FY2013 Coal Mining & Reclamation Geospatial Work Plan
SMCRA GeoCommittee
Version 1.0
August 1, 2013

I. Introduction

The Surface Mining Control and Reclamation Act (SMCRA) National Coal Mining Geospatial Committee (GeoCommittee) has prepared this *FY2013 Coal Mining & Reclamation Geospatial Work Plan* (FY13 Work Plan) which is considered a supplement to the *Coal Mining and Reclamation Geospatial Strategic Plan, February 2013* (GeoPlan). This *FY13 Work Plan* first provides a summary of recent major accomplishments and then identifies projects and major tasks planned for this fiscal year.

The GeoCommittee (previously designated NCMGC, now known as the GeoCommittee) consists of representatives from organizations that implement SMCRA that have agreed to support the goals and activities of the committee. Member organizations are the Interstate Mining Compact Commission (IMCC), National Association of Abandoned Mine Land Programs (NAAMLP), Western Interstate Energy Board (WIEB), the three OSM regions and the national Technology Innovation and Professional Services (TIPS) program. The Chair of the GeoCommittee is OSM's Geospatial Information Officer (also the Chief, Technology Management Division, Western Region).

As stated in the GeoCommittee Charter, dated September 29, 2011, the committee is ***"chartered to discover, review, and promote geospatial technologies that increase the effectiveness and efficiencies of SMCRA organizations."***

Section III-FY2013 Geospatial Work Plan Projects and Tasks focuses on the five goals identified in the GeoPlan. The work plan is not set in concrete. The current year is especially challenging due to sequestration and continuing struggles to get congressionally approved budgets in a timely manner. The GeoCommittee will utilize an agile project model in order to be quick and nimble in response to business needs. During the year some projects/tasks may be added, while others may be delayed or eliminated. The intent is to identify specific projects and activities for the GeoCommittee to focus on that will lead the SMCRA community to achieving the goals identified in the *GeoPlan*. This work plan will be primarily implemented within the resources available, by the member organizations, working cooperatively. Where appropriate and needed the GeoCommittee will solicit resources and funds from their respective organizations and other sources. GeoCommittee plans and activities are considered part of OSM's national TIPS program and will be supported by TIPS as projects are approved and resources become necessary and available.

For further information regarding the GeoCommittee and related documents and plans please go to the TIPS website located here.

II. Major Accomplishments and On-Going Efforts

The following is a list of major accomplishments since OSM distributed the draft *Geospatial Strategic Plan (GeoPlan)* in April 2010. (The geospatial strategy is now called "***Coal Mining and Reclamation Geospatial Strategic Plan***", dated April 2013.)

A. **Prepared and completed the *Coal Mining and Reclamation Geospatial Strategic Plan***: The original *Geospatial Strategic Plan (GeoPlan),* dated April 9, 2010, was developed by a team of OSM managers and GIS experts and was distributed to stakeholders on April 8, 2010. This is a living document which gets updated periodically to better align with OSM's strategic goals and mission. The document was updated in April 2013, after the usual rounds of opportunity for comment, and numerous revisions. This is a high level strategic plan that addresses the long term plan for utilizing geospatial technology in the SMCRA environment as a shared resource between states, tribes and federal agencies we are partnered with. This document list the lower level plans, tasks and goals to achieve what is outlined in the Strategic Plan. The creation and utilization of these two joint documents gives us a clear vision of what we need to accomplish.

B. **Established a Governance Structure**: During the March 17, 2010, briefing for the OSM Executive Council, the OSM Director approved the basic governance structure proposed in the Geospatial Strategic Plan (GeoStratPlan). The Western Regional Director was assigned the role of Executive Sponsor for the *GeoStratPlan*. The Western Region Technology Management Division (TMD) Chief was assigned interim Geospatial Information Officer (GIO), and approval was given to establish a steering committee to oversee implementation of the *GeoStratPlan*. The GeoCommittee was organized in accordance with the draft GeoStratPlan and its first face-to-face meeting was held September 13 – 15, 2011. A number of decisions were made at that meeting along with accompanying projects/tasks that are enumerated in Section III--FY2012 Geospatial Work Plan Projects and Tasks. Since then; this document has been updated and new tasks and goals outlined, the GeoCommittee has established a clear working relationship with the Geospatial Data Stewards and established a TIPS Branch devoted primarily to geospatial technology and development. This establishes a much clearer governance structure for current and future developments.

