Long-Term Stewardship Assessment Report

Miller Springs Remediation Management

EPA ID #: WVD005010277

Belle, West Virginia 25015

Assessment Date: May 9, 2018

Report Date: June 28, 2018

Introduction: Long-term potential stewardship (LTS) refers to the activities necessary to ensure that engineering controls (ECs) are maintained and that institutional controls (ICs) continue to be enforced. The purpose of the Environmental Protection Agency (EPA) Region 3 LTS program is to periodically assess the efficacy of the implemented remedies (i.e. ECs and ICs) and to update the community on the status of Resource Conservation and Recovery Act (RCRA) Corrective Action facilities. The assessment is conducted in twofold, which consists of a record review and a field inspection, to ensure that the remedies are implemented and maintained in accordance to the final decision.

Site Background: Miller Springs Remediation Management – Glenn Holding Springs is located at 301 DuPont Avenue, Belle, West Virginia (Property) on approximately 23.5 acres. It is situated in the floodplain of the Kanawha River, northwest of the town of Belle in Kanawha County, West Virginia. The Property is bordered to the west by the Chemours Belle Plant, to the east by Reynolds Branch, to the north by old US Route No. 60 and to the south by the Kanawha River.

Industrial operations have occurred at the former facility since the 1920s. At least twelve industrial companies have occupied separate portions of the Property at various times, including such operations as: steel production, crude tar refining, pipe cleaning, concrete product manufacturing, catalyst manufacturing, and the production and storage of various chemicals. From the 1940s until plant operations ceased in 1994, the western portion of the Property was used for chloromethane production and the manufacture of various chlorinated compounds. One industrial establishment, Givauden-Virginia, Inc., leased the central portion of the Facility. From January 1935 until 1948, Givauden-Virginia, Inc. produced aluminum chloride by reacting molten aluminum with chlorine; additionally a pilot plant produced benzyl chloride at the Facility by reacting toluene with chlorine. Operations ceased in 1948 when an explosion reportedly demolished most of the Givauden-Virginia, Inc. plant. The Facility was subsequently sold to Union Concrete in 1952. Ownership of the various properties was consolidated by Diamond Shamrock in 1953. As a result of past operations at the Facility, groundwater at the Facility is contaminated with volatile organic compounds (VOCs), principally chloroform, methylene chloride, carbon tetrachloride, and trichloroethene, at concentrations exceeding maximum contaminant levels (MCLs),

On September 28, 1992, an Administrative Order on Consent (Order) was issued pursuant to 42 U.S.C. §6928(h) of RCRA to Occidental Chemical Corporation (Oxy), former owner of the Facility. The Order requires Oxy to perform a RCRA facility investigation and a corrective measures study.

Current Site Status: On September 24, 2013, EPA issued the Final Decision and Response to Comments (FDRTC). The final remedy consists of the following 3 components: a soils component, groundwater component and Facility-wide Institutional Controls (ICs). The soil remedy consists of side-wide regrading, compliance and maintenance of ICs. The groundwater remedy consists of many components: (1) the establishment of technically impracticable (T.I.) zone for the groundwater plume associated with the facility; (2) groundwater monitoring; (3) maintenance of the geosynthetic cap vegetative cover, sheet-pile barrier wall and TreeWells® at Area 7; and (4) compliance with and maintenance of ICs. The final remedy detailed in the FDRTC is implemented through a Corrective Measures Implementation Administrative Order on Consent (CMI Order) between Oxy and EPA dated September 25, 2013.

Long-term Stewardship Site Visit: On May 9, 2018, EPA conducted a long-term stewardship site visit with West Virginia Department of Environmental Protection (WVDEP) and Oxy consultants to discuss and assess the status of the implemented remedies at the site.

