

WCH Washington
Closure
Hanford

Interoffice Memorandum

TO: M. E. Allen, X3-40

DATE: March 31, 2014

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FROM: M. E. Allen *MEAllen*
WCH Engineer *4-1-14*
X3-40

SUBJECT: **Post-Demolition Summary Report for the 151-B-A2 Electrical Substation Switchyard**

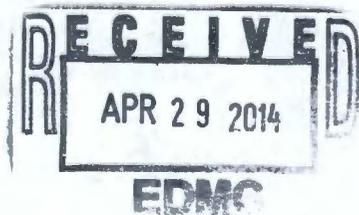
Attached is a Post-Demolition Summary Report for the 151-B-A2 Electrical Substation Switchyard. This report documents the final status of the area after completion of Decontamination, Decommissioning, Deactivation, and Demolition (D4) activities. The information in this report includes references to radiological and industrial hygiene surveys, sample data, waste profiles, nearby waste sites, and other relevant information regarding the "as left" condition of the Switchyard.

Please contact Mark Allen at (509) 430-5923 if you have any questions on this information.

DBE:db

Attachment: *Post-Demolition Summary Report for 151-B-A2 Electrical Substation Switchyard*

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Post-Demolition Summary Report for the 151-B-A2 Electrical Substation Switchyard

March 2014

This post-demolition summary report documents the characterization and final status of the 151-B-A2 Electrical Substation Switchyard at the completion of deactivation, decontamination, decommissioning and demolition (D4) activities.

Site Information

The 151-B Switchyard was located in the 100B/C Area, approximately 1,000 feet southwest of the 105-B Reactor at Washington State Plane coordinates E5650618, N144238. Energized in June 1944, the Switchyard received 230 kV power from the Midway Substation and served as the primary source of electrical power for all facilities in the 100B/C Area. The 151-B Switchyard transmitted power from three main transformers to thirteen secondary substations and nine distribution substations located throughout the 100B/C Area, via underground cables. One 27.5 kVA transformer, located adjacent to the 151-B Substation Switch House, provided service for the building. Five oil circuit breakers (OCBs) were also in service to support the switchyard operations.

Originally 430-ft by 303-ft, the 151-B Switchyard included a fenced gravel-surfaced area with wooden frame bus structures, two main 15,000 kVA transformers, three oil circuit breakers and terminal structures. Served by a rail spur, the Switchyard contained several underground ducts that connected the Switchyard to the Substation Switch House. The Switchyard equipment rested on two types of foundations – reinforced concrete slabs and reinforced concrete piers with spread footings.

In 1952, the Switchyard was expanded to support the new facilities associated with the 105-C Reactor Building. The expansion included the installation of a new 18,750-kVA transformer, OCBs, disconnect switches, bus, and conductor (HW-24800-101). Below-grade oil transfer lines were installed within the switchyard to fill the OCBs (P-5615) (Figure 1).

Oil containing polychlorinated biphenyls (PCBs), was transferred from a rail tanker through above ground and underground piping, to the transformers and oil circuit breakers in the switchyard (HSA).

Radiological Scoping and IH Baseline Surveys

The 151-B Switchyard was demolished by WCH under the River Corridor Closure Contract. The radiological scoping survey is recorded in RSR-100N-13-0482. A Beryllium Facility Assessment Form dated June 6, 2013 characterized the building as a “beryllium clean facility” (BFA-151B-13-001).

Waste Characterization Sampling

The 151-B Switchyard was inspected and sampled for asbestos on July 24, 2013 (CCN 173954). Cloth wire in a transformer and cabinets was identified as asbestos containing material (ACM) (Attachment 1). Buried cement asbestos pipe was presumed to be ACM based on construction drawings. Four oil samples, from two sample delivery groups (J01986 and J01915), were collected from the transformers and bushings for waste disposal determinations and to allow recycling. A table summarizing the results of the sampling effort is in Table 1.

