

State and OSM GeoMine Appalachian Pilot Project as of April 2012

Background:

The Pilot Project began in August of 2009 with the goal of developing and deploying a prototype GeoMine interactive Internet-based mapping application (the Viewer) that displays and shares appropriate mining-related data among the seven agencies and eventually the public. This geospatial application assists federal and state partners meet regulatory commitments. The seven partner agencies are the four Federal agencies (Office of Surface Mining, Fish and Wildlife Service, Army Corps of Engineers, and Environmental Protection Agency) and mining regulatory programs in states of Kentucky, Virginia, West Virginia, and the Tennessee Federal program. A two-year Project Plan was developed collaboratively between partnering agencies and has been updated regularly. The initial GeoMine Cloud Viewer v. 1.0 was made available for team testing on March 4, 2011. The Viewer went through an aggressive testing period by the Interagency Team in the October-November 2011 timeframe. The testing feedback led to changes by the team, and a new Viewer v. 2.0 (located [here](#)) was launched in December of 2011.

Progress and Accomplishments:

- 1) The partner agencies endorsed a “Cloud” solution—Amazon Web Services—that has been successfully deployed as a prototype that is now in operation for Pilot Project member purposes.
- 2) OSM and state personnel can download the geospatial data from the GeoMine Cloud [here](#). These data and consumed geoservices can be used by various desktop and mobile computing mapping applications including Esri software (ArcGIS, ArcGIS Server), Google Earth, iPhone/iPAD apps, etc. Because aggregated data can be made available as REST-based geoservices, other future applications may be constructed utilizing one or more GeoMine datasets.
- 3) Each partner agency has assigned Data Stewards that are responsible for providing data and resolving issues.
- 4) The Pilot Project v. 2.0 viewer prototype has 22 preliminary information products:
 - SMCRA agencies – 13 SMCRA permit-related information products, including: SMCRA-Coal Mining Permit Boundaries for KY, TN, VA and WV (Pending, Active, Released, Unreclaimed, Pre-1977 permit) and SMCRA Underground Mine Extents for KY, TN, and WV.
 - FWS – two products: National Wetlands Inventory and critical habitat for threatened and endangered species
 - Corps of Engineers – four products: Nationwide (NWP) 21 permits, Jurisdictional Determinations, and Impact and Mitigation Locations.
 - EPA – three products: 303(d) impaired waters, 303(d) impaired waters with total maximum daily load (TMDL) and Storage and RETrieval (STORET) sampling locations linked to hydrologic databases.
- 5) Pilot Project Information Products were designed using approved American Society for Testing and Materials Coal Mining and Reclamation Data Standards.
- 6) Metrics for attributing data to surface mine boundary locations have been tabulated to track and monitor progress in SMCRA state programs and the TN Federal program.

- 7) Cooperative Agreement grants were awarded by OSM in September 2011 to Kentucky, Virginia, and West Virginia that have already facilitated the creation of additional SMCRA coal mining digital data in the first quarter of 2012:
- KY has digitized and attributed 1,044 surface mine boundaries.
 - VA has converted and attributed 681 of over 3,000 surface mines released from bond liability.
 - WV has digitized the boundaries of 2,492 AML problem areas.
 - 16 Interns hired under Federal GeoMine grants:
 - KY - five interns
 - VA - one intern
 - WV -10 Marshall University students (9 graduate students)

Next Steps:

- Incorporate new geodata from SMCRA states created under the Federal Cooperative Agreement grants into the GeoMine Viewer.
- Focus on Priority Information Products for GeoMine:
 - 1) Active Surface Coal Mining Boundaries
 - 2) Pending Coal Surface Mining Boundaries
 - 3) Released Coal Mining Surface Boundaries
 - 4) Valley Fills
- Work with WV to incorporate non-STORET SMCRA hydrologic data into GeoMine.
- Begin drafting a final GeoMine Pilot Project report to be completed by November 1, 2012.
- The OSM GeoMine was selected as one of ten nationwide projects under the Federal Geographic Data Committee (FGDC) GeoCloud-II initiative to demonstrate the value of Cloud Computing in the Federal government. The FDGC collaboration will facilitate the Cloud security aspects of GeoMine for OSM. Consulting is ongoing with the Interagency Team and OSM management to determine if and how we can participate.