



Interoffice Memorandum

TO: L. M. Douglas, N2-02

DATE: June 25, 2014

COPIES: See Below
Document Control

FROM: M. E. Allen
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L4-45

**SUBJECT: Post-Demolition Summary Report for the 183-B Water Treatment Plant
Clearwells and Pump House**

Attached is a Post-Demolition Summary Report for the 183-B Water Treatment Plant Clearwells and Pump House. This report documents the final status of the area after completion of Deactivation, Decontamination, Decommissioning, 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 facility.

Please contact Mike Douglas at 509-420-6206 if you have any questions on this information.

MEA:mea

Attachment: *Post-Demolition Summary Report for 183-B Water Treatment Plant Clearwells and Pumphouse*

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Post-Demolition Summary Report for the 183-B Water Treatment Plant Clearwells and Pumphouse

May 2014

This post-demolition summary report documents the characterization and final status of the 183-B Water Treatment Plant Clearwells and below-grade Pump House at the completion of deactivation, decontamination, decommissioning and demolition (D4) activities.

Site Information

The 183-B Water Treatment Plant Clearwells were located 1,300 feet west of the 105-B Reactor Building (CCN 172226). The Clearwells and Pump House are described separately below and the spatial relationship of the facilities is depicted in Figure 1 and 2.

Most of the 183-B Water Treatment Plant was demolished in 1987, including the Headhouse, Flocculation Basins, Sedimentation Basins, above-grade Filter Building, and the Pump House down to 3-ft above-grade.

Clearwells and Valve Houses

The 183-B Clearwells (Clear Water Reservoirs) consisted of two below-grade 5,000,000-gal reinforced concrete enclosed reservoirs. Each Clearwell measured approximately 135-ft wide, 750-ft long, and 20-ft deep. Each reservoir had a reinforced concrete slab roof that supported by reinforced concrete pillars. A tar and gravel surface covered the roof. The Pump House was located between the north and south Clearwells (Figure 1 and 2).

Water within the Clearwells gravity fed two Suction Wells, located 5-ft below the Clearwell floors, one on either side of the Pump House. Water within the Suction Wells was pumped to the "B" Reactor utilizing pumps located in the Pump Room.

Three (3) valve houses on the east side of the Clearwells and a concrete over-flow flume on the south side of the South Clearwell (Figure 2) were used to distribute water for operations and to maintain the reservoir level. The two valve houses furthest from the Clearwells were constructed of 8-ft diameter vertical corrugated galvanized steel culvert material, with steel roofs. The valve house nearest the North Clearwell consisted of a small wooden structure, approximately 10-ft by 10-ft, with an asphalt shingle roof. The concrete over-flow flume, approximately 20-ft by 20-ft, had both a reinforced concrete roof and walls, and resided on the south end of the South Clearwell.

Pump House

The 183-B Pump House, located between the North Clearwell and the South Clearwell, measured approximately 45-ft by 135-ft. The remaining Pump House consisted of the reinforced concrete walls, which were 3-ft above grade and extended 20-ft below grade. The Pump House

above-grade structure, including the above-grade and below-grade equipment, had been previously removed.

The Pump House originally contained ten electric pumps and six steam turbine pumps. Two of these pumps were used for backwashing the filter beds and four pumps were connected to the combined sanitary and fire protection system. The remaining ten pumps handled the distribution of filtered water.

Overflow trenches of 20,000-gpm capacity ran along both walls of the Pump Room below floor level, paralleling the two Clearwells.

The 183-B Clearwell and Pump House excavation backfill was complete May 30, 2014 under the River Corridor Contract (RCC) using excavation permit DAN13-0120 (Figure 3 and 4). An Ecological and Cultural Resources Review (CCN 173867) aided the preparation of the excavation permit.

Radiological Scoping and IH Baseline Surveys

The 183-B Clearwell and Pump House below-grade demolition was performed under the RCC contract. The radiological baseline survey is documented in RSR-100N-13-1221. An Industrial Hygiene Exposure Assessment (IHEA-183B-13-001), dated February 11, 2014, indicated the beryllium status of the site was “beryllium clean”.