Table 1: Summary of Baseline and Characterization Surveys at 151-B

Type	Date	Documented In	Results Summary
Radiological Survey	May 10, 2013	RSR-100N-13-0482	No contamination identified.
IH Surveys and Beryllium Characterization	June 6, 2013	BFA-151B-13-001	Assessment documents the building is Be clean.
Asbestos	July 24, 2013	CCN 173954	ACM identified on cloth covered wires in transformer and cabinets. Buried cement asbestos pipe presumed to be ACM.

Waste Profile

WCH completed the 151-B Switchyard demolition on March 11, 2014, under the RCC Contract. One of the objectives of the D4 Project is to support recycling and waste minimization. Being a radiological-clean facility, metal and oil from the 151-B Switchyard was recycled. The WCH subcontractor, Transformer Technologies, recycled 552,500-lbs of transformers, transformer bushings, and metal; and, 1,025-gal of transformer and transformer bushing oil. Another DOE Contractor, Mission Support Alliance (MSA), recycled 339,600-lbs of metal: beams, components and wire. The remaining 6,890.6 tons of demolition debris was shipped in 448 roll-off containers to the Environmental Restoration Disposal Facility (ERDF). The waste profile used was WP100SWTCHYD001.

Global Positioning Environmental Radiological Surveyor (GPERS)

A GPERS survey was not conducted at the 151-B Switchyard, because the facility was not contaminated.

Civil Survey Information

A pre-demolition GPS survey of the 151-B Switchyard and Building was conducted February 13, 2013 (CCN 0646159), and is included as Attachment 2. A post-demolition GPS survey was not conducted because the WCH Field Remediation organization will continue excavating identified waste sites within the switchyard.

WIDS Sites Associated with the Building Site

WIDS sites associated with the 151-B Switchyard include the 100-B-35 151-B Primary Substation (an accepted WIDS site); the 100-C-5 100-C Service Water Pipelines (a "Not Accepted" site); and, the 1607-B4, Septic Tank System (a "Closed Out" WIDS site).

Anomalies

No anomalies were encountered during the demolition of the 151-B Switchyard.

Work Packages

The following work package was used:

100 13 05 07 002, Rev 0, 151-B-A2 Electrical Substation Switchyard Demolition.

Radiological Down-Posting Survey

No radiological down-posting was required for 151-B Switchyard. The facility was not contaminated.

Cost Performance Information

As of Mach 26, 2014, \$437,733 was charged to the 151-B Switchyard cost accounts.

Lessons Learned

There were no identified lessons learned from the demolition of this facility.

Final Building Status

All D4 activities were completed in accordance with applicable environmental documentation, including the Removal Action Work Plan for River Corridor General Decommissioning Activities (DOE/RL-2010-34, Rev. 2).

Demolition of the above and below-grade structures, down to approximately 3-feet below-grade, was completed March 11, 2014 using excavation permit DAN12-0158, Rev. 1. In agreement with DOE, below-grade ducting along the perimeter fence line was: was left in place, on the north side, in the north-east corner (~120 linear feet); left in place on the east side, in the north-east corner (~320 linear feet); and, removed from a small section of the east side, on the furthest north corner (~40 linear feet). The removed section was within approximately 3-feet of the surface grade. An ecological and cultural resources review aided preparation of the permit (CCN 172493). Four hundred and forty eight containers (6,891-tons) of demolition debris were shipped to ERDF. Backfill will be deferred to Facilitate Remediation of WIDS Site 100-B-35.

Documentation

Documents referenced in this summary are available through the Document Control organization. Additionally, photographs of this facility prior to, during, and following demolition activities are maintained in the working files of D4's Characterization group, and referenced in this Post Demolition Summary Report in Figure 1 and 2.