The attendees were:

Name	Organization	Email Address	Phone No.
John Hopkins	EPA Region 3	hopkins.john@epa.gov	(215)814-3437
Kenan Cetin	West Virginia Department of Environmental Protection	kenan.cetin@wv.gov	(304)238-1220 Ext. 3507
Amy Kenwell	GeoSyntec	akenwell@geosyntec.com	(704)227-0843
Peter DeHaven	GeoSyntec	pdehaven@geosyntec.com	(304)527-5548

Institutional Controls (ICs) Status:

CMI Order: The Administrative Order on Consent is the method for implementing institutional controls required as a condition of the Statement of Basis and FDRTC. The following ICs apply to the entire Facility, shown on Figure 1:

Land Use Restriction: The Property shall not be used as "residential" property, as that term is defined in W.Va. Code §22-22-2(bb). There were no residential structures or uses of the site at the time of the visit. The vacant Property is secured with fencing and locked gateways. Oxy is currently in compliance with land use restrictions.

Groundwater Use Restriction: Groundwater at the Property is restricted to non-potable use. Extraction of groundwater for groundwater monitoring and/or remediation is permitted. There were no facilities, and therefore, no uses of groundwater at the time of the visit.

Materials Management Plan: Prior written approval must be obtained from USEPA and WVDEP before conducting any earth moving activities at the Site. These activities will be conducted in a manner that is protective of human health and the environment and will not adversely affect the final remedy.

A Soil Management Plan will be developed prior to conducting earth moving activities and will include appropriate personal Protective equipment requirements to meet USEPA's acceptable risk and to comply with all applicable Occupational Safety and Health Administration (OSHA) requirements. During the Facility tour no signs of earth-moving activities were observed.

Engineering Controls (ECs) Status:

Area 7 Barrier Wall: To contain heavily contaminated groundwater at Area 7, a sheet-pile barrier wall was installed in 2005. It consists of 1,218 feet of steel sheets driven into bedrock approximately 50-feet below grade and encloses 1.62 acres. After completion of the barrier wall around Area 7, a 12-mil geotextile material was laid over the surface and keyed into the soil immediately outside the sheet pile wall and anchored with sand bags in 2008. The soil cap was completed 2013 and consists of removal, disposal and replacement of the existing synthetic cover. A minimum 12 inches of clean soil was evenly spread and reseeded throughout the area. Also, a total of 119 TreeWells® were installed at different depths to help control groundwater elevation levels within Area 7.

Oxy is proposing to regrade Area 7 to improve drainage, adding nutrients to TreeWells® and installing berms around trees with depressions to prevent ponding. Overall, these refinements are an effort to improve the hydraulic capture effectiveness of the Area 7 system and to mitigate some of the increasing constituent concentrations in groundwater.

Facility-wide Vegetative Cover: In 2006, the facility, except for Area 7, was regraded with at least six inches of clean fill to eliminate both the direct contact exposure pathway and the need to collect and treat storm water. Once the Facility was re-graded, it was seeded with native vegetation to prevent erosion and reduce runoff. Vegetation includes native warm season grasses and wildflowers, which provide a habitat for grassland birds, songbirds, hummingbirds, insects, and small mammals. The area will be mowed in 2019 and every 5 years thereafter. Oxy has maintained the integrity and effectiveness of the vegetative cover. No plants with deeply penetrating root systems or erosion of the cover were observed.

Groundwater Monitoring: Currently, groundwater monitoring occurs on a semi-annual basis in April and October of each year at 37 monitoring wells throughout the Facility. Primary COCs in groundwater are volatile organic compounds (VOCs), the most prominent of which are methylene chloride, chloroform, carbon tetrachloride. Groundwater at the Property has been determined to be technically impracticable to clean-up to MCLs. Therefore, groundwater sampling data is screened through a three-step process. Step 1, data is screened against Maximum Contaminant Levels (MCLs) for Constituents of Concern (COCs). Step 2 data is screened against a well-analyte specific screening value calculated as the mean historical concentration plus two standard deviations for that well-analyte pair. Concentrations above this value are considered statistically significant. Step 3 data is screened using a calculated rate of increase and Site Maximum Allowable Groundwater Concentrations (MAGWCs). If the groundwater concentration for a well-analyte pair is expected to exceed the MAGWC within a one-year period, the result is flagged, and additional investigations or interim remedial actions are required.