C. **Coal Mining and Reclamation Data Standards Approved by ASTM**: The American Society for Testing and Materials (ASTM) Data Standards team, sanctioned under the earlier OSM Geospatial Committee has been working tirelessly for the last few years on establishing coal mining and reclamation geospatial data standards for both SMCRA Title V—Regulatory Program and Title IV--Abandoned Mine Land Program. The process has been completed; ASTM standards have been established as follows:

- Standard practice for geospatial data for representing coal mining features—ASTM D7780 (primarily the SMCRA regulatory program), approved 12/15/2011.
- Standard practice for minimum geospatial data for abandoned mine land problem areas, planning areas, planning units, keyword features, and project sites—ASTM DM D7699/D7699-11, approved 2/1/2011.

- ASTM Standards are copyrighted material. OSM has provided licensed versions of the standards to states and other entities (WEIB, IMCC) for their use in developing geospatial systems and managing metadata.

D. **Appalachian GeoMine Pilot Project:** Upon approval of the draft *GeoPlan* by OSM's Director and Executive Council in March 2010 the OSM GIO and regional representatives began work on the Appalachian GeoMine Pilot Project (Pilot Project). The eight partners include Kentucky, West Virginia, Virginia, Interstate Mining Compact Commission (IMCC), OSM (TIPS and Knoxville Field Office), Environmental Protection Agency (EPA), Corps of Engineers (COE) and the Fish and Wildlife Service (FWS). All eight partners met face-to-face on August 3-4, 2010 and agreed on the scope and direction. The pilot project goal is to develop and stand-up a prototype geospatial Internet application that shares easily available geospatial-data among the seven agencies and eventually the public. Placing this data sharing solution on the Internet will improve coordination among the agencies and will result in better decision making. By June of 2013, the project had met its objectives including:

1) The GeoMine Cloud Prototype Viewer 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. Version 2.0 of the viewer was made available in December 2011. Enhancements continue to be made to the Viewer in response to user feedback with release of Version 3.0 at the conclusion of the Pilot Project in August 2013.

2) The partner agencies endorsed a "Cloud" solution—Amazon-Esri Web Services—that has been deployed as a prototype that is now in operation for Pilot Project purposes. This Amazon-ESRI Cloud solution was accredited and certified by FEDRAMP for moderate risk data, which should facilitate the security approval for GeoMine.

3) Pilot Project geospatial services are now available for use by the team partners. These mapping services can now be used by various desktop and mobile computing mapping applications including Esri software (ArcGIS, ArcGIS Server), Google Earth, iPhone/iPAD apps, etc.

Cooperative Agreement grants were awarded in September 2011 to Kentucky, Virginia, and West Virginia that is facilitating the creation of additional SMCRA coal mining digital data. Kentucky received $216,161, Virginia received $100,000, and West Virginia received $398,000. The OSM grants assisted the states in further developing their GIS processes and populating their databases. The grants allowed them to scan, store, and georeference hard-copy maps into digital formats resulting in the following additional digital data (as of 3/17/2014):

KFO

- 288 digital currently permitted surface coal mining boundaries created;
- 280 released surface coal mining boundaries created;

- 2,732 total surface coal mining boundaries have been verified for TN;
- 2,128 digital AML features (point, lines, polygons) created; and
- 98 AML planning units and 311 AML problem areas digitized.

KY

- 51,643 digitized surface coal mining boundaries and related features;
- 27,151 environmental resource monitoring locations; and
- 9,727 AML Problem Areas/Planning Units and problems.

VA

- 3,447 released surface coal mining boundaries;
- 365 active permits;
- 10,612 environmental resource monitoring locations; and
- 6,763 AML Problem Areas/Planning Units and problems.

WV

- 3,517 currently permitted surface coal mining boundaries, including those from 571 annual progress maps dating back to 2005;
- 46,334 environmental resource monitoring locations;
- 2,939 post mining land-use; and
- Scanned 3,400 of 4,000 AML Problem Areas to be georeferenced and digitized.

