# FACILITY STATUS CHANGE FORM
# (for DOE/RL-2010-34 Facilities)

| Date Submitted: | Area: | Control #: |
|---|---|---|
| March 26, 2014 | 100-B | D4-100B-004 |
| **Originator:** | **Facility ID:** | |
| Clay McCurley | 151B Primary Electrical Substation | |
| **Phone:** | **Action Memorandum:** | |
| 942-8928 | General Hanford Site Decommissioning Activitie | |

**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

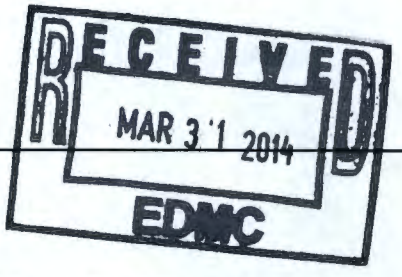
- ☐ All removal actions require by action memo complete.
- ☒ Removal actions required by actions memo partially complete, remaining operations deferred.

**Description of Completed Activities and Current Conditions:**
Decontamination and Decommissioning: The following hazardous materials were removed prior to facility demolition: light bulbs, fuses containing lead, mercury switches, oils, Regulated Asbestos-Containing Material (RACM), and polychlorinated biphenyl (PCB) containing equipment. Hazardous material removal and waste disposition was performed in accordance with the *Removal Action Work Plan for River Corridor General Decommissioning Activities*, DOE/RL-2010-034.

Demolition: The 151B primary electrical substation (switch yard) was demolished in place in the 100-B area from October 2013 to March 2014. Most of the metal (e.g., steel, copper) that made up yard equipment, as well as residual oil remaining in that equipment, was recycled. The balance of the demolition debris (e.g., concrete pads) was loaded out and disposed of at the ERDF. Based on past uses of this facility, the radiological scoping surveys for the switchgear building (see Attachment 4 of D4-100B-001), and a radiological survey of the switch yard equipment/structures (see Attachment 3), radiological contamination was not expected during demolition.

Class I friable asbestos containing material (ACM), Class II non-friable ACM, and oil containing polychlorinated biphenyls were the only contaminants of concern for demolition. The Class I ACM was abated prior to demolition and the portions of demolition that involved Class II ACM were performed under asbestos controls. Yard equipment containing oil was drained prior to demolition activities and recycled offsite. Although various structures were excavated throughout the switch yard area, no post-demolition GPS survey was performed since additional excavations activities may be required as part of remediation.

**Description of Deferral (as applicable):**
Backfill is deferred to facilitate the remediation of WIDS Site 100-B-35.




## 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 removal action. Waste site identification number <to be> assigned.

  Cleanup and closeout to be addressed under Record of Decision.

**Description of Current/As-Left Conditions:**
All switch yard equipment, perimeter fence, and support pads were removed to -3 feet below grade and recycled or disposed at the ERDF. Two below-grade concrete vaults (near the northeast corner of the switch yard) were demolished to -3 feet below grade and backfilled with borrow pit material to eliminate safety concerns associated with steepened edges. A below-grade duct bank running east/west near the facility's north fenceline was uncovered, confirmed to be

# FACILITY STATUS CHANGE FORM
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greater than 1 foot in depth, and left in place. Most of the cement asbestos piping (embedded in concrete) that provided conduit between yard support structures (concrete pads) was removed and disposed under asbestos controls. In areas where the conduit was greater than 3 feet in depth, it was left undisturbed and buried in place.

**Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):**
WIDS Site 100-B-35 - 151-B Primary Substation and 152-B1 Secondary Substation. This WIDS site consists of the entire fenced gravel switch yard. The WIDS designation is primarily due to the operation and maintenance of PCB containing electrical equipment. The WIDS site was impacted by D4 activities with the removal of some yard structures to 3 feet below grade. The 100-B-35 WIDS site will be remediated after the completion of D4 removal activities.