Results of the October 2017 sampling event identified one monitoring well, MW-38, had four consecutive screening level exceedances and moved on to step 3 for cis-1,2-dichloroethene. In addition to screening groundwater concentrations as described above, a Mann-Kendall analysis was performed to evaluate rank-based, non-parametric data trends. Increasing and decreasing trends were identified when confidence levels were greater than 95% while probably increasing and probably decreasing trends were assigned to confidence levels between 90 and 95%. Of 1,369 well-analyte pairs, 185 had greater than 50% detections and could be analyzed by Mann-Kendall. The analysis identified 26 increasing or probably increasing trends occurring in six monitoring wells for twelve VOC analytes.

Financial Assurance: Occidental Chemical Corporation has satisfied all financial assurance requirements and is currently in compliance.

Reporting Requirements/Compliance: Pursuant to the Order, Oxy is required to submit semi-annual progress reports. There are no issues of noncompliance regarding reporting requirements as Oxy has submitted both reports each year, the last of which was received March of 2018. No transfer of property, change in use of the property, or work that will affect contamination at the property has been reported.

Mapping: The EPA facility website map is accurate and includes the 23-acre Miller Springs Remediation Management Property. GeoSyntec provided EPA with geospatial information to define the facility boundary, groundwater technically impracticable area and slurry wall, as requested. A downloadable geospatial PDF map is available on EPA's corrective action facility webpage under the "Reports, Documents and Photographs" section, found here.

Conclusions and Recommendations: EPA concurs with Oxy's recommendations to improve the Area 7 groundwater containment system. No EC/IC deficiencies were identified. EPA has determined that the remedy institutional and engineering controls have been fully implemented.

Attachments:

Figure 1: Aerial Map of Miller Springs Remediation Management – Glenn Springs Holdings

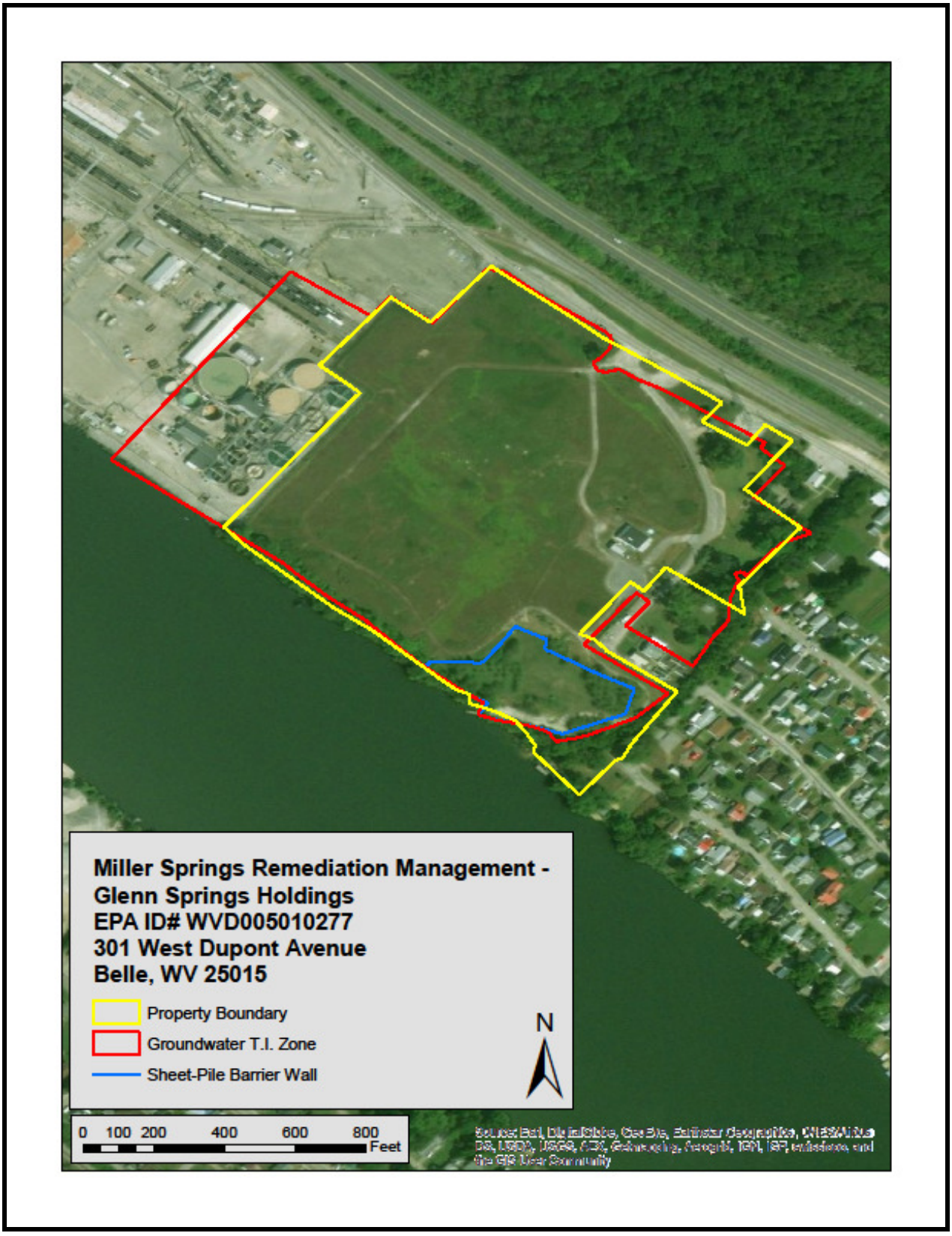
Picture 1: Area 7 with Geosynthetic Cap and TreeWells®

