: No additional health information available.

SECTION 12: ECOLOGICAL INFORMATION

OVERVIEW: No ecological information available

MATERIAL SAFETY DATA SHEET

SECTION 13: DISPOSAL CONSIDERATIONS

To the best of our knowledge, this product does not meet the definition of hazardous waste under the U.S. EPA Hazardous Waste Regulations 40 CFR 261. Solidify and dispose of in an approved landfill. Consult state, local or provincial authorities for more restrictive requirements.

SECTION 14: TRANSPORTATION INFORMATION

Consult Bill of Lading for transportation information.
DOT: NOT REGULATED ,,,

SECTION 15: REGULATORY INFORMATION

INVENTORY STATUS
U.S. EPA TSCA: This product is in compliance with the Toxic Substances Control Act's Inventory requirements.
CANADIAN CEPA DSL: This product is in compliance with the Canadian Domestic Substance List requirements.
If you need more information about the inventory status of this product call 651-236-5858.

This product may contain chemical substances that are regulated for export by various government agencies (such as the Environmental Protection Agency, the Bureau of Industry and Security, or the Drug Enforcement Administration, among others). Before exporting this product from the USA or Canada, we recommend you contact us at 651-236-5858 (USA) or 450-655-1306 x227 (Canada) to request an export review.

FEDERAL REPORTING
EPA SARA Title III Section 313
Unless listed below, this product does not contain toxic chemical(s) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR part 372. EPA has advised that when a percentage range is listed the midpoint may be used to fulfill reporting obligations.

Chemical Name	CAS#	%

WHMIS STATUS: Unless listed below, this product is not controlled under the Canadian Workplace Hazardous Materials Information System.

STATE REPORTING
This MSDS is not prepared for distribution in California.

SECTION 16: ADDITIONAL INFORMATION

This Material Safety Data Sheet is prepared to comply with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Workplace Hazardous Materials Information System (WHMIS).

Prepared by: The Global Regulatory Department
Phone: 651-236-5842

The information and recommendations set forth herein are believed to be accurate. Because some of the information is derived from information provided to Specialty Construction Brands, Inc. from its suppliers, and because

MATERIAL SAFETY DATA SHEET

Specialty Construction Brands, Inc. has no control over the conditions of handling and use, Specialty Construction Brands, Inc. makes no warranty, expressed or implied, regarding the accuracy of the data or the results to be obtained from the use thereof. The information is supplied solely for your information and consideration, and Specialty Construction Brands, Inc. assumes no responsibility for use or reliance thereon. It is the responsibility of the user of Specialty Construction Brands, Inc. products to comply with all applicable federal, state and local laws and regulations.

Facility Status Change Form

Material Safety Data Sheet RIT® Tint and Dye	Page 1 of 4 Rev. Date 05/07/07

SECTION #1 – PRODUCT AND COMPANY IDENTIFICATION

Product: RIT® Tint and Dye

Phoenix Brands
2855 N. Franklin Rd., #7
Indianapolis, Indiana 46219 USA

Consumer Service Telephone Number: 1-866-794-0800
Emergency Contact: PROSAR IPC
Emergency Phone Number: 1-866-794-0800

Product Description: Dry mixtures of inorganic and organic compounds

SECTION #2 – COMPOSITION, INFORMATION ON INGREDIENTS

This product contains no substances defined as *Health Hazards* or as *Physical Hazards* according to the requirements of 29CFR, Part 1910.1200. The identity of specific components of this product may be determined in accordance with the provisions of 29CFR, Part 1910.1200(1).

SECTION #3 – HAZARDS IDENTIFICATION

Route of Exposure - Inhalation

Inhalation of the components of this product does not pose a significant risk to health when used according to instructions and with appropriate protective measures (see Section #8). Inhalation of dust or mists of solutions prepared from this product may irritate the nose, throat, and upper respiratory tract.

Route of Exposure - Skin

Skin contact may produce mild irritation, particularly on abraded or sensitive skin. In some individuals, some components of these products may produce sensitization following prolonged contact.

Route of Exposure - Eyes

Contact with the eyes may produce irritation.

Route of Exposure - Ingestion

Ingestion of this material may produce mild gastric irritation.

SECTION #4 – FIRST AID MEASURES

First Aid - Inhalation

If signs and symptoms of irritation are observed, remove subject from area. Perform artificial respiration and/or seek medical attention if necessary.

First Aid - Skin

Remove contaminated clothing. Wash affected area with soap, and rinse with water for at least fifteen minutes. Seek medical attention if necessary.

Material Safety Data Sheet RIT® Tint and Dye	Page 2 of 4 Rev. Date 05/07/07

SECTION #4 – FIRST AID MEASURES CONTINUED...

First Aid - Eyes

Flush affected areas with water for at least 15 minutes. Seek medical assistance.

First Aid - Ingestion

If the subject is conscious, induce vomiting. If unconscious or convulsive, seek immediate medical assistance. Do not attempt to give liquids to an unconscious person.

SECTION #5 – FIRE FIGHTING MEASURES

Flash Point: not applicable
Lower Explosive Limit (%): not applicable
Autoignition Temperature: not applicable
Flammability Class: not applicable
Upper Explosive Limit (%): not applicable

Fire and Explosion Hazards

Some components of this product may decompose when exposed to flame, very high temperatures, or by reaction with incompatible materials (see Section #10 for incompatible materials). Fires or explosions involving this product may emit carbon monoxide, smoke, and irritant decomposition byproducts.

Extinguishing Media

Flood with large quantities of water.

Special Fire Fighting Instructions

If fighting a fire in which this product is present, wear a self-contained breathing apparatus with full-facepiece operated in pressure-demand or other positive pressure mode.

SECTION #6 – ACCIDENTAL RELEASE MEASURES

Steps to be taken in the event of Spills, Leaks or Release

Wear protective clothing (gloves, goggles) to prevent contact with skin or eyes. Clean up spilled material so as to minimize dispersion of dust. If excessive dusting occurs, wear appropriate respiratory protection (see Section #8). For large spills, shovel material into a container for reclamation. For small spills, flush away with large quantities of water.