**Section 3: List of Attachments**

1. Facility Information
2. Photographs of the 151B Primary Electrical Substation
3. Radiological Scoping Survey of 151B Primary Electrical Substation
4. Post Demolition Visual Inspection of 151B Switch Yard

Rudy Guercia _____ 3/27/14

DOE-RL (Lead Agency) Date

**DISTRIBUTION:**

DOE: Rudy Guercia, A3-04
Document Control, H4-11
Administrative Record, H6-08 (100-BC-1 OU)
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D4 EPL: Clay McCurley, L4-45
Sample Design/Cleanup Verification:Theresa Howell, H4-23
FR Engineering: Rich Carlson, N3-30
FR EPL: Dan Saueressig, N3-30

# Attachment 1

**Facility Information (3 pages)**

## Facility Information

### Introduction

This document provides information regarding the history, characterization, and final status at the completion of deactivation, decontamination, decommissioning and demolition (D4) activities of the 151B primary electrical substation (switch yard) located in the 100-B Area as shown in Figure 1 (Attachment 2).

### Facility Description

The 151B switch yard (also known as A2) shown in Figure 2 (Attachment 2) served as the primary source of electrical power for all facilities in the 100-BC Area. It consisted of a fenced, gravel-bed yard that originally measured approximately 430 feet by 303 feet and was expanded in 1952 to support new facilities associated with the 105-C Reactor. The 151B switchgear building, which was demolished in April, 2013, was located on the northern fence line. It is not addressed in this document. The Facility Status Change Form (FSCF) documenting D4 of the 151B switchgear building is found in Document No. D4-100B-001.

Concrete pads of various sizes protruded from the crushed gravel bed throughout the yard, supporting a variety of electrical equipment, including transformers, power line towers and stands, oil-filled circuit breakers (OCBs), and underground ducts connecting yard equipment with the switchgear building. Railroad spurs entered the yard from the east and west paralleling the north and south fence lines. Oil containing polychlorinated biphenyls (PCBs) was transferred, as needed, from rail tankers on the spurs through above ground and underground piping to transformers and oil-filled circuit breakers in the yard.

### Facility History

The 151B switch yard received 230 kV power from the Midway Substation and was first energized in June 1944. The three main transformers in the switch yard transmitted power, primarily via underground cables, to thirteen secondary substations and nine distribution substations located throughout the 100-BC Area including a 27.5 KVA transformer that provided power for the switchgear building. The switch yard was accepted as a waste site and listed in the Waste Information Data System (WIDS) as site 100-B-35.

The switchgear building was demolished in April 2013 leaving in place the concrete floor and walls of the basement greater than 3 feet deep. The excavation was not backfilled since that portion of the scope would be performed with the demolition of the switch yard or remediation of the 100-B-35 WIDS site. With the exception of the transformer bushings, all equipment in the switch yard had been drained of oil several years earlier. Since the switch yard had no radiological contamination and no potential to emit (see switchgear building FSCF [D4-100B-001]), a subcontractor specialized in recycling transformers and PCB oil was hired to drain and recycle the oil as well as remove and recycle all six transformers from the switch yard. EPA reviewed and concurred with the organization and destinations selected for this recycling switch yard. This concurrence is documented in Attachment 3 of the FSCF for the 151D Primary Electrical Substation (D4-100D-003-1).

Demolition of the switch yard began in October, 2013. Figure 3 (Attachment 2) provides an aerial view of D4 activities in progress. Figure 4 (Attachment 2) provides an overview of the

switchyard after the completion of demolition. Most of the metal (e.g., metal towers, stands, transformers) was recycled.

All concrete pads supporting yard equipment were removed along with most of the buried cement asbestos pipe encased in concrete (conduit) that housed electrical wiring between facility structures (e.g., pads supporting transformers and switchgear building). The conduit was demolished and disposed under asbestos controls. In areas of the yard where the conduit was greater than 3 feet in depth, it was left in place undisturbed and backfilled where it had been exposed. A below-grade duct bank running east/west near the facility's north fenceline (see Photo 6 of Attachment 4) was uncovered and found to be deep enough to leave in place, however, a portion of the duct bank running north/south near the facility's east fence was removed at the request of DOE.