Table 1 summarizes the radiological, industrial hygiene, and asbestos characterization of the 183-B Clearwells and Pump House.

Waste Characterization Sampling

Under the RCC contract, asbestos inspections were conducted on July 24, 2013, January 14, 2014, and January 21, 2014 (CCN 173745 and CCN 174859). Eight (8) of the eighteen (18) samples tested positive for asbestos containing material (ACM). For more details, see Table 1 and Attachment 1.

Table 1: Summary of Characterization Surveys at 183-B Clearwells and Pump House

| Type | Date | Documented In | Results Summary |
|------------------------|-------------------|------------------------|-------------------------------------------------------------------------------------------------------------|
| Radiological Surveys | November 8, 2013 | RSR-100N-13-1221 | No contamination identified. |
| IH Exposure Assessment | February 11, 2014 | IHEA-183B-13-001, Rev. | Assessment documents the potential exposure hazard to dust and silica; and, the building is Beryllium-free. |
| Asbestos | July 24, 2013 | CCN 173745 | ACM identified in: roofing materials |
| | January 14, 2014 | CCN 174859 | ACM identified in: roofing materials |
| | January 21, 2014 | CCN 174859 | ACM identified in: roofing materials |

Waste Profile

Demolition was completed on May 20, 2014. Backfill was completed on May 30, 2014. The demolition debris was loaded into roll-off containers and sent to the Environmental Restoration Disposal Facility (ERDF). A total of 8,283 tons of debris was shipped in 528 containers using waste profile number RCCIF001.

GPERS Surveys

The 183-B Clearwells and Pump House were radiologically clean. No GPERS surveys were required.

Civil Survey Information

A pre-demolition GPS survey of the Clearwells was prepared and is presented in Attachment 2 (CCN 0658104). The clean concrete walls and floors 3-feet below-grade and lower, were not removed and a post-demolition GPS survey was not required.

Status of WIDS Sites Associated with the Building Sites

There are no accepted WIDS sites associated with the 183-B Clearwells.

Anomalies

No anomalies were reported during demolition of the facility.

Work Packages and Activity Dates

The following work package was used:

100 13 09 20 005, *183-B Clearwells Demolition*

Radiological Downposting Survey

No radiological down-posting was required for the 183-B Clearwells. Based on historical and process knowledge, and, on radiological baseline surveys that were prepared, the facility was determined to be free of contamination.

Cost Performance Information

As of June 25, 2014, \$633,818 in actual costs were recorded to the D4 183-B Clearwell cost accounts.

Lessons Learned

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

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).

Demolition of the Clearwell roofs and walls, Pump House walls, Valve Vaults, and Flume was completed by May 20, 2014. Five hundred and twenty eight (528) ERDF containers transported 8,283 tons of demolition debris to ERDF. No post-demolition Global Positioning Environmental Radiological Surveyor (GPERS) surveys were performed because the facility was radiologically clean. A post-demolition Global Positioning System (GPS) survey wasn't prepared because the below-grade walls and flooring remained in-place as reflected in the design drawings.

Pre-demolition and post-demolition aerial photographs are presented in Figures 2 and 4.

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 Figures 1 through 4.

References

CCN 172226, 2013, “Historical Site Assessment for the 183B Clearwells”, August 7, 2013, Washington Closure Hanford, Richland, Washington.

CCN 173745, 2013, “Asbestos Inspection and Sampling Report for the 183B Clearwells”, October 30, 2013, Washington Closure Hanford, Richland, Washington.

CCN 173867, 2013, “Ecological and Cultural Resources Review for Demolition of the 183-B Clearwells (13-ER-015, HCRC #2013-100-033)”, November 25, 2013, Washington Closure Hanford, Richland, Washington.

CCN 174859, 2014, “Amended – Asbestos Inspection and Sampling Report for the 183B Clearwells (SUPERSEDES CCN173745)”, January 30, 2014, Washington Closure Hanford, Richland, Washington.