Waste Disposal Methods

Dispose of in accordance with applicable Federal, State/Provincial, and local regulations.

SECTION #7 – HANDLING AND STORAGE

Store in a cool, dry place away from flames and incompatible materials (see Section #10). Keep containers tightly closed.

Material Safety Data Sheet RIT® Tint and Dye	Page 3 of 4 Rev. Date 05/07/07

SECTION #8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation

If the product is used in a manner that generates airborne dust, provide appropriate ventilation (dilution, local exhaust) adequate to control dust concentrations in air.

Eye Protection

If eye contact with the product is possible, wear eye protection (e.g., chemical goggles) adequate to prevent eye contact and/or injury.

Skin Protection

Wear gloves suitable for protection against irritant chemicals. Rubber, PVA, or nitrile are satisfactory materials.

Respiratory Protection

Respiratory protection is not normally required in the use of this product. If this product is used in a manner that generates dust not controlled by ventilation, wear a NIOSH-approved respirator having a configuration (class, type of facepiece, filters, assigned protection factor, etc.) appropriate to the concentration of dust or mist generated. For guidance on the selection and use of respiratory protection, consult American National Standard Z88.2-1992 (ANSI, New York, NY 10036 USA).

Work/Hygienic Practices

To avoid ingestion of material, wash hands and face before eating, drinking, or using tobacco.

SECTION #9 – PHYSICAL AND CHEMICAL PROPERTIES

Solubility (H_2O): soluble
Vapor pressure: not applicable
Appearance: Colored powders, odorless

Percent Volatiles: not applicable
Vapor density: not applicable

SECTION #10 – STABILITY AND REACTIVITY

Conditions to Avoid

The product is stable at room temperature. Hazardous polymerization will not occur.

Incompatible Materials
Strong oxidizing agents; strong acids.

Hazardous Decomposition Products

If this product is exposed to flame, carbon monoxide, smoke, and irritant gases may be released.

SECTION #11 – TOXICOLOGICAL INFORMATION

Some components of this product have produced both positive and negative findings in *in vitro* mutagenicity assays. None of the components of this product are classified as potential or demonstrated human carcinogens by IARC, NTP, or OSHA.

Material Safety Data Sheet RIT® Tint and Dye	Page 4 of 4 Rev. Date 05/07/07

SECTION #12 – ECOLOGICAL INFORMATION

No data available.
The product is not expected to present an environmental hazard.

SECTION #13 – DISPOSAL CONSIDERATIONS

Dispose of in accordance with applicable Federal, State/Provincial, and local regulations.
Empty containers should be triple rinsed before disposal.

SECTION #14 – TRANSPORTATION INFORMATION

DOT Hazard Class: Non-hazardous
Proper Shipping Name: Not Regulated
WHMIS Hazard Classification(s): Health:1 Flammability: 1 Reactivity: 0

SECTION #15 – REGULATORY INFORMATION

SARA Title III - Hazard Class(es): Acute Health Hazard

SARA Title III - Section 313 Supplier Notification: This product contains no chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

SECTION #16 – OTHER INFORMATION – DEFINITON OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following: CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching. EXPOSURE LIMITS IN AIR: ACGIH – American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. TLV – Threshold Limit Value – an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (TWA), the 15-minute Short Term Exposure Limit (STEL), and the instantaneous Ceiling Limit. Skin adsorption effects must also be considered.

OSHA – U. S. Occupational Safety and Health Administration. PEL – Permissible Exposure Limit – this exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. NIOSH is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (OSHA). NIOSH issues exposure guidelines called Recommended Exposure Levels (RELs). FLAMMABILITY LIMITS IN AIR: Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). LEL – the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL – the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

DISCLAIMER OF EXPRESS AND IMPLIED WARRANTIES

The foregoing data has been compiled from sources that the company, in good faith, believes to be dependable and is accurate and reliable to the best of our knowledge and belief. However, the company cannot make any warranty or representation respecting the accuracy or completeness of the data, and assumes no responsibility for any liability or damages relating thereto or for advising you regarding the protection of your employees or others. Users should make their own tests to determine the applicability of such information or the suitability of any products for specific use.

Attachment 29

Analytical Results for Lift Station Concrete Samples

Inorganic (Metals) Sample Summary for Lift Station (page 1 of 2)

HEIS Number	Sample Date	Location Description	Aluminum			Antimony			Arsenic			Barium			Beryllium			Bismuth		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	6950		6.76	0.811	U	0.81	2.58		1.35	165		0.68	0.194	B	0.27	1.12	B	13.5
J1CN38	11/4/10	LS Tunnel	8390		6.41	0.466	B	0.77	4.11		1.28	92.6		0.64	0.194	B	0.26	0.823	B	12.8
J1CN39	11/4/10	LS Tunnel	8190		6.76	0.811	U	0.81	2.16		1.35	113		0.68	0.218	B	0.27	1.19	B	13.5
J1CN40	11/4/10	LS Tunnel	7940		6.58	0.476	B	0.79	3.2		1.32	119		0.66	0.247	B	0.26	0.984	B	13.2
J1NPC5	4/16/12	LS Valve Pit	6670		4.17	0.5	U	0.5	2.47		0.833	72.5		0.417	0.205		0.167	NA	NA	NA

HEIS Number	Sample Date	Location Description	Boron			Cadmium			Calcium			Chromium			Cobalt			Copper		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	6.94		2.7	0.766		0.27	59100		135	31.7		0.27	8.27		2.7	25.5		1.35
J1CN38	11/4/10	LS Tunnel	9.51		2.56	0.289		0.26	109000		1540	21.6		0.26	8.41		2.56	20.3		1.28
J1CN39	11/4/10	LS Tunnel	15.1		2.7	0.488		0.27	81500		1620	15.2		0.27	9.01		2.7	23.5		1.35
J1CN40	11/4/10	LS Tunnel	10.5		2.63	1.61		0.26	74700		1580	29		0.26	6.72		2.63	26.1		1.32
J1NPC5	4/16/12	LS Valve Pit	8.92		1.67	0.556		0.167	64000		1000	16		0.167	5.15		1.67	16.9		0.833