Two below grade concrete vaults, each approximately 10 feet square and 8 feet deep, near the northeast corner of the yard were demolished to 3 feet below grade and backfilled with local borrow pit material to eliminate safety concerns associated with steepened edges. Other depressions where structures had been removed were partially filled with adjacent material to minimize hazards associated with walking on uneven surfaces.

The switch yard was visually inspected for stains and anomalies in March 2014 after demolition was complete but before all debris had been removed. A copy of the inspection is provided in Attachment 4. A pre-demolition GPS survey of the switch yard was performed and is provided in Attachment 5 of the Switchgear Building FSCF (D4-100B-001). A post-demolition GPS survey of the switch yard was not performed and backfill is being deferred since additional excavation may be required during the remediation of WIDS site 100-B-35.

**Radiological Scoping and IH Baseline Surveys**

The 151B switch yard was never posted for radiological conditions. Based on historical research of past uses, radiological contamination was not expected and a radiological scoping survey of the yard, provided as Attachment 3, identified no contamination.

The switch yard was inspected and sampled for asbestos on July 24, 2013 (CCN 173954). Cloth covered wires in cabinets were found to contain friable asbestos. EPA approved methodology of 151B is discussed in Attachment 6 of the Switchgear Building FSCF (D4-100B-001). Buried cement asbestos pipe encased in concrete was presumed to contain asbestos, based on construction drawings. Bushings on top of OCBs and other equipment in the yard still contained some PCB oil. Table 1 summarizes the radiological and beryllium surveys and the asbestos and PCB sampling performed. Pre and post demolition surveys using the Global Positioning Environmental Radiological Surveyor (GPERS) were not performed since the switch yard was not radiologically contaminated. Table 2 identifies the contaminants of concern (COC) and summarizes how each COC was managed.

**Table 1: Summary of Characterization Surveys at 151B**

| Type | Quantity | Method Detection Limits | Results |
|---|---|---|---|
| Asbestos | 3 samples | 1% weight | Friable ACM was indentified on cloth covered wires in cabinets and conduits. Buried cement asbestos piping (conduit) |

| | | | was presumed to be ACM. |
|---|---|---|---|
| **Type** | **Quantity** | **Method Detection Limits** | **Results** |
| IH Surveys and Beryllium Characterization | 1 survey | Wipe Samples: clean release level for surface contamination - 0.2 µg/100cm$^2$<br><br>Bulk Samples: Hanford site background level – 2 µg/g | Assessment documents the building is Be clean. |
| Radiological Scoping Surveys | 1 survey | Beta-gamma: 1,000 removable/ 5,000 fixed[a]<br><br>Alpha: 20 removable/ 500 fixed[a] | No contamination identified (see Attachment 3). |
| Polychlorinated biphenyls | 3 samples | 50 ppm | PCBs identified in oil collected from bushings on top of OCBs and other equipment. |

[a] – dpm/100 cm$^2$

**Table 2: Contaminants of Concern for Facility Demolition**

| Contaminant of Concern | Management Practice |
|---|---|
| Class I Friable Asbestos Containing Material (ACM) and Class II Non-friable ACM | Wiring in cabinets that contained Class I friable ACM was abated prior to demolition. Cement asbestos piping (conduit) that surfaced at concrete pad was demolished under asbestos controls. Cement asbestos piping elsewhere in the yard was greater than 3 feet in depth and left in place for remediation of WIDS Site 100-B-35. |
| Polychlorinated biphenyls | Yard equipment containing oil was drained prior to demolition activities and recycled off site. |

# Attachment 2

**Photographs of the 151B Primary Electrical Substation (2 pages)**

151B Primary Electrical Substation

**Figure 1. 100-B Area in January 2014 (facing north)**

**Figure 2. 151B Switch Yard in June 2012 (facing north)**

**Figure 3. 151B Switch Yard During Demolition in November 2013 (facing north)**

**Figure 4. 151B Switch Yard After Demolition Completion in March 2014**

# Attachment 3

**Radiological Scoping Survey of 151B Primary Electrical Substation (2 pages)**

# RADIOLOGICAL SURVEY RECORD

Page 1 of 2

| Type of Survey | | Survey # |
|---|---|---|
| ☐ Routine | ☒ Work Progress | RSR -- 100N-13-0482 |

| RWP # / Rev. # | Date | Time | Location |
|---|---|---|---|
| N/A | 05-10-13 | 1500 | 100N/151B/switch yard |