CCN 0658104, 2014, “LiDAR Survey Report for Pre-Demo 183B Clearwell”, May 28, 2014, Washington Closure Hanford, Richland, Washington.

DAN13-0120, 2013, “Hanford Site Excavation Permit, 100-B/C: Between 182B and 105B, Remove 183-B Clearwells, Pump House, and Valve Vaults/Pits”, December 11, 2013, Washington Closure Hanford, Richland, Washington.

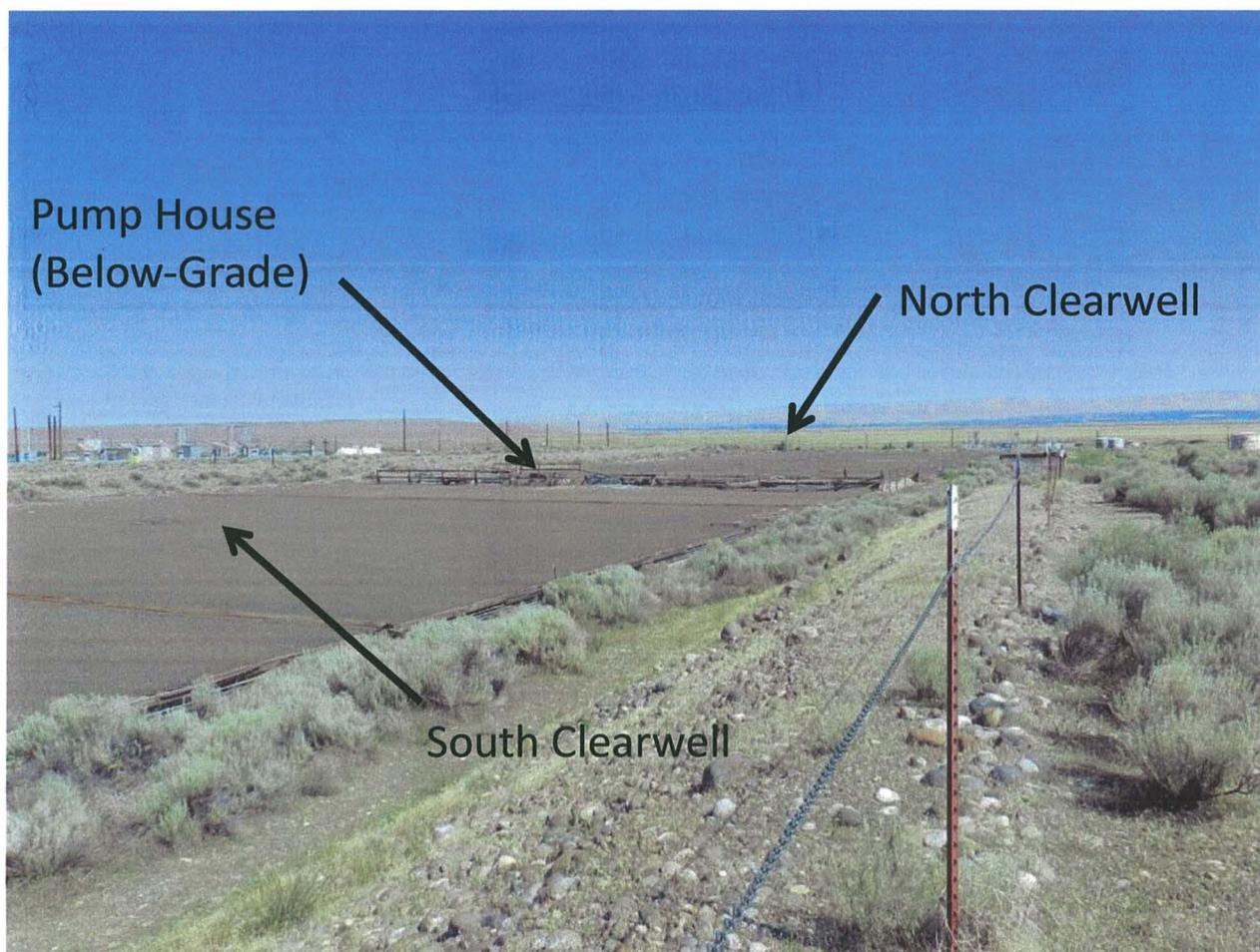
DOE/RL-2010-34, 2013, “Removal Action Work Plan for River Corridor General Decommissioning Activities”, Rev 2, April 2013, United States Department of Energy, Richland, Washington.