HEIS Number	Sample Date	Location Description	Iron			Lead			Lithium			Magnesium			Manganese			Mercury		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	26900		27	36.8		0.68	6.09		3.38	5230		101	394		6.76	0.015	B	0.04
J1CN38	11/4/10	LS Tunnel	22200		25.6	29.5		0.64	9.28		3.21	4980		96.2	411		6.41	0.038	U	0.04
J1CN39	11/4/10	LS Tunnel	22900		27	11		0.68	10.1		3.38	4600		101	445		6.76	0.013	B	0.04
J1CN40	11/4/10	LS Tunnel	24100		26.3	71.3		0.66	8.02		3.29	4280		98.7	406		6.58	0.04		0.03
J1NPC5	4/16/12	LS Valve Pit	16700		16.7	16.8		0.417	NA	NA	NA	3580		62.5	322		4.17	0.342		0.0243

HEIS Number	Sample Date	Location Description	Molybdenum			Nickel			Phosphorus			Potassium			Selenium			Silicon		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	1.39	B	2.7	17.4		5.41	745		67.6	937		541	0.405	U	0.41	1350		2.7
J1CN38	11/4/10	LS Tunnel	1.39	B	2.56	8.44		5.13	785		64.1	1610		513	0.385	U	0.39	1260		2.56
J1CN39	11/4/10	LS Tunnel	1.53	B	2.7	9.47		5.41	770		67.6	1360		541	0.405	U	0.41	1290		2.7
J1CN40	11/4/10	LS Tunnel	1.68	B	2.63	14		5.26	602		65.8	1330		526	0.395	U	0.4	1210		2.63
J1NPC5	4/16/12	LS Valve Pit	1.17	B	1.67	9.58		3.33	NA	NA	NA	1080		333	0.25	U	0.25	176		1.67

Inorganic (Metals) Sample Summary for Lift Station (page 2 of 2)

HEIS Number	Sample Date	Location Description	Silver			Sodium			Strontium			Thallium			Thorium			Tin		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	0.711		0.27	636		67.6	126		1.35	0.676	U	0.68	2.7	U	2.7	4.42	B	13.5
J1CN38	11/4/10	LS Tunnel	0.804		0.26	924		64.1	122		1.28	0.641	U	0.64	2.56	U	2.56	4.46	B	12.8
J1CN39	11/4/10	LS Tunnel	2.27		0.27	838		67.6	141		1.35	0.676	U	0.68	2.7	U	2.7	5.06	B	13.5
J1CN40	11/4/10	LS Tunnel	0.267		0.26	606		65.8	131		1.32	0.658	U	0.66	2.63	U	2.63	4.09	B	13.2
J1NPC5	4/16/12	LS Valve Pit	0.167	U	0.167	554		41.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

HEIS Number	Sample Date	Location Description	Titanium			Uranium			Vanadium			Zinc			Zirconium			Hexavalent Chromium		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	2000		0.68	9.09	B	27	57.3		3.38	284		13.5	25.8		3.38	NA	NA	NA
J1CN38	11/4/10	LS Tunnel	1480		0.64	6.81	B	25.6	48.9		3.21	237		12.8	24.9		3.21	NA	NA	NA
J1CN39	11/4/10	LS Tunnel	2250		0.68	10.7	B	27	63.8		3.38	367		13.5	27.5		3.38	NA	NA	NA
J1CN40	11/4/10	LS Tunnel	1580		0.66	10.3	B	26.3	48.6		3.29	382		13.2	22.2		3.29	NA	NA	NA
J1NPC5	4/16/12	LS Valve Pit	NA	NA	NA	NA	NA	NA	36.5		2.08	269		8.33	NA	NA	NA	0.787		0.155

B = Detected be low reporting limit
LS = Lift Station
NA = not analyzed
PQL = practical quantization limit
Q = qualifier
U = undetected

Radionuclide Sample Summary for Lift Station (page 1 of 2)

HEIS Number	Sample Date	Location Description	Americium-241 (GEA)			Americium-241 (AEA)			Antimony-125			Bismuth-214			Carbon-14		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	1000		525	1340		12.5	NA	NA	NA	NA	NA	NA	23.1		4.42
J1CN38	11/4/10	LS Tunnel	42.5	U	42.5	35.1		0.416	NA	NA	NA	NA	NA	NA	7.33		6.43
J1CN39	11/4/10	LS Tunnel	939		457	1140		3.84	NA	NA	NA	NA	NA	NA	47.8		6.36
J1CN40	11/4/10	LS Tunnel	3660		1970	5300		9.42	NA	NA	NA	NA	NA	NA	83.8		6.33
J1NPC5	4/16/12	LS Valve Pit	46.6		0.715	116		1.63	3.51	U	3.51	1.59	U	1.59	5.73	U	10.7

HEIS Number	Sample Date	Location Description	Cerium-144			Cesium-137			Cobalt-60			Europium-152			Europium-154		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	NA	NA	NA	255000		515	10700		188	1810	U	1810	488	U	488
J1CN38	11/4/10	LS Tunnel	NA	NA	NA	1900		18.2	255		10.6	51.5	U	51.5	54.5	U	54.5
J1CN39	11/4/10	LS Tunnel	NA	NA	NA	54800		206	9280		82	571	U	571	228	U	228
J1CN40	11/4/10	LS Tunnel	NA	NA	NA	101000		586	43300		311	1300	U	1300	841	U	841
J1NPC5	4/16/12	LS Valve Pit	3.65	U	3.65	861		1.3	365		1.06	3.24	U	3.24	5.8		1.89