References

BFA-151B-13-001, 2013, "Beryllium Facility Assessment Form, 151-B-A2," June 6, 2013, Washington Closure Hanford, Richland, WA

CCN 0646159, "GPS Pre Demo Survey Report for 151-B Building, Project 151_B," Job 1259, February 13, 2013, Washington Closure Hanford, LLC., Richland, WA

CCN 172493, *Supersedes CCN172492: "Ecological and Cultural Resources Reviews for Confirmation Sampling and Remediation of the 100-B-35 Waste Site and Demolition of the 151-B Building and Switchyard in the 100-B Area (12-ER-052, HCRC#2013-100-023,"* September 5, 2013, Washington Closure Hanford, Richland, WA

CCN 173954, 2013, "Asbestos Inspection and Sampling Report for the 151B and 151D Switchyards," November 13, 2013, Washington Closure Hanford, Richland, WA.

DAN12-0158, Rev. 1, "Hanford Site Excavation Permit, 100-B/C; SW of 105-B, NW OF 105-C, Demolish and Loadout 151-B Electrical Substation and Switchyard - Demolish and Loadout all Below Grade Structures and Debris," September 9, 2013, Washington Closure Hanford, LLC, Richland, WA

DOE/RL-2010-34, 2013, "Removal Action Work Plan for River Corridor General Decommissioning Activities", Rev. 2, April 2013, United States Department of Energy, Richland, WA.

RSR-100N-13-0482, 2013, "Verification Survey of Electrical Switch Yard (151B)," May 10, 2013, Washington Closure Hanford, Richland, Washington.

WP100SWTCHYD001, 2013, "Environmental Restoration Disposal Facility Waste Profile Datasheet, This Revision Includes the Results from Test America Analytical Report Sample Data Group: J01935. This report documents the results from PCB Sampling Performed on Non-Liquid PCB Containing Electrical Bushing Paste. No Changes are Made to the Non-Regulated (TSCA Regulated Only) Status of this Waste Stream Occur as a Result of this Revision, See Designation for Full List of Facilities," Rev 1, December 23, 2013, Washington Closure Hanford, Richland, WA