IHEA-183B-13-001 Rev 1, “Industrial Hygiene Exposure Assessment – 100 Area, Building 183B Clearwells,” February 11, 2014, Washington Closure Hanford, Richland, Washington.

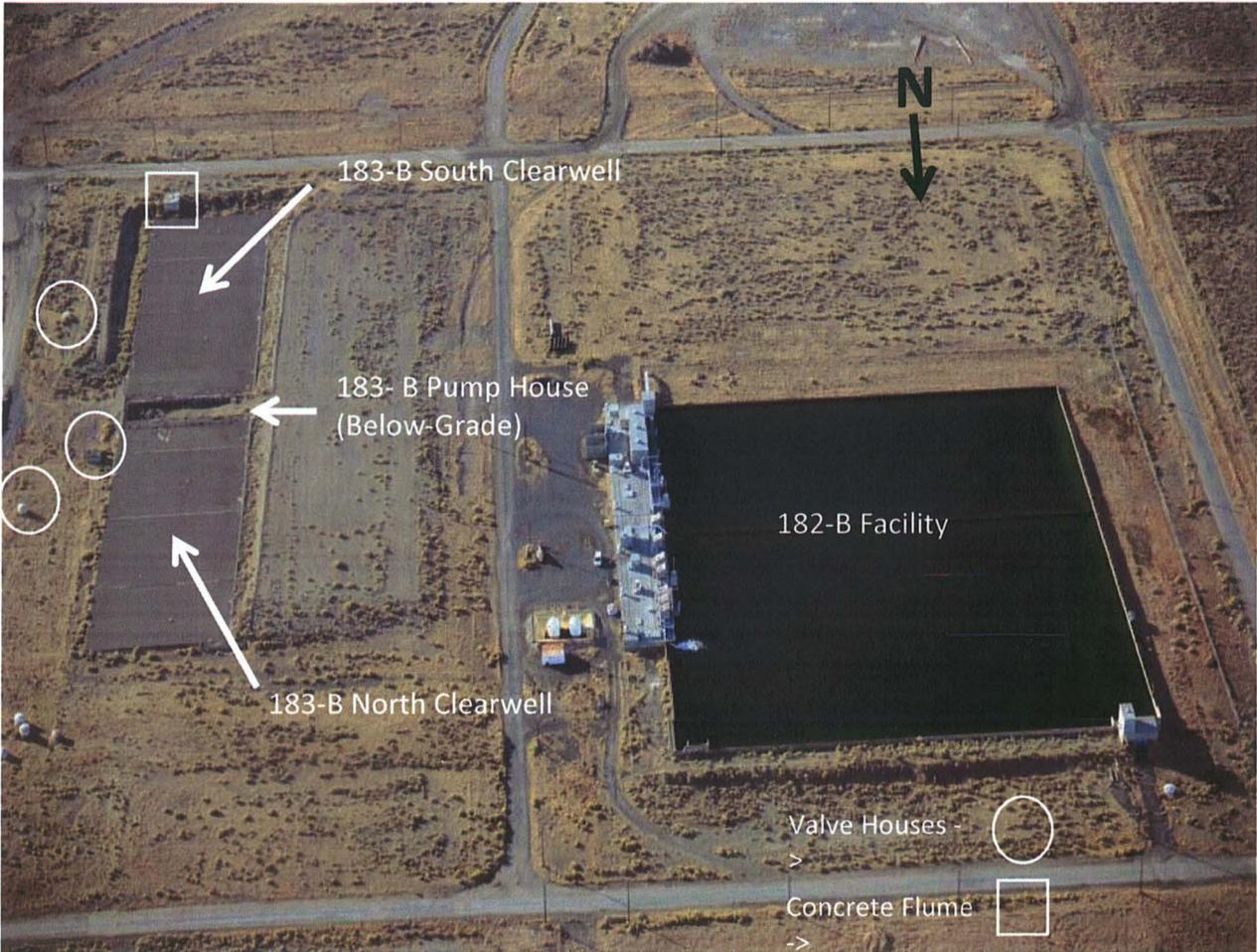
RSR-100N-13-1221, 2013, “Characterization/Scoping Survey of 183B Clear Well”, November 8, 2013, Washington Closure Hanford, Richland, Washington.