HEIS Number	Sample Date	Location Description	Europium-155			Lead-212			Nickel-63			Niobium-94			Plutonium-238		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	958	U	958	NA	NA	NA	3640		526	NA	NA	NA	293		112
J1CN38	11/4/10	LS Tunnel	42.6	U	42.6	NA	NA	NA	125		15.3	NA	NA	NA	5.15		3.79
J1CN39	11/4/10	LS Tunnel	310	U	310	NA	NA	NA	4110		150	NA	NA	NA	151		32.1
J1CN40	11/4/10	LS Tunnel	790	U	790	NA	NA	NA	18500		308	NA	NA	NA	718		70.3
J1NPC5	4/16/12	LS Valve Pit	1.63	U	1.63	1.46	U	1.46	457		6.01	1.1	U	1.1	13.3		0.608

HEIS Number	Sample Date	Location Description	Plutonium-239/240			Plutonium-241			Potassium-40			Radium-226			Radium-228		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	1680		89.6	8500		2650	1240	U	1240	689	U	689	1080	U	1080
J1CN38	11/4/10	LS Tunnel	36.4		3.03	190		71	143	U	143	26.7	U	26.7	54.7	U	54.7
J1CN39	11/4/10	LS Tunnel	1260		32.1	7420		771	656	U	656	278	U	278	583	U	583
J1CN40	11/4/10	LS Tunnel	5390		48.6	33800		1570	1770	U	1770	754	U	754	1980	U	1980
J1NPC5	4/16/12	LS Valve Pit	106		0.607	691		21	7.36		4.31	1.55	U	1.55	4.83	U	4.83

Radionuclide Sample Summary for Lift Station (page 2 of 2)

EIS Number	Sample Date	Location Description	Ruthenium-106			Total Strontium (Sr-90)			Thorium-228 (GEA)			Thorium-228 (AEA)			Thorium-230		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	NA	NA	NA	18600		109	748	U	748	8.95	U	42.8	-26.8	U	72.1
J1CN38	11/4/10	LS Tunnel	NA	NA	NA	569		3.38	25.4	U	25.4	0.875	U	1.38	0.374	U	2.01
J1CN39	11/4/10	LS Tunnel	NA	NA	NA	7000		17.8	236	U	236	1.63	U	10	0	U	15.6
J1CN40	11/4/10	LS Tunnel	NA	NA	NA	13100		84.2	547	U	547	6.95	U	13.3	-10.4	U	33.1
J1NPC5	4/16/12	LS Valve Pit	7.82	U	7.82	552		0.747	1.41	U	1.41	0.298		0.105	0.06	U	0.294

HEIS Number	Sample Date	Location Description	Thorium-232 (GEA)			Thorium-232 (AEA)			Tritium			Uranium-233/234			Uranium-235 (GEA)		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	1080	U	1080	0	U	34.2	30.2		6.03	6.35	U	48.6	2640	U	2640
J1CN38	11/4/10	LS Tunnel	54.7	U	54.7	0.748	U	0.954	39.7		8.02	0.554	U	1.41	93.1	U	93.1
J1CN39	11/4/10	LS Tunnel	583	U	583	0	U	6.24	82.5		7.86	5.3	U	13.5	784	U	784
J1CN40	11/4/10	LS Tunnel	1980	U	1980	0	U	13.3	318		8.42	30.5	U	33.3	1800	U	1800
J1NPC5	4/16/12	LS Valve Pit	4.83	U	4.83	0.349		0.065	45.5		11.4	0.515		0.113	4.63	U	4.63

HEIS Number	Sample Date	Location Description	Uranium-235 (AEA)			Uranium-238 (GEA)			Uranium-238 (AEA)			Zinc-65		
			pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	0	U	58.8	30100	U	30100	0	U	48.6	NA	NA	NA
J1CN38	11/4/10	LS Tunnel	0.447	U	1.71	1540	U	1540	0.184	U	1.41	NA	NA	NA
J1CN39	11/4/10	LS Tunnel	2.14	U	16.4	18300	U	18300	1.77	U	13.5	NA	NA	NA
J1CN40	11/4/10	LS Tunnel	10.5	U	40.3	63900	U	63900	4.35	U	33.3	NA	NA	NA
J1NPC5	4/16/12	LS Valve Pit	0.018	U	0.136	145	U	145	0.442		0.113	2.55	U	2.55

HEIS Number	Sample Date	Location Description	Gross alpha			Gross beta		
			pCi/g	Q	MDA	pCi/g	Q	MDA
J1CN37	11/4/10	LS Tunnel	NA	NA	NA	NA	NA	NA
J1CN38	11/4/10	LS Tunnel	NA	NA	NA	NA	NA	NA
J1CN39	11/4/10	LS Tunnel	NA	NA	NA	NA	NA	NA
J1CN40	11/4/10	LS Tunnel	NA	NA	NA	NA	NA	NA
J1NPC5	4/16/12	LS Valve Pit	168		3.3	3260		5.61

LS = Lift Station
MDA = minimum detectable activity
NA = not analyzed
Q = qualifier
U = undetected

Polychlorinated Biphenyls Sample Summary for Lift Station (page 1 of 1)

HEIS Number	Sample Date	Location Description	Aroclor-1016			Aroclor-1221			Aroclor-1232			Aroclor-1242			Aroclor-1248		
			ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3
J1CN38	11/4/10	LS Tunnel	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3
J1CN39	11/4/10	LS Tunnel	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3
J1CN40	11/4/10	LS Tunnel	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3
J1NPC5	4/16/12	LS Valve Pit	35.9	U	35.9	35.9	U	35.9	35.9	U	35.9	35.9	U	35.9	35.9	U	35.9

HEIS Number	Sample Date	Location Description	Aroclor-1254			Aroclor-1260			Aroclor-1262			Aroclor-1268		
			ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
J1CN37	11/4/10	LS Tunnel	3.9	J	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3
J1CN38	11/4/10	LS Tunnel	3.67	J	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3
J1CN39	11/4/10	LS Tunnel	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3	13.3	U	13.3
J1CN40	11/4/10	LS Tunnel	10.8	J	13.3	5.5	J	13.3	13.3	U	13.3	13.3	U	13.3
J1NPC5	4/16/12	LS Valve Pit	99.7		35.9	51.7		35.9	35.9	U	35.9	35.9	U	35.9