Figure 1. Aerial View of 151-B Switchyard Before Demolition

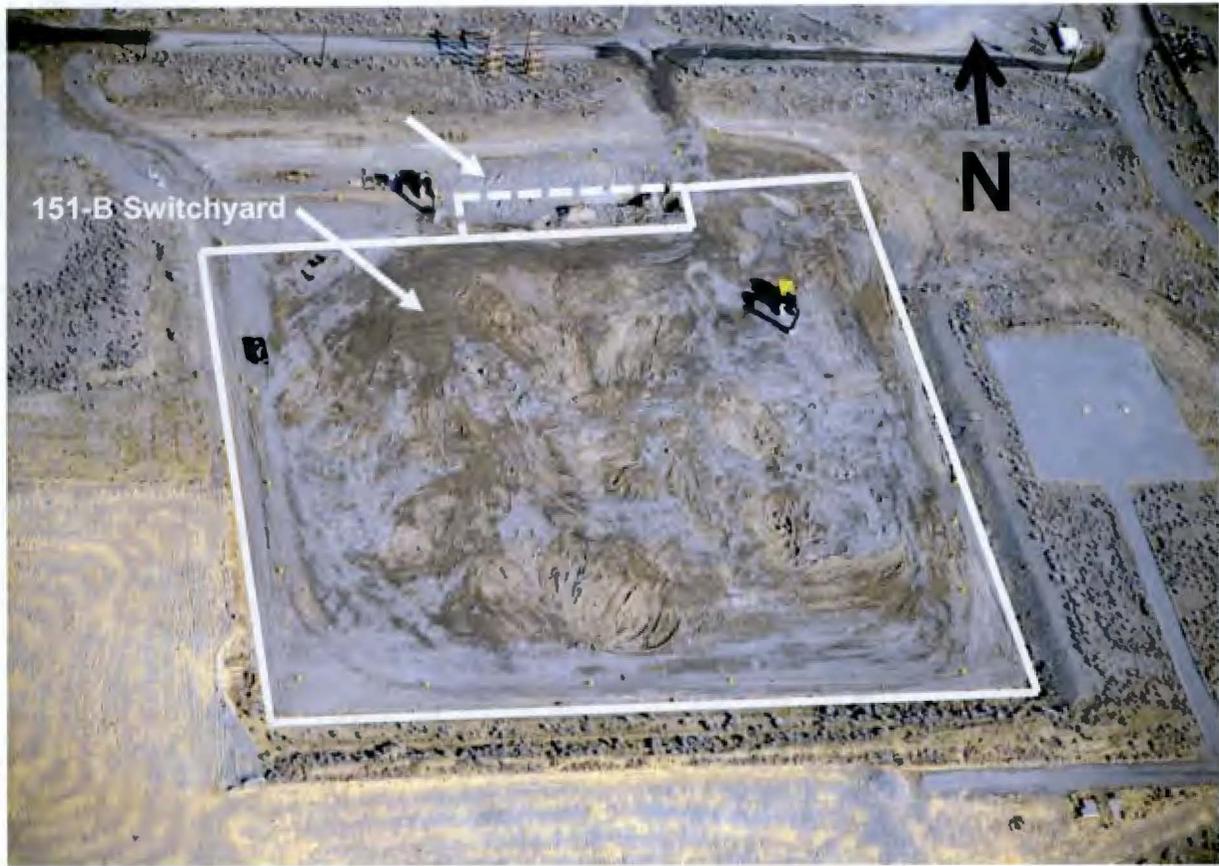


Figure 2. Aerial View of 151-B Switchyard After Demolition

Attachment 2 – Pre-Demo GPS Data

0646159

GPS Pre Demo Survey Report for the 151-B Building

Project : 151_B

Job 1259

User name	maaye	Date & Time	6:00:25 PM 6/5/2013
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:	Pre Demo 151B
Date:	5/23/2013
Equipment:	5800
Survey Purpose:	Map the pre demo locations to 151-B and 105B
Requested By:	Mark Allen
Location:	100BC
Charge Code:	
Field Surveyor:	Margo Aye
Survey Software Used:	Trimble Survey Controller, and Geomatics Office V.11
Survey Equipment Used:	5800
Control Monuments Used:	100B-3
Survey Method:	RTK
Horizontal Precision:	.020m
Vertical Precision:	.050m
Fieldwork Start Date:	2/13/13
Fieldwork Completion Date:	2/13/13
Notes:	This report is only for the 151-B Building