4) Each partner agency has assigned Data Stewards that are responsible for providing data and resolving issues, and have remained engaged with the Pilot Project.

5) The Pilot Project Version 3.0 viewer prototype has the following 25 preliminary information products loaded in the system:

- SMCRA agencies – 11 SMCRA permit-related information products, including: SMCRA-Coal Mining Permit Boundaries for KY, TN, VA, WV (Currently Permitted, Released,Legacy pre-SMCRA) and SMCRA Underground Mine Extents for KY, TN, and WV.
- FWS – two products: wetlands 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 - STORET and NWIS sampling locations linked to hydrologic databases

6) Pilot Project Information Product geo-database schema were developed using approved Coal Mining and Reclamation Data Standards ASTM standards. (Geo-database schema

aligns the states' incoming data with the data design in GeoMine using the ASTM standards.)

7) A Federal-only-data Viewer has been developed and released to the SMCRA data stewards, TIPS Steering Committee, and TIPS Team for feedback testing before release of an enhanced version to the SMCRA, CWA, and ESA agencies.

The Pilot Project was officially completed in 2013. Authority to launch the GeoMine Federal Viewer was granted in November, with a final GeoMine Viewer Version 4.0 expected in May 2014. This viewer will offer both Federal and State data. Comments on the GeoMine Final Report are expected by February 14, 2014. These comments will help guide the deployment plan to be developed once funding is received.

E. **GeoMine GeoDashBoards**: The *GeoPlan* anticipates a variety of Interactive Internet-based mapping application applications or "GeoDashBoards" that would provide critical operational information related to coal mining and reclamation activities in a user-friendly website. Four of these have been developed and are in the final prototype stage. The GeoDashBoards reside in the GeoMine Cloud. During FY12/13 the GeoCommittee will work with their constituents and with OSM management to fully deploy the following GeoDashBoards:

1) Annual Coal Mining and Reclamation Activities GeoDashBoard (AMRA)--prototype
This *prototype* interactive Internet-based mapping application provides OSM, State and Tribal executives, and OSM staff and the public a vehicle to view important annual metrics and data that are used to report the progress of SMCRA's regulatory programs for States and OSM. The map viewer provides a unique geographical perspective along with tabular data and graphical views. (The site currently contains EY2007 – 2010). We will incorporate additional yearly data as it becomes available.

OSM Directive REG-8 "Oversight of State and Regulatory Programs" requires OSM to collect, tabulate and report annual SMCRA data and information for regulatory programs. The data is captured using OSM's "Data for States and Tribes System" (DST) and are included in OSM prepared routine Annual Evaluation Reports. OSM prepares these Annual Evaluation Reports for each State and Tribe in accordance with REG-8 that addresses the implementation, administration, maintenance, and enforcement of the state or tribal program as required by 30 CFR 733.11. The data is also reported in OSM's Annual Report and in OSM's annual "Budget Justifications and Performance Information" (Green Book). AMRA could feed data into DOI's new Geospatial Project. The project's goal is "to improve access to and usability of geospatial information to support better policy and decision making by DOI officials and resource managers"[1]. In

[1] Per 1/3/2012 Memorandum to Bureau Deputy Directors, from Deputy Assistant Secretary, Technology, Information and Business Services.

addition, AMRA could be used to respond to inquiries from the Department and outside sources, e.g., congressional inquiries.

In an effort to geo-enable REG-8 annual evaluation data, including some of the Government Performance and Results Act (GPRA) measures (e.g., inspectable units with offsite impacts), the website provides tables, maps, and charts of raw and derivative data elements at the State/Tribe and National levels. This design allows users to examine data in more visual formats, and provides enhanced data transparency. Executive users are directed to the "Executive Panel", which provides a pre-packaged series of the most popular maps and charts presented at a national perspective. Users who want to examine evaluation report data down to the State/Tribe level may do so based on various dropdown filters.