J = estimated result
LS = Lift Station
PQL = practical quantization limit
Q = qualifier
U = undetected

Attachment 30

Analytical Results for Sample of Lift Station Valve Pit Water

105-N Lift Station (Valve Pit) Water Sample Results

Sample Date: 11/29/2010

HEIS No. J19BY6

Metals

Aluminum			Antimony			Arsenic			Barium			Beryllium		
ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL
4970		50	4.08	B	6	2.34	B	10	202		5	2	U	2

Cadmium			Calcium			Chromium			Copper			Iron		
ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL
2.32		2	247000		1000	68.8		2	84.7		10	4890		50

Lead			Magnesium			Manganese			Mercury			Nickel		
ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL
79.9		5	1030		750	94.2		5	1.75		0.2	12.7	B	40

Potassium			Selenium			Silicon			Silver			Sodium		
ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL
23900		4000	10	U	10	11100		25	2	U	2	61000		500

Uranium			Vanadium			Zinc		
ug/L	Q	PQL	ug/L	Q	PQL	ug/L	Q	PQL
200	U	200	13.7	B	25	277		10

Anions

Bromide			Chloride			Cyanide			Fluoride			Nitrate		
mg/L	Q	PQL	mg/L	Q	PQL	ug/L	Q	PQL	mg/L	Q	PQL	mg/L	Q	PQL
0.25	U	0.25	17.5	D	2.5	10	U	10	0.18	B	0.25	0.25	U	0.25

Nitrite			Nitrogen in ammonia			Phosphate			Sulfate		
mg/L	Q	PQL	mg/L	Q	PQL	mg/L	Q	PQL	mg/L	Q	PQL
4.91		0.25	0.79		0.2	0.5	U	0.5	95.8	D	2.5

General Chemistry

pH Measurement			Specific Conductance			Total dissolved solids			Total suspended solids			Total organic carbon		
pH units	Q	PQL	umhos/cm	Q	PQL	mg/L	Q	PQL	mg/L	Q	PQL	mg/L	Q	PQL
11.28		0.1	1430		1	593		20	168		10	47.7	D	5

105-N Lift Station (Valve Pit) Water Sample Results

Sample Date: 11/29/2010

HEIS No. J19BY6

Radionuclides

Americium-241 GEA			Antimony-125			Carbon-14			Cerium-144			Cesium-134		
pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA
327	U	327	287	U	287	78.2		51.6	333	U	333	59.8	U	59.8

Cesium-137			Cobalt-60			Curium-243			Curium-243			Curium-245		
pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA
21300		99.9	427		45.2									

Europium-152			Europium-154			Europium-155			Lead-212			Nickel-63		
pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA
270	U	270	153	U	153	181	U	181				79.4		11.6

Niobium-94			Plutonium-238			Plutonium-239/240			Potassium-40			Radium-226		
pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA
46.6	U	46.6	0.359	U	0.686	4.93		0.686	902	U	902	138	U	138

Radium-226 measured via daughter isotope			Radium-228			Ruthenium-106			Silver-108 metastable			Technetium-99		
pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA
			230	U	230	633	U	633				3.66	U	4.58

Thorium-228 GEA			Thorium-232 GEA			Thorium-232 measured via daughter isotope			Tritium			Uranium-235 GEA		
pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA
117	U	117	230	U	230				123000		254	404	U	404

Uranium-238 GEA			Uranium-238 measured via daughter isotope			Zinc-65			Gross alpha			Gross beta		
pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA	pCi/L	Q	MDA
7400	U	7400				108	U	108	10.1		8.37	62800		16.2

B = Detected be low reporting limit
D = Analyte was reported from a dilution
J = estimated result
Q = qualifier
PQL = practical quantitation limit
U = undetected

105-N Lift Station (Valve Pit) Water Sample

Sample Date: 11/29/2010

HEIS No. J19BY6

Semi-Volatile Organic Analytes	ug/L	Q	PQL
2,4-Dinitrotoluene	50	UD	50
2-Methylphenol (cresol, o-)	50	UD	50
3+4 Methylphenol (cresol, m+p)	50	UD	50
Acetophenone	50	UD	50
Benzyl alcohol	50	UD	50
Di-n-octylphthalate	50	UD	50
Hexachloroethane	50	UD	50
Naphthalene	50	UD	50
N-Nitrosodimethylamine	50	UD	50
Tributyl phosphate	50	UD	50

Volatile Organic Analytes	ug/L	Q	PQL
1,1,1-Trichloroethane	5	U	5
1,1,2-Trichloroethane	5	U	5
1,1-Dichloroethane	5	U	5
1,1-Dichloroethene	5	U	5
1,2-Dichloroethane	5	U	5
1-Butanol	123	J	250
2-Butanone	3.89	J	10
2-Hexanone	10	U	10
4-Methyl-2-Pentanone	10	U	10
Acetone	79.6		10
Benzene	5	U	5
Carbon disulfide	5	U	5
Carbon tetrachloride	5	U	5
Chlorobenzene	5	U	5
Chloroform	5	U	5
cis-1,2-Dichloroethylene	5	U	5
Ethyl cyanide	20	U	20
Methylenechloride	6	U	6
Tetrachloroethene	5	U	5
Tetrahydrofuran	5	U	5
Toluene	5	U	5
trans-1,2-Dichloroethylene	5	U	5
Trichloroethene	5	U	5
Vinyl chloride	10	U	10
Xylenes (total)	5	U	5

D = Analyte was reported from a dilution
J = estimated result
Q = qualifier
PQL = practical quantitation limit
U = undetected

Facility Status Change Form

Attachment 31

Analytical Results for Fuel Storage Basin Soil Samples

Inorganic (Metals) Sample Summary Table (Page 1 of 2)