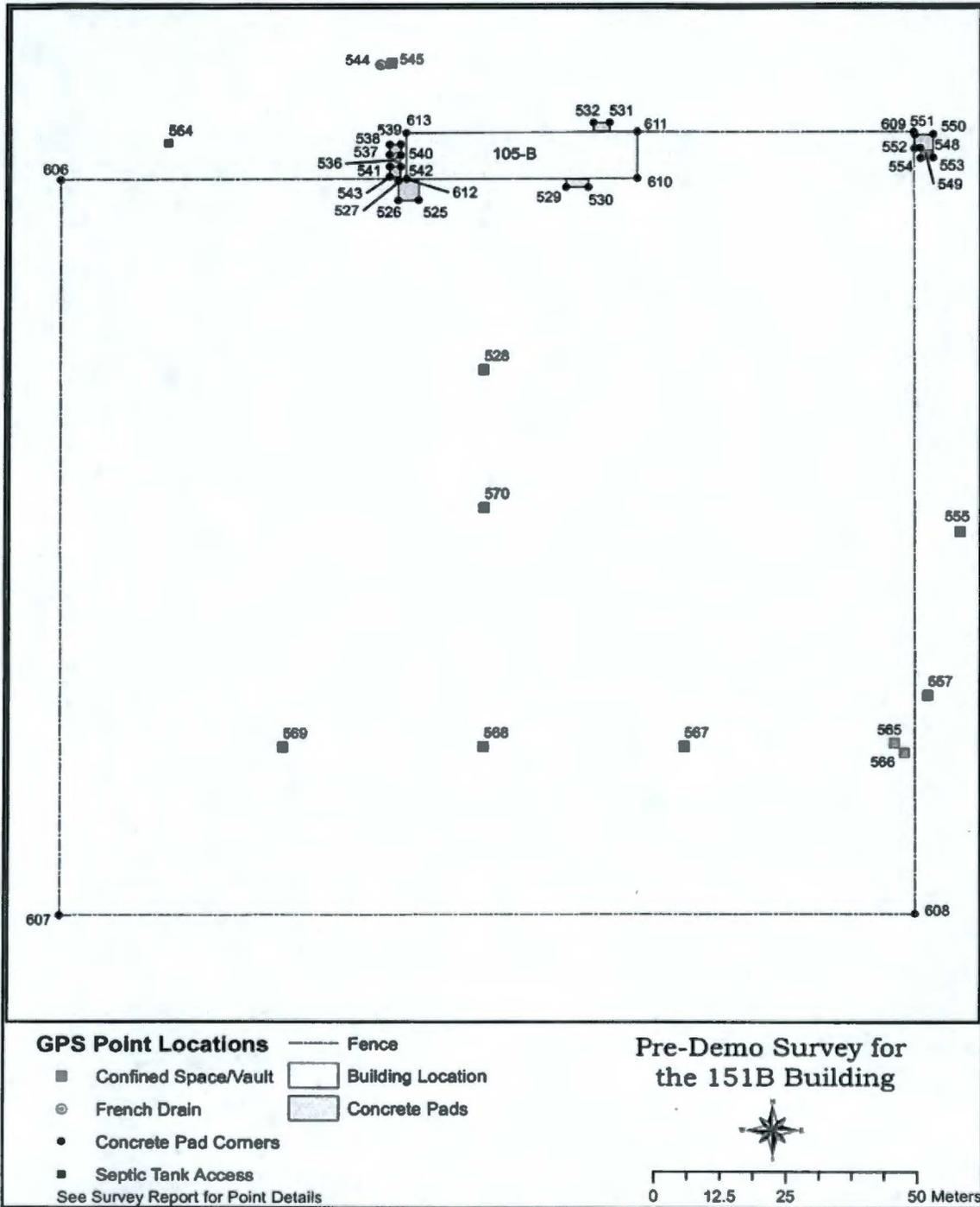
GPS Name	Northing	Easting	Elevation	Feature Code	Time/Date
520	144320.476m	565089.321m	145.325m	corn-offset	12:10:38 13 Feb 2013
521	144318.823m	565095.538m	145.313m	corn-offset	12:13:34 13 Feb 2013
522	144309.568m	565091.069m	145.380m	corn-offset	12:13:58 13 Feb 2013
523	144308.486m	565089.370m	145.364m	corn-offset	12:14:43 13 Feb 2013
524	144304.876m	565045.280m	145.366m	corn-offset	12:15:36 13 Feb 2013
525	144305.252m	565047.647m	145.493m	tower-pad	12:16:15 13 Feb 2013
526	144305.165m	565043.702m	145.550m	tower-pad	12:16:35 13 Feb 2013
527	144309.071m	565043.656m	145.584m	tower-pad	12:17:07 13 Feb 2013
528	144271.655m	565060.218m	145.275m	conf-space-access	12:18:40 13 Feb
2013					
529	144307.826m	565075.728m	145.549m	conc-pad-corner	12:20:28 13 Feb 2013
530	144307.838m	565079.969m	145.549m	conc-pad-corner	12:21:04 13 Feb 2013
531	144320.551m	565083.965m	145.368m	conc-pad-corner	12:21:58 13 Feb 2013
532	144320.552m	565080.947m	145.351m	conc-pad-corner	12:22:17 13 Feb 2013
533	144319.300m	565045.200m	145.131m	bldg-corn-offset	12:23:17 13 Feb
2013					
534	144318.587m	565044.132m	145.105m	bldg-corn-offset	12:24:31 13 Feb
2013					
535	144309.456m	565041.575m	145.426m	bldg-corn-offset	12:25:09 13 Feb
2013					
536	144313.712m	565043.457m	145.441m	FD	12:26:09 13 Feb 2013
537	144314.152m	565042.015m	145.384m	conc-pad	12:26:23 13 Feb 2013
538	144316.245m	565041.984m	145.363m	conc-pad	12:26:46 13 Feb 2013
539	144316.276m	565044.108m	145.312m	conc-pad	12:27:14 13 Feb 2013
540	144314.114m	565044.136m	145.388m	conc-pad	12:27:34 13 Feb 2013
541	144311.901m	565042.054m	145.387m	conc-pad	12:28:05 13 Feb 2013
542	144311.876m	565044.126m	145.483m	conc-pad	12:28:26 13 Feb 2013
543	144309.810m	565042.016m	145.425m	conc-pad	12:28:44 13 Feb 2013
544	144332.132m	565040.254m	144.986m	FD	12:29:19 13 Feb 2013
545	144332.502m	565042.427m	144.965m	CS	12:29:48 13 Feb 2013
546	144319.431m	565142.149m	145.206m	fence-corner-offset	12:35:42 13 Feb
2013					
547	144318.818m	565143.331m	145.185m	fence corner-offset	12:36:34 13 Feb
2013					