WP# RCCIF001, Rev. 4, 2013, “ERDF Waste Profile Datasheet, This Revision Adds 183-B. See Designation for Full List of Facilities”, November 19, 2013, Washington Closure Hanford, Richland, Washington.

**Figure 1. 183-B Water Treatment Plant Clearwells and Pump House - Pre-Demolition
July 16, 2013 – Looking Northwest**



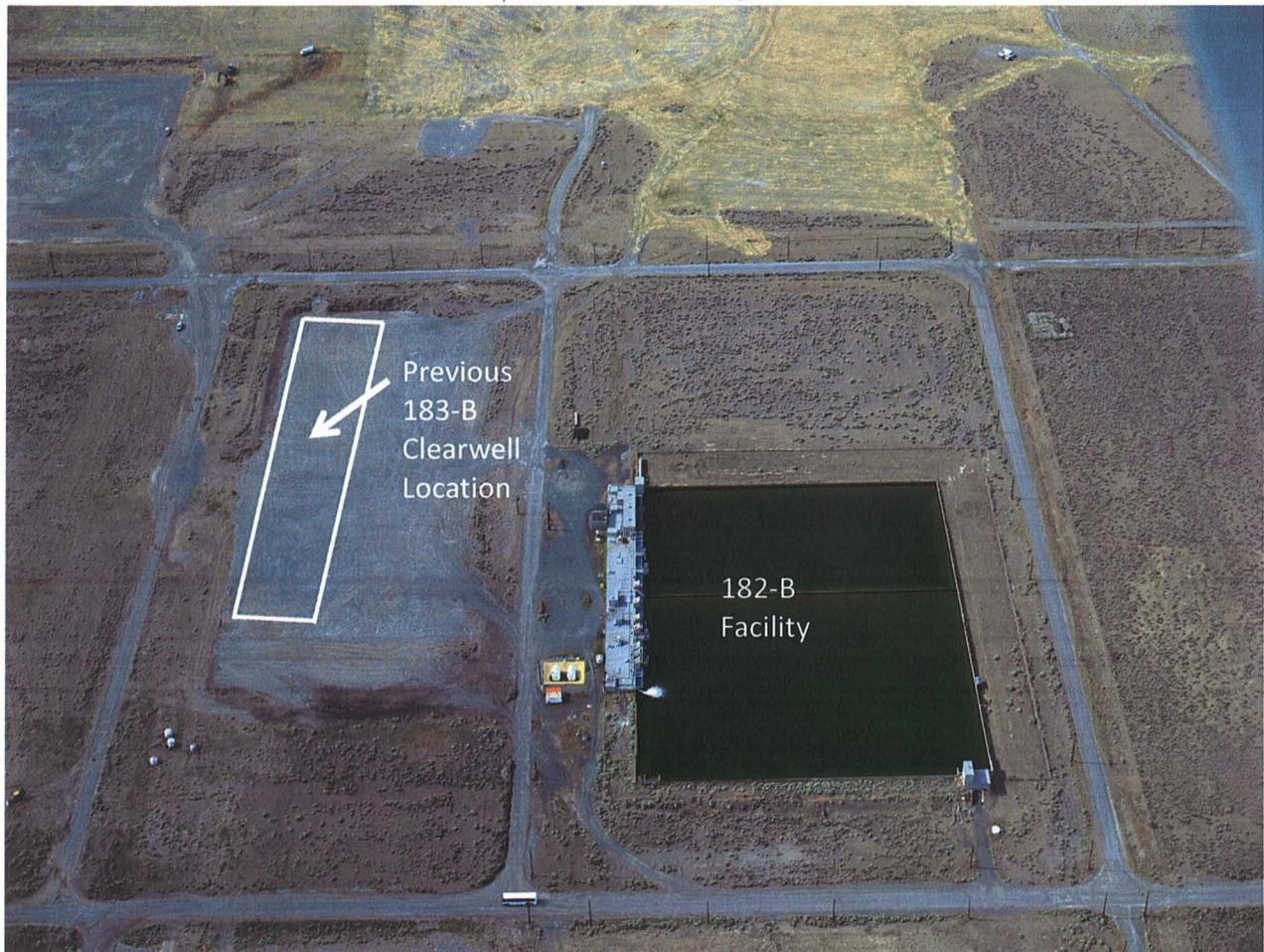
**Figure 2. Aerial View 183-B Water Treatment Plant Clearwells and Pump House – Pre-Demolition
October 17, 2012 – Looking South**