This is only available to authorized users currently. It is expected to be used by OSM, State and Tribal executives and managers by providing innovative analytical tools to assist in carrying out oversight duties, regulatory responsibilities and in leveraging and focusing limited resources. It is envisioned that the site will eventually be provided to the public to help ensure more transparent government operations. Although the data is aggregated at the state level and does not include actual permit specific location data (e.g., permit boundaries) it does provide a glimpse into what a fully implemented GeoMine would look like at the national, regional and state/tribal levels. During FY2014 AMRA will be fully deployed.

2) OSM Organizational GeoLocator GeoDashBoard (OOGL)
This interactive Internet-based mapping application was deployed as a prototype on the TIPS website in December 2011. OOGL contains administrative information on an interactive map application for OSM, State and Tribal offices including office location, address, phone numbers, organization, managers, TIPS points of contacts, etc. The initial impetus for developing the system was to support the TIPS team in carrying out its national activities for customer support and the training program. It is now of benefit to all OSM offices and to States, Tribes and the public. Information is maintained/updated by TIPS Service Managers.

3) Applied Science Project Locator GeoDashBoard (ASPL)
This interactive Internet-based mapping application is currently active and available to the public, although it has not been widely advertised yet. The objective of the National Technology Transfer Applied Science Program is to develop and communicate improved technologies to address environmental issues related to the mining of coal and reclamation of the land after mining. ASPL is an interactive map application that provides quick links and query capabilities to funded and completed applied science projects and the resulting final project reports and fact sheets. The source data is

located at OSM's Technology Transfer website located here. During FY2013 ASPL was deployed for use by SMCRA authorities, the coal industry and the public.

4) Dam Safety Management GeoDashBoard (DSM)--prototype
The objective of the OSM Dam Safety Program is to ensure that dams under OSM's regulatory authority do not present unacceptable risks to public safety, property and the environment. The mapping application will contain critical GIS data that is vital for the oversight of Federally-regulated dams (where OSM is the RA). This tool is essential in assisting inspectors and engineers in making important decisions relating to critical elements of the Federal Guidelines for Dam Safety and the DOI Departmental Manual 753. In particular, the tool will improve inventory reporting, hazard classification and emergency planning efforts. It will also assist in addressing concerns raised in "U.S. Department of the Interior 2010 Independent Oversight Review Report Office of Surface Mining Reclamation and Enforcement Dam Safety Program and Dam Security", dated April 2010. During FY2013 DSM will be converted to a WR-only dashboard and will not be part of GeoMine.

III. FY2013 Geospatial Work Plan Projects and Tasks

The following is a list of major projects and tasks that the GeoCommittee has agreed to target for FY2013. This list will be maintained and updated throughout the year. TBD = To Be Determined

Geospatial Work Plan Projects and Tasks

As of 8/1/13

Projects/Tasks	Due Date	Completion Actual Date	Lead Person
Goal 1 - Governance			
1. Finalize and publish the *Coal Mining and Reclamation Geospatial Strategic Plan (GeoPlan), February 2012*	2/1/13	4/15/2013	Rivers/Clark
2. Develop the FY2014 Geospatial Work Plan	8/30/13		Rivers/Welsh
Goal 2 – Business Processes			
3. Complete and deploy Annual Coal Mining and Reclamation Activities GeoDashBoard (AMRA) (include EY2011 data)	1/1/13	On Hold	Benson
4. Complete and deploy the OSM Organizational GeoLocator GeoDashBoard (OOGL)	7/1/12	2/6/12	Ferarese
5. Complete and deploy the Applied Science Project Locator GeoDashBoard (ASPL)	7/1/12	6/1/12	Kim
6. Complete and deploy the Dam Safety Management GeoDashBoard (DSM)	10/1/12	Tabled	Ferarese
7. Develop and deploy OSM's WR-MCR Federal Mine Plan Map GIS and Viewer	6/1/13	On Hold	Meier/Kim
Goal 3 – Data Management			
8. Secure FGDC approval for both ASTM Standards • Standard practice for geospatial data for representing coal mining features—ASTM D7780 (primarily the SCMRA regulatory program). • Standard practice for minimum geospatial data for abandoned mine land problem areas, planning areas, planning units, keyword features, and project sites—ASTM DM D7699/D7699-11.	3/1/14		Galya/ASTM Team
9. Procure and distribute both ASTM coal mining and reclamation data standards to all data stewards	12/31/12	2/15/13	Clark/Galya
10. Install and deploy ERDAS Apollo image server internal to OSM at DOI-Denver Federal Center	6/1/12		Plascencia /Rivers
11. Deploy external access to ERDAS Apollo image server (available to States and Tribes)	3/1/14		Plascencia /Rivers
12. Load and deploy image data for four GeoMine Pilot Project states (KY, TN, VA & WV) on ERDAS Apollo server	12/1/13		Osborne/ Plascencia
13. Add nationwide county-level coal production data from 1977 to present to the REG-8 AMRA dashboard ((This is a 2014 item))	4/1/2014		Benson
14. Convert all pre-2011 REG-8 data to new database formats and update dashboard to show 2007 through 2013 REG-8 data ((2014))	4/1/2014		Benson