Picture 2: Exposed Section of Barrier Wall at Area 7

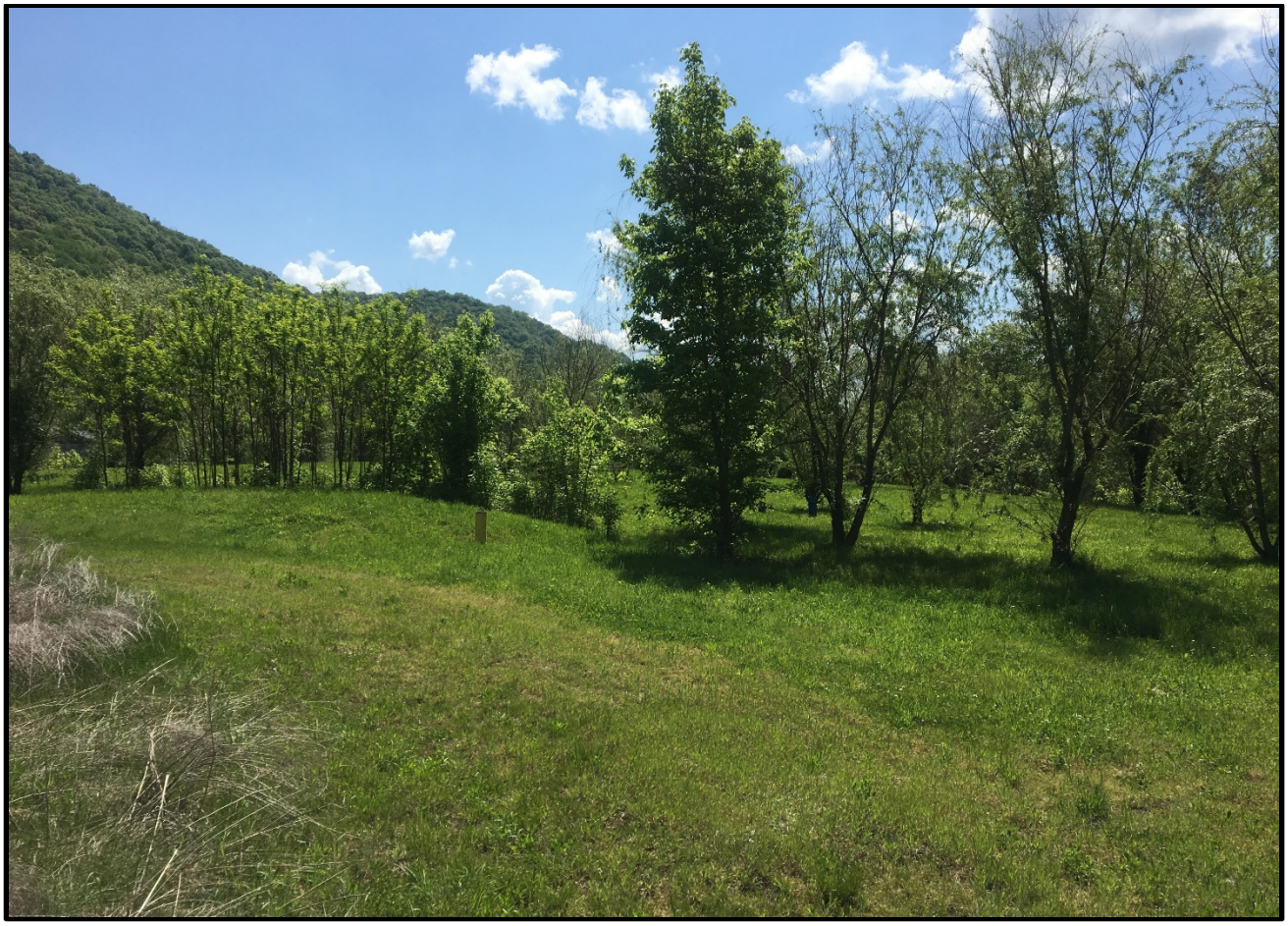
Picture 3: Production Source Area with Vegetative Cap