**Figure 3. 183-B Water Treatment Plant Clearwells and Pump House – Post-Demolition
June 2, 2014 – Looking Northwest**



**Figure 4. Aerial View 183-B Water Treatment Plant Clearwells and Pump House – Post Demolition
June 12, 2014 – Looking South**



Attachment 1 – Asbestos Sample Summary

| Asbestos Summary – 183B Water Treatment Plant Clearwells and Pump House | | | |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------|
| HEIS Sample Number & Date | Sample Location | Sample Description | Percent Asbestos |
| J1RVR6 – 7/24/13 | Wooden Valve-Pit Dog-House Roof on East Side of Clearwells | Green Gravel and Black/Brown Asphaltic Roofing Material | Insulation: 10% Chrysotyle Tar: ND |
| J1RVR7 – 7/24/13 | North Clearwell – Edge of Southeast Corner | Brown/Black Asphaltic Roofing Material | Tar: 15% Chrysotyle |
| J1RVR8 – 7/24/13 | South Clearwell – Edge of Northeast Corner | Brown/Black Asphaltic Roofing Material | Mat: 4% Chrysotyle Tar: 3% Chrysotyle |
| J1T5T5 – 1/14/14 | South Clearwell – East Side – 3 rd Panel from South | Dark Brown/Black Built-up Asphaltic Material Around Entry Port Curbing | Tar: 7% Chrysotyle |
| J1T5T6 – 1/14/14 | South Clearwell – Under Fascia on East Side - 3 rd Panel from South End | Grey/Off-white Hard Caulking Putty | Adhesive: 7% Chrysotyle |
| J1T5T7 – 1/14/14 | South Clearwell - East Edge - 2nd Roof Panel from South – 2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5T8 – 1/14/14 | South Clearwell - Center Edge of Far South Panel – 2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5T9 – 1/14/14 | South Clearwell - West Edge of 3rd Roof Panel from South - 2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5V0 – 1/14/14 | North Clearwell - West Edge of 3rd Roof Panel from North – 2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5V1 – 1/14/14 | North Clearwell - Center Edge of Far North Panel – 2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5V2 – 1/14/14 | North Clearwell - East Edge of 2nd Roof Panel from North – 2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5V3 – 1/14/14 | North Clearwell - 3 rd Panel from North End | Dark Brown/Black Built-up Asphaltic Material Around Entry Port Curbing | Mat: 8% Chrysotile Tar: ND |
| J1T5V4 – 1/14/14 | North Clearwell – Under Fascia on East Side - 3 rd Panel from North End | Grey/Off-white Hard Caulking Putty | Adhesive: 7% Chrysotyle |
| J1T5V5 – 1/21/14 | South Clearwell – East Edge of 4 th Roof Panel – 2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5V6 – 1/21/14 | North Clearwell – East Edge 4 th Roof Panel ~2-ft from Edge | Black Tar and Roofing Paper | ND |
| J1T5V7 – 1/21/14 | North Clearwell - South End Inside Pump House Excavation | Brown/Black Asphaltic Roofing Material | Tar Sheet: 2% Chrysotyle |
| J1T5V8 – 1/21/14 | North Clearwell - Southern Most Panel - 2-ft from Edge of Trench | Black Tar and Roofing Paper | Tarpaper: ND |
| J1T5V9 – 1/21/14 | South Clearwell - Northern most panel – 2-ft from Edge of Trench | Black Tar and Roofing Paper | Tar Sheet: ND |
| | | | |

