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Standard Practice for Minimum Geospatial Data for Abandoned Mine Land Problem Areas, Planning Units, Keyword Features, and Project Sites¹

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1. Scope

1.1 This practice covers the minimum elements for the accurate location and description of geospatial data for defining Abandoned Mine Land (AML) Problem Areas, Planning Units, Keyword Features, and Project Sites.

1.1.1 This practice addresses 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, tribal or federal coal mining regulatory authority (RA), or combinations thereof, authorized under SMCRA to reclaim the surface and underground effects of past mining operations. Abandoned mine land, as specified in SMCRA Sections 404 (coal), 409 and 411 (non-coal) and cross referenced in additional sections on eligible lands, consist of those lands and waters which were mined for coal or other minerals, or both, or impacted by processing operations prior to the enactment of SMCRA and abandoned or left in an inadequate condition of reclamation and for which there is no continuing reclamation responsibility under state or other federal laws for mitigation of adverse impacts to human health and safety or environmental resources.

1.1.2 Title IV of SMCRA establishes the national AML Reclamation Program under the Office of Surface Mining Reclamation and Enforcement (OSMRE), U.S. Department of the Interior (DOI). The program was developed to reclaim land and water resources adversely affected by past coal and non-coal mining and left abandoned or inadequately restored. During the years immediately following the enactment of SMCRA, OSMRE, states, and Indian tribes conducted surveys of eligible lands and waters and created individual inventories of problems to be addressed under Title IV. In 1990, SMCRA was amended and OSMRE was required to maintain a national inventory of high priority abandoned mine sites and provide standardized procedures for states and tribes to use in updating

the data. The need for an automated nationwide inventory system led to the creation of the enhanced AML Inventory System (e-AMLIS), a compilation of the individual state, tribe, Federal Reclamation Program (FRP), and Rural Abandoned Mine Program (RAMP) inventories. The e-AMLIS documents the counts for AML problem types and the costs to remedy those problems. The system captures estimated unfunded costs, estimated construction costs when funding is made available for reclamation projects, and the actual costs for completed construction projects. It is used in support of work plan development and to record the work completed under each RA's program and to report the extent and estimated cost to reclaim remaining AML problems.

1.1.3 Each state in the United States of America has been divided into Water Cataloging Units (WCU) by the U. S. Water Resources Council. These appear in the state's Hydrologic Unit Map prepared by the U.S. Department of the Interior, U. S. Geological Survey, in cooperation with the Water Resources Council. The WCU are divided and sub-divided into successively smaller hydrologic units, which are classified into four levels: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging units) to the largest (regions). Each hydrologic unit is identified by a unique Hydrologic Unit Code (HUC) consisting of two to eight digits based on the four levels of classification in the hydrologic unit system.³

1.1.4 As used in this practice, an AML Problem Area (PA) represents a closed polygon boundary for a uniquely defined geographic area contained within an AML Planning Unit (PU) as described in the AML Inventory Manual. An AML PA is a subdivision of an AML PU that contains one or more AML keyword features together with impacted land or water resources or both. An AML PA should not cross PU boundaries.

1.1.5 As used in this practice, an AML PU represents a closed polygon boundary of a uniquely defined geographic area identified by unique numbers and names. An entire WCU may be delineated as a single PU or subdivided into multiple PUs. In general, PUs east of the Mississippi River have historically

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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.

³ Available from the U. S. Department of the Interior, U.S. Geological Survey, <http://water.usgs.gov/GIS/huc.html>.

corresponded to watersheds; PUs west of the Mississippi River have been defined in a number of ways, including quadrangles, grazing districts, townships, counties, or entire WCU.⁴

1.1.6 As used in this practice, an AML Keyword Feature is a point, line, or polygon defining the location of a specific on-the-ground feature contained within an AML Problem Area (PA) as described in the AML Inventory Manual.

1.1.7 As used in this practice, an AML Project Site is a closed polygon boundary for a uniquely defined geographic area that includes the area disturbed to achieve the reclamation. An AML Project Site may contain one or more AML keyword features together with impacted land or water resources or both.

1.2 This practice applies to pre-SMCRA AML Problem Areas, Planning Units, Keyword Features, and Project Sites that are inventoried in the e-AMLIS under the SMCRA Title IV Reauthorization to provide for identification and location of AML sites and reclamation operations and facilitate the sharing of information with the public.

1.3 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

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.

2. Referenced Documents

2.1 ASTM Standards:⁵

D653 Terminology Relating to Soil, Rock, and Contained Fluids

2.2 ANSI Standards:⁶

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

merly ANSI X3.61-1986 (R1997))

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

2.3 Federal Geographic Data Committee Standards⁷

FGDC-STD-001 Content Standard for Digital Geospatial Metadata

Project 1574-D Information Technology—Geographic Information Framework Data Content Standard, Part 5 Governmental Unit and Other Geographic Area Boundaries

2.4 Code of Federal Regulations⁸

30 CFR Part 700 et seq, 30 CFR Parts 800 et seq.

2.5 Surface Mining Control and Reclamation Act of 1977⁸ Section 519(c) Public Law 95-87 August 3, 1977

3. Terminology

3.1 Except as listed or noted below, all definitions are in accordance with Terminology **D653**.

NOTE 1—The terms defined here are consistent with terms defined in 30 CFR Part 700 et seq., 30 CFR Part 870—887.15, though not verbatim.

NOTE 2—Terminology and definitions for identifying geographical features and describing the data model have been adopted from the Federal Geographic Data Committee Standards (FGDC) Spatial Data Transfer Standard (ANSI INCITS 320-1998 (R2003)) and the FGDC Framework Data Content Standard (FGDC Project 1574-D) Information Technology – Part 5 Governmental unit and other geographic area boundaries.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *Abandoned Mine Land (AML), n*—as specified in SMCRA Sections 404 (coal), 409 (non-coal), and 411 (non-coal) and cross referenced in additional sections on eligible lands, consists of those lands and waters which were mined for coal and other minerals or impacted by processing operations prior to the enactment of SMCRA and abandoned or left in an inadequate condition of reclamation and for which there is no continuing reclamation responsibility under state or other federal laws for mitigation of adverse impacts to human health and safety or environmental resources.

3.2.2 *AML Keyword, n*—a defined category of AML problem types and coded values, such as clogged stream-CS, dangerous highwall-DH, or dangerous slide-DS. AML keywords are also referred to as AML hazards, features, and problems. Refer to **Table 1** for AML keywords and coded values.

3.2.3 *AML Keyword Feature, n*—a point, line, or polygon defining the location of a specific on-the-ground feature that meets the definition of one of the AML keywords as described in the OSMRE AML Inventory Manual. Refer to **Table 1** for AML keywords and coded values.

3.2.4 *AML Planning Unit (PU), n*—a closed polygon defining the boundary of an area of land identified by unique numbers and names. In general, PUs east of the Mississippi River have historically corresponded to subdivision(s) of Water Cataloging Units (WCU) or watersheds; PUs west of the

⁴ As described in the Abandoned Mine Land Inventory Manual, available from U. S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement.

⁵ 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.

⁶ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁷ Available from Federal Geographic Data Committee, 590 National Center, Reston, VA 20192, www.fgdc.gov.

⁸ 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>.