Picture 4: Security Gate at Main Entrance

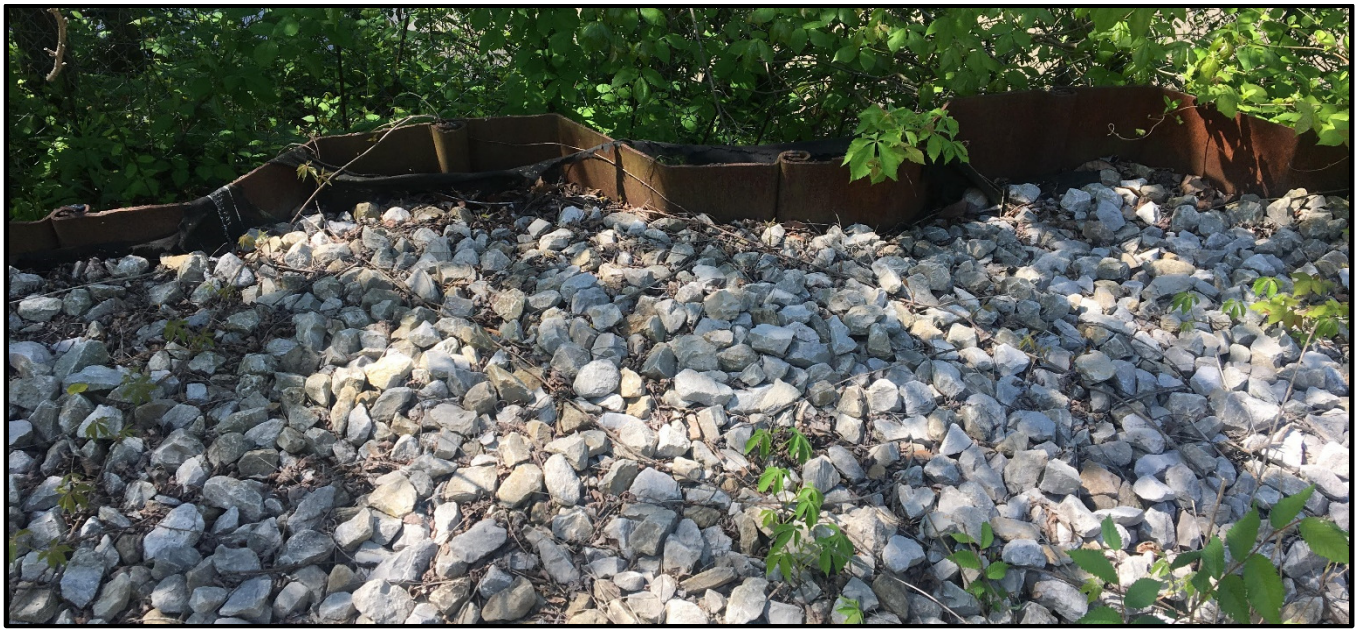
Figure 1: Aerial Map of Miller Springs Remediation Management – Glenn Springs Holdings



