Designation: D7534/D7534M – 09

StandardPractice for Minimum Geospatial Data for Abandoned Mine Land Planning Unit[1]

This standard is issued under the fixed designation D7534/D7534M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the minimum elements for the accurate description of geospatial data for defining an Abandoned Mine Land Inventory System (AMLIS) Planning Unit (PU).

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 (or combinations thereof) coal mining regulatory authority (RA) authorized under SMCRA to reclaim the surface and underground effects of past mining operations. Abandoned mine land (AML), as specified in SMCRA Sections 404 (coal), 409 and 411 (non-coal) and cross referenced in additional sections on eligible lands, consists of those lands and waters which were mined for coal or other minerals (or both), or impacted by processing operations prior to enactment of the SMCRA and abandoned or left in an inadequate state 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 the SMCRA establishes the national AML Reclamation Program under the Office of Surface Mining Reclamation and Enforcement (OSMRE), U.S. Department of the Interior. The program was developed to reclaim land and water resources adversely affected by past coal mining and left abandoned or inadequately restored. During the years immediately following enactment of the SMCRA, OSMRE, states, and Native American 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 coal sites and provide standardized procedures for states and tribes to use in updating the data. The need for an automated nationwide inventory led to the creation of the national AMLIS, a compilation of the individual state, tribe, Federal Reclamation Program (FRP), and Rural Abandoned Mine Program (RAMP) inventories. The AMLIS documents the estimated unfunded costs to remedy AML problems, records when funding is made available for a problem area, and captures costs for completed constructed projects. It is used to record the work completed under each individual AML program and report the extent and cost of AML problems remaining.

1.1.3 Each state 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, subregions, 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 PU represents a closed polygon that defines the boundary of a uniquely defined geographic area contained within a WCU. The entire WCU may be delineated as a single PU or subdivided into multiple PUs. In general, PUs east of the Mississippi River have historically 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]

1.2 This practice applies to pre-SMCRA AML PUs that may contain problem areas and prioritized problem types that are inventoried in the AMLIS under the SMCRA Title IV Reauthorization to provide for identification and management of AML sites and reclamation operations and facilitate the sharing of information with the public.

[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.

Current edition approved July 1, 2009. Published July 2009. DOI: 10.1520/D7534_D7534M-09.

[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.

[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.

1.3 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

D5254 Practice for Minimum Set of Data Elements to Identify a Ground-Water Site

D5911 Practice for Minimum Set of Data Elements to Identify a Soil Sampling Site

2.2 *ANSI Standards:*[6]

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

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

2.3 *Federal Geographic Data Committee Standards:*[7]

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 Regulations:*[8]

30 CFR Part 700 et seq.

30 CFR Parts 870 – 887.15 et seq.

3. Terminology

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

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 The terms defined here are consistent with terms defined in 30 CFR Part 700 et seq., 30 CFR Part 800 et seq., though not verbatim.

3.2.2 *abandoned mine land (AML)*—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 enactment of the SMCRA and abandoned or left in an inadequate conditon 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.

3.2.3 *AML Inventory System (AMLIS)*—a national database of AML PAs and associated qualitative and quantitative information developed and maintained by the Office of Surface Mining Reclamation and Enforcement and state and tribe RAs in accordance with SMCRA Title IV mandates.

3.2.4 *AML keyword*—a coded value representing a defined category of AML problem type, such as CS (clogged stream), DH (dangerous highwall), and DS (dangerous slide). AML keywords are also referred to as AML Hazards, Feature Types, and Problem Types. Refer to Table 1 for AML keywords and coded values.

3.2.5 *AML planning unit (PU)*—a closed polygon defining the boundary of an area of land corresponding to subdivision(s) of water cataloging units (WCU) identified on each state's Hydrologic Unit Map as described in the OSMRE AML Inventory Manual[9] and identified by unique numbers and names. The entire WCU may be delineated as a single PU or subdivided into multiple PUs. In general, planning units east of the Mississippi River have historically corresponded to watersheds; planning units west of the Mississippi River have been defined in a number of ways, including quadrangles, grazing districts, townships, counties, or entire WCU.

3.2.6 *AML problem area (PA)*—a subdivision of an AML PU that contains one or more keyword features together with adjacent or hydrologically connected and impacted land and water resources, identified by unique numbers and names.

3.2.7 *AML problem area description (PAD)*—a collection of quantitative and qualitative data relating to sites contained within a PA subdivision of an AML PU that contains one or more keyword features together with adjacent or hydrologically connected and impacted land and water resources.

3.2.8 *AML problem area ID*—a unique alpha-numeric identifier assigned to an AML PA by a RA, prefixed with state or tribal abbreviation and suffixed by AMLIS program type for administrative purposes.

[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.

[9] U.S. Department of Interior Office of Surface Mining and Enforcement, Abandoned Mine Land Inventory Manual, September 2000, or latest.