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Standard Practice for Minimum Geospatial Data for a Coal Surface Mining Permit Boundary¹

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1. Scope

1.1 This practice covers the minimum elements for the accurate location and description of data for defining a coal surface mining permit boundary.

1.1.1 This practice addresses coal mining geospatial data relative to the Surface Mining Control and Reclamation Act of 1977 (SMCRA).² This geospatial data shall be obtained from each state or federal, or both, coal mining Regulatory Authority (RA) authorized under SMCRA to regulate coal surface mining operations (CSMO). Each RA shall be the authoritative data source (ADS) for coal mining geospatial data.

1.1.2 As used in this practice, a coal surface mining boundary represents an area where coal removal and reclamation has occurred or is occurring within a defined CSMO.

1.2 This practice is limited to coal surface mining operations after passage of SMCRA.

1.3 This practice does not address pre-SMCRA mining, permit bond releases, and permit bond forfeitures of CSMOs.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.5 This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.

¹ This practice is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.01 on Surface and Subsurface Characterization.

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² Public Law 95-87, the Surface Mining Control and Reclamation Act of 1977 (SMCRA), passed August 3, 1977, as amended.

2. Referenced Documents

2.1 ASTM Standards:³

D 653 Terminology Relating to Soil, Rock, and Contained Fluids

D 5254 Practice for Minimum Set of Data Elements to Identify a Ground-Water Site

D 5911 Practice for Minimum Set of Data Elements to Identify a Soil Sampling Site

2.2 ANSI Standards:⁴

ANSI INCITS 61-1986 (R2002) Geographic Point Locations for Information Interchange, Representation of (formerly ANSI X3.61-1986 (R1997))

ANSI INCITS 320-1998 (R2003) Information technology—Spatial Data Transfer

2.3 Federal Geographic Data Committee Standards⁵

FGDC-STD-001 Content Standard for Digital Geospatial Metadata

2.4 Code of Federal Regulations:⁶

30 CFR Part 700 et seq.

3. Terminology

3.1 Except as listed or noted below, all definitions are in accordance with Terminology **D 653**.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 **active CSMO**—a CSMO that has ongoing coal production and/or reclamation activities.

3.2.2 **attribute**—a defined characteristic of a feature type (for example, an attribute of Permit Status feature type = active).

3.2.3 **authoritative data source**—a recognized source as defined in SMCRA.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

⁵ Available from Federal Geographic Data Committee, 590 National Center, Reston, VA 20192, www.fgdc.gov.

⁶ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

3.2.4 *attribute value*—a specific quality or quantity assigned to an attribute for a specific feature instance.

3.2.5 *contact*—jurisdictional regulatory authority responsible for issuance and compliance of a coal-mining permit.

3.2.6 *data status*—date when state and tribal data, or feature, was edited in national CSMO permit dataset.

3.2.7 *domain*—a finite list (or range) of permissible values for a specified attribute. Included are tables of: units of measure, types, styles, status, names, methods, materials, dispositions, sources, dimensions, data, classes, etc. (for example, active, inactive, NA).

3.2.8 *feature class*—a logical group of related feature types (for example, grouping of water system components feature types such as water hydrant, water line, water pump, water reservoir, water tank, etc., into a water system feature class).

3.2.9 *feature instance*—real-world spatial phenomenon about which data is collected, maintained, and disseminated. (for example, the McMillan Water Reservoir). Feature instances are the geospatial objects that are graphically delineated in a spatial database.

3.2.10 *feature type*—definition and description of a set (class of real world phenomena) into which similar feature instances are classified (for example, water reservoir).

3.2.11 *inactive CSMO*—a CSMO that has no coal extraction or reclamation activity taking place.

3.2.12 *national ID*—permit ID assigned to CSMO by RA, prefixed with state or tribal abbreviation.

3.2.13 *line segment*—a direct line between two points.

3.2.14 *permit*—written authorization to conduct surface coal mining and reclamation operations issued by a RA to a permittee.

3.2.15 *permit area*—the area of land, indicated on the latest map approved by the RA, upon which the permittee may conduct surface coal mining and reclamation operations.

3.2.16 *permit boundary*—the border of potential mining operations indicated on the latest map approved by the RA.

3.2.17 *permit ID*—unique identifier assigned by the RA for administrative purposes.

3.2.18 *permit status*—to distinguish between active and inactive CSMO.

3.2.19 *permittee*—an entity to whom a permit has been issued by a RA to conduct surface coal mining and reclamation operations.

3.2.20 *point*—a zero-dimensional geometric object that specifies geographic location.

3.2.21 *polygon*—a two-dimensional closed geometric shape that specifies a geographic area.

3.2.22 *reclamation*—those actions taken to restore mined land to the post-mining land use approved by the RA.

3.2.23 *Regulatory Authority*—government entity with exclusive jurisdiction over the regulation of surface coal mining and reclamation operations under a program approved by the Secretary of the U.S. Department of the Interior.

3.3 Acronyms:

3.3.1 *ADS*—authoritative data source.

3.3.2 *CSMO*—coal surface mining operation(s).

3.3.3 *NAD*—North American Datum.

3.3.4 *NMDS*—National Map Data Steward, the OSM designated liaison with the RA.

3.3.5 *OSM*—Office of Surface Mining Reclamation and Enforcement, U.S. Department of the Interior.

3.3.6 *RA*—Regulatory Authority.

3.3.7 *SMCRA*—Surface Mining Control and Reclamation Act of 1977 as amended.

3.3.8 *WGS*—World Geodetic System.

4. Significance and Use

4.1 This practice addresses coal mining boundary geospatial data relative to the SMCRA. This practice is significant to the coal mining community because it provides uniformity of geospatial data pertaining to coal surface mining boundaries throughout the United States. The coal surface mining boundary is the first of the coal mining geospatial data standards to be developed for use by a RA. Within its area of exclusive jurisdiction, each RA is the authoritative data source (ADS) for coal mining spatial data that it creates and uses to implement SMCRA. These standards will help ensure uniformity of coal mining geospatial data used in internal business practices, exchanged among business partners within the coal mining community, and contributed by each ADS in future efforts to create national datasets describing surface coal mining in the United States.

4.2 Coal surface mining geospatial data shall be obtained from State and Federal regulatory authorities for CSMO. The coal mining community encompasses all entities directly and indirectly affected by coal mining activities, including industry, environmental groups, the general public, and the government at all levels within the United States. Use of this standard will help create consistent maps and increase understanding of CSMO sites throughout the United States. This standard promotes the creation of well organized and easily accessible coal surface mining data, and it will facilitate better communication between state and federal offices, the public, industry and environmental groups.

4.3 As used in this practice, a coal surface mining boundary represents an area where coal removal and reclamation has occurred, is occurring, or is planned and authorized by the RA within a defined CSMO.

NOTE 1—Currently, not all RAs have established datasets for coal mining geospatial data. Of those RAs that have coal mining geospatial datasets, each organizes their data in a different method, using their own coordinate system, and their own naming conventions and terminology. By establishing national data standards, RAs will have uniform guidance for the creation and management of coal mining geospatial data. In effect, this practice creates an easier and more efficient way to utilize and share coal surface mining boundary geospatial data among affected parties.

4.4 In addition to defining a permit boundary, use of this standard over time will allow identification of changes in the boundary as the mined area changes.

4.5 Among a few coal-producing states, some attributes of the coal surface mining boundaries will not have values. A national dataset of coal surface mining boundaries will appear to be incomplete for certain states. In some situations, coal surface mining geospatial data may not have been collected for those states. In others, it is not applicable.