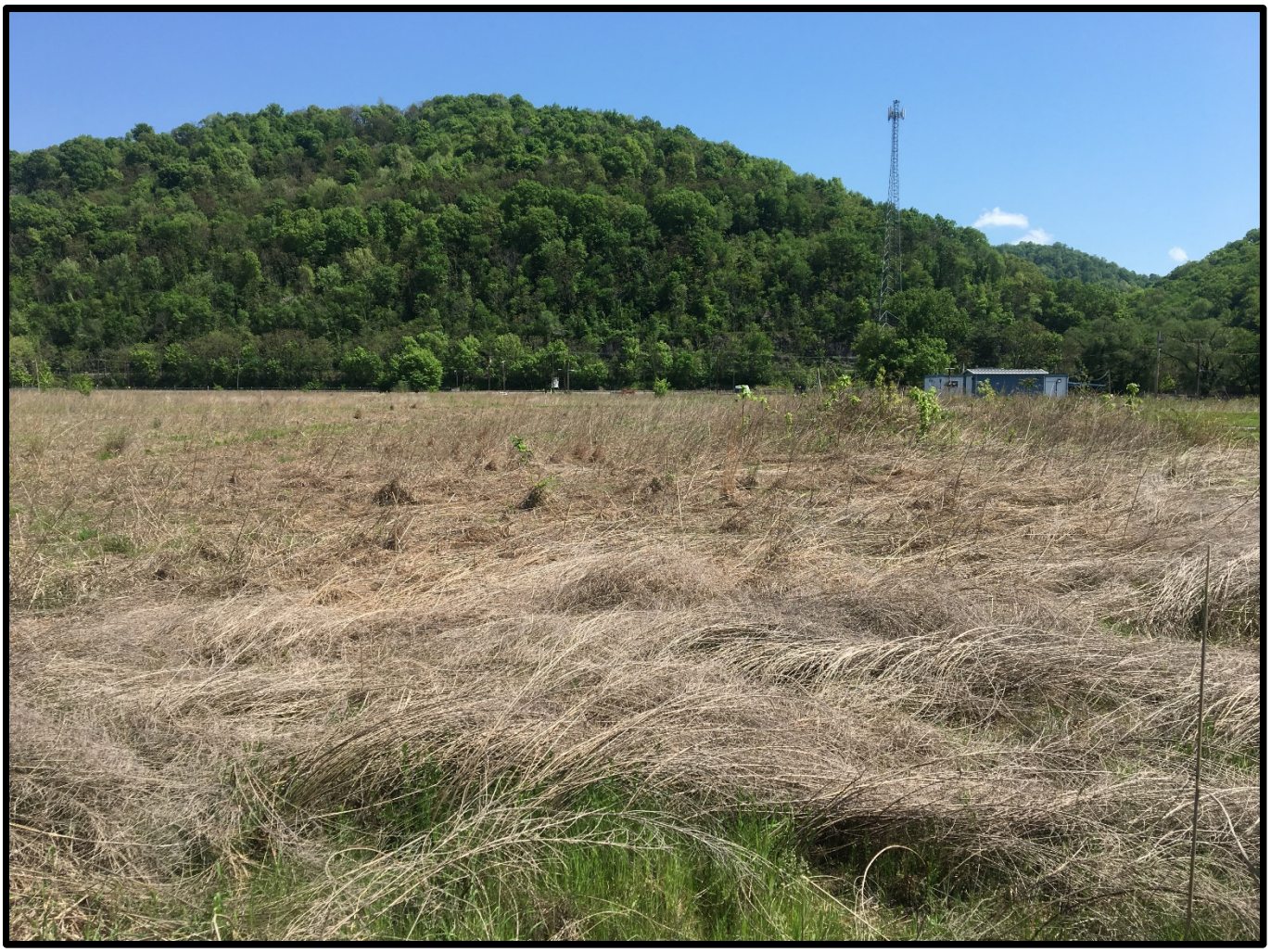
Picture 1: Area 7 with Geosynthetic Cap and TreeWells®



Picture 2: Exposed Section of Barrier Wall at Area 7



Picture 3: Production Source Area with Vegetative Cap



Picture 4: Security Gate at Main Entrance