Geospatial Work Plan Projects and Tasks

As of 8/1/13

Projects/Tasks	Due Date	Completion Actual Date	Lead Person
Goal 4 – Applications and Technology			
15. Complete and deliver the Remote Sensing Pilot Project and Final Report including recommendations on business improvements processes	12/1/13		Hamm/Clark
16. Complete and publish GeoMine Final Report	9/1/13		Welsh/Clark
17. Brief Executives for final decision on GeoMine report proposals	11/1/13		Welsh/Clark
18. Improve Denver Regional office bandwidth--coordinate with the OSM's Assistant Director Information Director and Business Council to upgrade Denver Regional Office bandwidth for efficient delivery of TIPS geospatial services nation wide	11/1/12	4/1/13	Molina/Clark
19. Work with the DOI GAC organization to extend Enterprise Agreements (including Esri Enterprise) into 2014	7/1/13	8/6/13	Ferarese/ Welsh
20. Complete the Appalachian GeoMine Pilot Project, Final Report and executive briefings	8/1/13	8/6/13	Welsh/Clark Interagency Team
Goal 5 – Education and Outreach			
21. Update & maintain GeoCommittee TIPS website-- http://www.tips.osmre.gov/Geospatial.shtml	11/1/12	3/1/13	Benson/Martinez/Clark
22. Prepare a plan for sharing and communicating geospatial advancements, ideas, and needs among all SMCRA organizations, including innovative communication solutions, e.g., blog, list server, Wiki. Priority will be to reestablish contact and conduct appropriate surveys, teleconferences, etc.	1/1/13		Avishai -- Data Steward Coordinator
23. Draft & Maintain GeoCommittee Calendar: will show pertinent GeoCommittee meetings, affiliated body meetings, State/Tribe Federal briefings and other opportunities for interaction with geospatial bodies. Will include assignments for Committee members. (Note--Include--3/7/11 GeoMine Pilot Project presentation for the Virginia Mining Association by Welsh, three GeoMine Pilot Project presentations at the 7/23/12 Esri International Users Conference, etc.)	TBD	On Hold	Benson/Clark
24. GeoCommittee Member Briefings for constituents—each representative will brief their organization and constituents concerning GeoCommittee activities and geospatial efforts (at least once during the year).	TBD	TBD	
NAAMLP Winter Business Meeting	3/12/13	3/12/13	Sharp
NAAMLP Annual Business Meeting	9/25/13		Sharp
GeoMine Pilot Project Briefing—IMCC Fall Meeting			
GeoMine Pilot Project Briefing—OSM Director & Executive Council			
AR Management Council			

Geospatial Work Plan Projects and Tasks

As of 8/1/13

Projects/Tasks	Due Date	Completion Actual Date	Lead Person
MCR Management Council WRTT GeoMine Pilot Project Briefing—KY, WV & VA Executives IMCC Spring Meeting WR Management Council WIEB Annual Meeting OSM Program Support Directorate Management TIPS Training Classes—Update Intro Power Point			
25. Develop marketing and training materials for placement on the TIPS web site related to the GeoDashBoards	TBD	On Hold	Benson/Clark
26. Develop an outreach plan for distributing the results of the Appalachian GeoMine Pilot Project and Remote Sensing Pilot Project to various stakeholder groups, including the SMCRA Community	TBD		Clark/Hamm