Sample Number	Sample Date	Aluminum			Antimony			Arsenic			Barium			Beryllium		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1PXD4	8/16/2012	8050		14.2	1.7	U	1.7	2.72	B	2.84	74.4		1.42	0.282	B	0.568
J1PXD5	8/16/2012	7520		14	1.68	U	1.68	2.22	B	2.79	78.3		1.4	0.253	B	0.559
J1PXD6	8/16/2012	6840		12.9	1.54	U	1.54	1.57	B	2.57	64.6		1.29	0.21	B	0.515
J1PXD7	8/20/2012	7450		4.72	0.567	U	0.567	1.78		0.944	100		0.472	0.268		0.189
J1PXD8	8/20/2012	6470		5.19	0.623	U	0.623	1.98		1.04	56.7		0.519	0.252		0.208
J1PXD9	8/20/2012	6820		4.94	0.593	U	0.593	2.35		0.988	66.5		0.494	0.259		0.198

Sample Number	Sample Date	Boron			Cadmium			Calcium			Chromium			Cobalt		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1PXD4	8/16/2012	2.13	B	5.68	0.568	U	0.568	9910		284	14		0.568	9.26		5.68
J1PXD5	8/16/2012	1.57	B	5.59	0.559	U	0.559	8610		279	14.7		0.559	8.5		5.59
J1PXD6	8/16/2012	5.15	U	5.15	0.515	U	0.515	7350		257	6.18		0.515	9.99		5.15
J1PXD7	8/20/2012	5.32		1.89	0.132	B	0.189	17700		94.4	9.92		0.189	8.14		1.89
J1PXD8	8/20/2012	1	B	2.08	0.0798	B	0.208	7730		104	6.54		0.208	8.95		2.08
J1PXD9	8/20/2012	1.22	B	1.98	0.0709	B	0.198	7380		98.8	9.52		0.198	7.94		1.98

Sample Number	Sample Date	Copper			Hexavalent Chromium			Iron			Lead			Magnesium		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1PXD4	8/16/2012	20.5		2.84	0.51		0.2	25700		56.8	5.79		1.42	5150		213
J1PXD5	8/16/2012	17		2.79	0.2	U	0.2	24800		55.9	4.55		1.4	4740		210
J1PXD6	8/16/2012	15.3		2.57	0.2	U	0.2	29200		51.5	2.9		1.29	5220		193
J1PXD7	8/20/2012	19.8		0.94	0.22	U	0.22	28600		18.9	32		0.472	5220		70.8
J1PXD8	8/20/2012	16.7		1.04	0.21	U	0.21	28800		20.8	4.67		0.519	4910		77.8
J1PXD9	8/20/2012	14.4		0.99	0.21	U	0.21	26600		19.8	4.68		0.494	5330		74.1

Sample Number	Sample Date	Manganese			Mercury			Molybdenum			Nickel			Potassium		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1PXD4	8/16/2012	355		14.2	0.0279	U	0.028	0.778	B	5.68	10.9	B	11.4	1310		1140
J1PXD5	8/16/2012	340		14	0.0252	U	0.025	0.761	B	5.59	11	B	11.2	1160		1120
J1PXD6	8/16/2012	387		12.9	0.0304	U	0.03	5.15	U	5.15	8.2	B	10.3	800	B	1030
J1PXD7	8/20/2012	343		4.72	0.0285	U	0.029	0.64	B	1.89	8.1		3.78	996		378
J1PXD8	8/20/2012	354		5.19	0.0318	U	0.032	0.631	B	2.08	8.82		4.15	929		415
J1PXD9	8/20/2012	345		4.94	0.0282	U	0.028	0.464	B	1.98	13.5		3.95	1060		395

Sample Number	Sample Date	Selenium			Silicon			Silver			Sodium			Vanadium		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1PXD4	8/16/2012	0.852	U	0.85	355		5.68	0.568	U	0.568	505		142	68.4		7.1
J1PXD5	8/16/2012	0.838	U	0.84	305		5.59	0.559	U	0.559	558		140	69.9		6.99
J1PXD6	8/16/2012	0.772	U	0.77	253		5.15	0.515	U	0.515	635		129	82.8		6.43
J1PXD7	8/20/2012	0.283	U	0.28	658		1.89	0.189	U	0.189	868		47.2	83.3		2.36
J1PXD8	8/20/2012	0.311	U	0.31	768		2.08	0.208	U	0.208	564		51.9	85.1		2.59
J1PXD9	8/20/2012	0.296	U	0.3	874		1.98	0.198	U	0.198	379		49.4	69.8		2.47

Inorganic (Metals) Sample Summary Table (Page 2 of 2)

Sample Number	Sample Date	Zinc			Percent Solids		
		mg/kg	Q	PQL	%	Q	PQL
J1PXD4	8/16/2012	193		28.4	97.8		0.1
J1PXD5	8/16/2012	66.4		27.9	99.4		0.1
J1PXD6	8/16/2012	55		25.7	98.8		0.1
J1PXD7	8/20/2012	96.8		9.44	92.9		0.1
J1PXD8	8/20/2012	69.6		10.4	94.5		0.1
J1PXD9	8/20/2012	53.8		9.88	93.7		0.1

B = Detected be low reporting limit
J = estimated result
MDA = minimum detectable activity
NA = not analyzed
Q = qualifier
PQL = practical quantization limit
U = undetected

Radionuclide Sample Summary Table (Page 1 of 2)

	Constituent	Americium-241			Cesium-137			Cobalt-60			Europium-152			Europium-154		
	Analysis Method	GEA			GEA			GEA			GEA			GEA		
Sample Number	Sample Date	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1PXD4	8/16/2012	0.548		0.22	40.8		0.058	2.86		0.028	0.176	U	0.176	0.136		0.084
J1PXD5	8/16/2012	0.143		0.126	15.4		0.033	1.16		0.018	0.094	U	0.094	0.061		0.053
J1PXD6	8/16/2012	0.08		0.029	1.69		0.026	0.066		0.021	0.068	U	0.068	0.065	U	0.065
J1PXD7	8/20/2012	186		5.06	5690		1.93	414		0.733	5.58	U	5.58	10.2		1.85
J1PXD8	8/20/2012	32		8.43	2830		2.09	142		0.747	6.55	U	6.55	2.86		1.78
J1PXD9	8/20/2012	7.71		2.31	445		0.546	11.9		0.159	1.59	U	1.59	0.565	U	0.565