Description
Verification survey of electrical switch yard

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
TA-07-SR-02/Rev 3; SP-12-22/Rev 0

Completed verification survey of electrical switch yard (151B). This was accomplished using Radiological Survey Plan listed above. Approximately 120 technical smears and the same number of direct measurements were taken in random areas and on random equipment located inside the yard, with special attention being paid to bird/mouse/insect nests. Also items such as rusted metal, railroad tracks, etc. were shown extra scrutiny during this survey. All resulting data show no readings detected above background levels. Due to the immense size of this yard and the difficulty in reproducing survey locations accurately on a diagram, along with the fact that no contamination was detected above background levels, no diagram is included in this survey report.

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 / 30cm | N Neutrons (mRem/hr) | Δ Micro Rem (uR/hr) | SCA Soil Contamination Area | Radiological Boundary

## Instruments

| Model | ID # | Cal Due Date | Model | ID # | Cal Due Date |
|---|---|---|---|---|---|
| 2224-3 | SCLLB-0100 | 03-08-14 | 2224-3 | SCLLB-0110 | 01-29-14 |
| 43-93 | DTLLP-0036 | 03-08-14 | 43-93 | DTLLP--100 | 01-29-14 |
| N/A | N/A | N/A | N/A | N/A | N/A |

RCT Name/Signature/Date:
T. Parker/ /05-10-13
G. Eppling/ /05-10-13

RCT Supervisor Name/Signature/Date:
Mark Walden/M Walden/5/14/13

WCH-TM-R008a (06/30/2009)

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

151B Primary Electrical Substation

# RADIOLOGICAL SURVEY RECORD



Survey # RSR - 100N-13-0482

## 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 |
| 1-120 | Technical smears/direct measurements, various locations | <20 | 7 | <1000 | 10 | <500 | 7 | <5000 | 10 |
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[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 |
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WCH-TM-R006a (06/30/2009)

# Attachment 4

**Post-Demolition Visual Inspection of 151B Switch Yard (4 pages)**

174996

**^WCH Document Control**

**From:** McCurley, Clay D
**Sent:** Monday, March 10, 2014 9:11 AM
**To:** ^WCH Document Control
**Subject:** Visual Inspection of 151-B Switch Yard

**Attachments:** Visual Inspection of 151-B Switch Yard 03-06-2014.doc

Folks. Please print the attachment (in color) and chron with this email per the subject. Let me know which CCN has been assigned. Thanks. Clay

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**From:** McCurley, Clay D
**Sent:** Monday, March 10, 2014 8:15 AM
**To:** Allen, Mark E; Douglas, L M (Michael)
**Cc:** Guercia, Rudolph F
**Subject:** Visual Inspection of 151-B Switch Yard

Mike/Mark. I conducted a visual inspection of the 151-B Switch Yard on Thursday, March 6, 2014. The D4 crew still had load out activities to complete (e.g., rubble piles still on site) but the area was sufficiently complete to evaluate for soil stains and anomalies. None were observed. Attached are photos documenting the inspection. In accordance with the *Removal Action Work Plan for River Corridor General Decommissioning Activities* (DOE/RL-2010-34, Rev. 2), the top of the duct bank near the northeast corner, shown in Photo 6, is greater than 1 foot in depth and can be left in place. Contact me if you have any questions. Clay

Visual Inspection of 151-B Swi...

# Visual Inspection of 151-B Switch Yard

March 6, 2014

**Photo 1. Excavation from demolition of OCBs near southwest corner (facing north).**

**Photo 2. View of switch yard from south side (facing northeast).**

# Visual Inspection of 151-B Switch Yard
March 6, 2014

**Photo 3. View of switch yard from southeast corner (facing northwest).**

**Photo 4. View of switch yard from southeast corner (facing west).**

# Visual Inspection of 151-B Switch Yard
March 6, 2014

**Photo 5. View of switch yard from east side (facing northwest).**

**Photo 6. View of duct bank near northern fenceline of switch yard (facing west).**