Attachment 2 – Pre-Demolition Civil Survey

LIDAR Survey Report for Pre-Demo 183B Clearwell

*Project : Lidar**Job 1267*

| | | | |
|--------------------------|---------------------|------------------------|--------------------------|
| User name | maaye | Date & Time | 12:16:22 PM 5/28/2014 |
| Coordinate System | US State Plane 1983 | Zone | Washington South 4602 |
| Project Datum | NAD 1983 (Conus) | | |
| Vertical Datum | | Geoid Model | Not selected |
| Coordinate Units | Meters | | |
| Distance Units | Meters | | |
| Height Units | Meters | | |

Survey Project Name: LiDAR for 183B
 Date: 5/28/2014
 Equipment: 5800
 Survey Purpose: Locate corners to the 183B Clearwell
 Requested By: Mark Allen
 Location: 100B/C
 Charge Code:
 Field Surveyor: None
 Survey Software Used: LiDAR
 Survey Equipment Used:
 Control Monuments Used:
 Survey Method: LiDAR
 Horizontal Precision: +/- 1 ft
 Vertical Precision: +/- 1 ft
 Fieldwork Start Date: Fall 2008
 Fieldwork Completion Date: LiDAR was recorded fall of 2008.
 Notes:

| Name | Feat_Code | Northing | Easting | Elevation | FAC_NAMES |
|------|-----------|---------------|---------------|-----------|-----------------|
| 1 | Corner | 144627.407268 | 564831.46932 | 141.94 | 183B, Clearwell |
| 2 | Corner | 144627.472837 | 564845.719086 | 141.54 | 183B, Clearwell |
| 3 | Corner | 144625.573 | 564845.722 | 142 | 183B, Clearwell |
| 4 | Corner | 144625.618 | 564878.228 | 141.68 | 183B, Clearwell |
| 5 | Corner | 144396.107794 | 564878.537288 | 141.64 | 183B, Clearwell |

| | | | | | |
|----|----------------|---------------|---------------|--------|-----------------|
| 6 | Corner | 144396.294775 | 564845.882873 | 141.89 | 183B, Clearwell |
| 7 | Corner | 144394.137164 | 564845.890511 | 141.48 | 183B, Clearwell |
| 8 | Corner | 144394.005789 | 564832.385124 | 142.33 | 183B, Clearwell |
| 9 | Corner | 144385.630796 | 564875.085803 | 143.98 | 183B |
| 10 | Corner | 144391.836907 | 564869.863174 | 142.29 | 183B |
| 11 | Corner | 144391.802994 | 564875.085803 | 142.86 | 183B |
| 12 | Corner | 144385.766449 | 564869.829261 | 144.03 | 183B |
| 13 | 183B Valve Box | 144456.5 | 564900.5 | 143.79 | 183B, Valve |
| 14 | 183B Valve Box | 144558.5 | 564902.5 | 142.58 | 183B, Valve |
| 15 | 183B Valve Box | 144534.8 | 564881.8 | 141.36 | 183B, Valve |
| 16 | 183B Valve Box | 144535 | 564886.7 | 141.52 | 183B, Valve |
| 17 | 183B Valve Box | 144531.3 | 564882.5 | 141.5 | 183B, Valve |
| 18 | 183B Valve Box | 144531.3 | 564886.9 | 141.44 | 183B, Valve |