	Constituent	Europium-155			Potassium-40			Radium-226			Radium-228			Thorium-228		
	Analysis Method	GEA			GEA			GEA			GEA			GEA		
Sample Number	Sample Date	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1PXD4	8/16/2012	0.17	U	0.17	11.9		0.207	0.434		0.095	0.641		0.157	0.569		0.12
J1PXD5	8/16/2012	0.137	U	0.137	11.7		0.137	0.382		0.052	0.61		0.097	0.574		0.045
J1PXD6	8/16/2012	0.057	U	0.057	11.4		0.234	0.436		0.038	0.638		0.085	0.732		0.035
J1PXD7	8/20/2012	4.18	U	4.18	11		3.87	2.43	U	2.43	3.8	U	3.8	2.72	U	2.72
J1PXD8	8/20/2012	4.2	U	4.2	12		3.42	2.84	U	2.84	4.36	U	4.36	2.77	U	2.77
J1PXD9	8/20/2012	1.12	U	1.12	11.1		1.1	0.934	U	0.934	1.7	U	1.7	0.725	U	0.725

	Constituent	Thorium-232			Uranium-235			Uranium-238			Plutonium-238			Plutonium-239/240		
	Analysis Method	GEA			GEA			GEA			AEA			AEA		
Sample Number	Sample Date	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1PXD4	8/16/2012	0.641		0.157	0.354	U	0.354	4.11	U	4.11	0.117	U	0.298	1.17		0.298
J1PXD5	8/16/2012	0.61		0.097	0.197	U	0.197	2.49	U	2.49	0.122	U	0.233	0.669		0.233
J1PXD6	8/16/2012	0.638		0.085	0.153	U	0.153	2.18	U	2.18	0.132	U	0.253	0.198	U	0.253
J1PXD7	8/20/2012	3.8	U	3.8	9.33	U	9.33	122	U	122	63.5		1.02	454		1.02
J1PXD8	8/20/2012	4.36	U	4.36	9.34	U	9.34	130	U	130	10.2		1.28	70.9		1.28
J1PXD9	8/20/2012	1.7	U	1.7	2.29	U	2.29	25.5	U	25.5	1.28		0.391	9.56		0.391

	Constituent	Thorium-228			Thorium-230			Thorium-232			Uranium-233/234			Uranium-235		
	Analysis Method	AEA			AEA			AEA			AEA			AEA		
Sample Number	Sample Date	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1PXD4	8/16/2012	0.468		0.256	0.568	U	0.616	0.668		0.256	0.493		0.044	0.044		0.03
J1PXD5	8/16/2012	0.526		0.251	0.23	U	0.627	0.886		0.251	0.464		0.044	0.019	U	0.046
J1PXD6	8/16/2012	0.358		0.249	0.033	U	0.622	0.553		0.249	0.483		0.04	0.015	U	0.039
J1PXD7	8/20/2012	0.544	U	0.868	-0.09	U	1.67	0.815		0.693	1.86		1.3	0.205	U	1.57
J1PXD8	8/20/2012	0.556	U	0.709	-0.28	U	1.64	0.463	U	0.708	1.67		1.28	0	U	1.55
J1PXD9	8/20/2012	0.312	U	0.332	-0.04	U	0.638	0.554		0.265	0.579		0.277	0.131	U	0.335

Radionuclide Sample Summary Table (Page 2 of 2)

	Constituent	Uranium-238			Gross alpha			Gross beta			Technetium-99			Total beta radiostrontium		
	Analysis Method	AEA			GPC			GPC			GPC			GPC		
Sample Number	Sample Date	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1PXD4	8/16/2012	0.503		0.031	8.64		3.21	126		5.27	-0.078	U	0.275	5.66		0.221
J1PXD5	8/16/2012	0.461		0.03	7.13		3.12	67		5.88	-0.019	U	0.266	4.18		0.212
J1PXD6	8/16/2012	0.445		0.032	6.94		3.76	22.2		4.89	-0.029	U	0.282	1.05		0.23
J1PXD7	8/20/2012	1.35		1.3	838		3.81	15800		6.07	2.2	U	2.87	2850		3.65
J1PXD8	8/20/2012	1	U	1.28	133		3.84	3430		5.44	0.648	U	2.73	290		2.15
J1PXD9	8/20/2012	0.398		0.277	20		2.76	225		5.96	0.198	U	0.622	61.9		0.422

	Constituent	Carbon-14			Nickel-63			Tritium		
	Analysis Method	LSC			LSC			LSC		
Sample Number	Sample Date	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1PXD4	8/16/2012	0.315	U	0.844	1.82	U	3.94	0.649	U	2.98
J1PXD5	8/16/2012	0.91		0.85	-0.5	U	3.96	0.741	U	3.15
J1PXD6	8/16/2012	0.381	U	0.825	-1.12	U	3.72	1.31	U	3.71
J1PXD7	8/20/2012	0.293	U	0.92	426		15.6	17.2		4.47
J1PXD8	8/20/2012	0.147	U	0.886	142		14.9	7.3		4.63
J1PXD9	8/20/2012	-0.7	U	0.827	2.29	U	3.4	8.95		4.4