Attachment 2 – Pre-Demo GPS Data

548	144314.211m	565144.660m	145.436m	CS	12:36:57	13 Feb 2013
549	144313.606m	565145.894m	145.389m	conc-pad	12:37:09	13 Feb 2013
550	144318.272m	565145.890m	145.371m	conc-pad	12:37:43	13 Feb 2013
551	144318.207m	565142.344m	145.412m	conc-pad	12:38:10	13 Feb 2013
552	144315.482m	565142.311m	145.415m	conc-pad	12:38:31	13 Feb 2013
553	144315.507m	565143.427m	145.430m	conc-pad	12:38:47	13 Feb 2013
554	144313.532m	565143.460m	145.454m	conc-pad	12:40:24	13 Feb 2013
555	144239.341m	565150.966m	147.393m	CS	12:42:06	13 Feb 2013
556	144236.605m	565147.435m	146.722m	cut-vert-12inpipe	12:43:15	13 Feb
2013						
557	144206.920m	565144.918m	145.835m	CS	12:45:10	13 Feb 2013
558	144163.074m	565145.401m	146.354m	fence-corn-offst	12:46:54	13 Feb
2013						
559	144159.743m	565142.559m	146.914m	fence-corn-offst	12:47:37	13 Feb
2013						
560	144161.261m	564979.861m	145.682m	fence-corn-offst	12:51:12	13 Feb
2013						
561	144162.674m	564977.237m	145.592m	fence-corn-offst	12:51:47	13 Feb
2013						
562	144309.144m	564978.270m	144.921m	fence-corn-offst	12:54:32	13 Feb
2013						
563	144310.211m	564979.544m	144.977m	fence-corn-offst	12:54:48	13 Feb
2013						
564	144316.525m	564999.995m	145.033m	septic-tank-access	12:56:04	13 Feb
2013						
565	144197.500m	565138.588m	145.344m	CS-MH	13:00:02	13 Feb 2013
566	144195.554m	565140.474m	145.331m	CS-MH	13:00:17	13 Feb 2013
567	144196.756m	565098.592m	145.355m	CS-vault	13:01:14	13 Feb 2013
568	144196.649m	565060.208m	145.319m	CS-MH	13:02:29	13 Feb 2013
569	144196.481m	565021.787m	145.369m	CS-vault	13:03:37	13 Feb 2013
570	144244.113m	565060.307m	145.251m	CS-vault	13:05:33	13 Feb 2013
A10	144309.152m	565047.647m	?			
A3	144309.786m	565044.086m	?			
A5	144309.476m	565075.721m	?			
A7	144309.437m	565079.963m	?			
A8	144318.952m	565080.947m	?			
A9	144318.951m	565083.965m	?			

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Attachment 2 – Pre-Demo GPS Data



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