Polychlorinated Biphenyls Sample Summary Table

Sample Number	J1PXD4			J1PXD5			J1PXD6		
Sample Date	8/16/2012			8/16/2012			8/16/2012		
Constituent	ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
Aroclor-1016	12.9	U	12.9	13.2	U	13.2	13.3	U	13.3
Aroclor-1221	12.9	U	12.9	13.2	U	13.2	13.3	U	13.3
Aroclor-1232	12.9	U	12.9	13.2	U	13.2	13.3	U	13.3
Aroclor-1242	12.9	U	12.9	13.2	U	13.2	13.3	U	13.3
Aroclor-1248	38.4		12.9	36.2		13.2	13.3	U	13.3
Aroclor-1254	109		12.9	110		13.2	29.5		13.3
Aroclor-1260	41.4		12.9	41.5		13.2	13.3	U	13.3
Aroclor-1262	12.9	U	12.9	13.2	U	13.2	13.3	U	13.3
Aroclor-1268	12.9	U	12.9	13.2	U	13.2	13.3	U	13.3

Sample Number	J1PXD7			J1PXD8			J1PXD9		
Sample Date	8/20/2012			8/20/2012			8/20/2012		
Constituent	ug/kg	Q	PQL	ug/kg	Q	PQL	ug/kg	Q	PQL
Aroclor-1016	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9
Aroclor-1221	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9
Aroclor-1232	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9
Aroclor-1242	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9
Aroclor-1248	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9
Aroclor-1254	23.9	J	40.9	40.2	U	40.2	12	J	41.9
Aroclor-1260	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9
Aroclor-1262	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9
Aroclor-1268	40.9	U	40.9	40.2	U	40.2	41.9	U	41.9

Facility Status Change Form

Attachment 32

Ecology Approval of Two Times Background of GPERS Around 105-N and 109-N (CCN 169621)

169621

McCurley, Clay D

From: McCurley, Clay D
Sent: Tuesday, January 29, 2013 2:05 PM
To: ^WCH Document Control
Subject: Ecology Approval of Two Times Background for GPERS Around 105-N and 109-N

Folks. Please chron this email per the subject and let me know which number has been selected.

Thanks. Clay

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Wednesday, June 17, 2009 2:50 PM
To: Cathel, Robert L
Cc: Ayres, Jeffrey M
Subject: RE: Additional topics for Tuesday

Bob,

Thanks for refreshing me on the first issue, soils between the SSE and the outer wall(s). This sounds good to me and you can proceed with it.

On the second issue, the fan room basement piping, is this the additional information that you said you would get to me, or will there be any more? What is wash water? Can we be fairly certain that any contamination in wash water would be "very low"? Were these lines ever rinsed? My inclination is to leave them, but get these few answers back to me and then we'll make a final call.

Thanks,
Rick

From: Cathel, Robert L [mailto:rlcathel@wch-rcc.com]
Sent: Wednesday, June 17, 2009 2:01 PM
To: Bond, Rick (ECY); Ayres, Jeff (ECY)
Cc: Carranco, John M; Trevino, Ruben A; Hamblin, Stephen M; Guercia, Rudolph F; Chance, Joanne C; Allen, Mark E
Subject: RE: Additional topics for Tuesday

Rick,

Regarding the soils between the SSE and the outer wall(s) of 105/109 and any concrete that we intend to leave in-place: We plan to look for evidence of staining (visual analysis only); perform radiological screening on the soils - typically Global Positioning Environmental Radiological Surveyor (GPERS), anything less than 2-times the average background in the area would be considered free of radiological contamination; perform radiological screening on the concrete left in-place most likely using hand-held instruments; collecting GPS data to document pipe truncations, support column sections to be left in-place, and other such anomalies as well as documenting the extent of the general excavation (width, length, depth); and, finally we would take photographs. All this data would be used in our Post Demolition Summary Report (PDSR) and then I would use it to document as-left conditions. Assuming we found no radiological or staining issues, we would then backfill with clean material. We would not be collecting samples of the soil.

With respect to the 105-N Fan Room Basement...this area has six drains that feed a single drain line which runs to a lift station within the 105/109 facility, generally southwest of the fan room basement. These drains were used to collect condensation, wash water that may have been used in the area, etc. Just prior to demolition activities, it was noted that two of these drains were labeled for radiological concerns at very low levels (I believe these "postings" were several years old, and if I recall correctly they may have been from 1996, but I'd have to verify that information). Prior to actual demolition these drains were surveyed by the RCTs and no contamination was found and these were "de-posted". Also, prior to demolition the drains were plugged with foam as part of our normal demolition preparatory activities. I don't believe we have any information as to potential contamination in the lines but the thoughts and expectations are that any contamination (if at all) would be very low. WCH requests that you consider this information and provide either Ecology's concurrence to leave the drains/drain lines in-place or to have WCH remove these drains/lines outside of the SSE boundaries.

If you have any other questions or disagree with either of these approaches/requests please let me know.

Thanks,
Bob

From: Bond, Rick (ECY) [mailto:FBON461@ECY.WA.GOV]
Sent: Wednesday, June 17, 2009 1:18 PM
To: Cathel, Robert L
Subject: RE: Additional topics for Tuesday

Bob,
Please refresh my memory. What are you planning on doing to verify that the soils between the SSE and the outer wall(s) of 105/109 are not contaminated? Are you taking samples? Please keep me up to speed on this issue so we hopefully and backfill with clean soil.
Rick

From: Cathel, Robert L [mailto:rlcathel@wch-rcc.com]
Sent: Thursday, June 11, 2009 12:33 PM
To: Bond, Rick (ECY)
Cc: Guercia, Rudolph F; Chance, Joanne C; Carranco, John M; Hamblin, Stephen M; Flannery, Michael (Mike) D; Trevino, Ruben A
Subject: Additional topics for Tuesday

Rick,

In addition to discussing the RAWP revision and the potential liquids from several water lines on the south side of 109 I have two topics I'd like to discuss with you next Tuesday. First, I'd like to discuss verifcation activities D4 will undertake to show that the remaining soils between the SSE boundary and the outer wall(s) of 105/109 are not contaminated and the area in question can be backfilled with clean fill. Second, I'd like to talk about the potential to leave in-place the concrete structure of the 105 fan room basement; especially noting the drains and their associated lines beneath the slab of this room.

Thanks and have a great weekend.

Bob