Metadata for the Pennsylvania Coalbed Methane Wells Database

Open-File Report OG–11-01.0

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Summary

This Microsoft Access database was converted from Open-File Report 00-01, a Microsoft Excel 97 spreadsheet compiled from wells associated with coalbed methane (CBM) in Allegheny, Armstrong, Cambria, Fayette, Greene, Indiana, Washington, and Westmoreland Counties in southwestern Pennsylvania. The first phase of this database contains successful and unsuccessful accounts of CBM exploration and production, including early serendipitous encounters with CBM in the commonwealth, from well completions mainly between 1938 and 1998. It also provides annual production data from 1988 through 2009.

History of Development

The data was initially gathered into a Microsoft Excel 97 Excel spreadsheet based on paper files from our Pittsburgh office, the Wells Information System (WIS), the Pennsylvania Internet Record Imaging System (PA*IRIS), North American CBM Forums, literature (includes historical gas contents and reference to coal analyses), and personal communication with CBM operators when available. The Excel spreadsheet was converted to a text file in PDF format for availability on the PaGS website. The data from the original Excel spreadsheet was then migrated and converted into the Microsoft Access database. This Access database complements OF Report 00-01 (the Microsoft Excel 97 spreadsheet) by displaying the data in a more versatile format for a variety of applications.

Sources of Data

This data was initially based on paper files from our Pittsburgh office, the WIS, the PA*IRIS, North American CBM Forums, literature, and personal communication with CBM operators when available.

Primary data sources are from the PA*IRIS and WIS. The PA*IRIS now has most of the scanned original well completion reports and location plats from the Pittsburgh office.

These document types were used in tandem with the WIS, the PaGS comprehensive oil and gas database, as a crosscheck to verify and compare these two complimentary data sources. Information from the North American CBM Forum and personal communication with CBM operators provided news on well history, production status, and future drilling plans. Literature provided supplemental data on historical gas contents, reference to coal analyses, and drilling previews.

Format

Elements of 111 fields in 15 information tables (IT) and 52 fields in 12 lookup tables (LT) are listed below. Introductory table and field descriptions are followed by a list of field names as they appear in the database. The data type for each field is listed in parentheses. Actual data types and detailed field descriptions are in the Design View of each table in the database.

Table relationships are shown in dark red font. For example, CBM/OT Permit Number (text) ← IT Location indicates that CBM/OT Permit Number is related (joined) to the Location information table. The primary key for each table is indicated by an asterisk (*).

Note: Most of the information tables are uniquely identified by a numerical counter or ID when there are multiple records for a permitted well. The other tables have a permit number as the unique identifier when there is one record per permit number as in IT Header, IT Location, IT Open Flow/Rock Pressure, IT Total Depth, and IT Well Type.

Part I – Information Tables

IT CBM/Other Target
IT CBM/Other Target contains the following CBM well and/or other associated target fields: unique counter code for IT CBM/Other Target (primary key), link for IT CBM/Other Target and IT Well Completion, CBM/other target permit number, if CBM/other target/completion unit exists, WIS and author target unit codes, additional information on target unit, WIS and author producing unit codes, additional information on producing unit, CBM/other target top depth, CBM/other target bottom depth, and if deepest target/producing unit exists.

IT CBM/Other Target includes information on coalbeds and associated noncoal units in wells originally intended for CBM production, in addition to shallow, conventional gas reservoirs that are targets and/or yield gas when little or no CBM production exists. Since not all targets are productive and/or treated for production, IT CBM/Other Target is joined to IT Well Completion by the CBM/OT Link IT Well Completion field to enable the user to distinguish “targeted or intended” intervals from “completed” intervals.

Sources: The WIS, permitted well completion reports from the PA*IRIS, Adams and others (1984), Geomega, Inc. (1977), Hunt and Steele (1991), Elder and Irani (1977), and some information from the operator. Author codes used for target and productive units not in the WIS.

CBM/OT ID* (autonumber)
Unique code for IT CBM/Other Target.

CBM/OT Link IT Well Completion (number)
Links IT CBM/Other Target with IT Well Completion.

CBM/OT Permit Number (text) ← IT Location
American Petroleum Institute (API) number comprised of a three-digit county number from the Federal Information Processing Standards (FIPS) code followed by a five-digit incremental number assigned during the process of permit issuance.

CBM/OT/Compl Unit (yes/no)
Checked box indicates CBM target/completion unit; unchecked box indicates other (non-CBM) target/completion unit.

Target Unit ID (text)
WIS and author codes for CBM target/completion group, formation, or coal; target not necessarily productive.

Target Unit Detail (text)
Additional information/observations on CBM target/completion group, formation, or coal (not necessarily productive) and depths.

Prod Unit ID (text) → LT Stratigraphic/Rock Unit
WIS and author codes for group/formation/coal known to produce CBM; include only if open flows reported or if production known; not for degasification wells such as Emerald Mines Corporation.

Prod Unit Detail (text)
Additional information/observations on group/formation/coal with CBM; include only if open flows reported or if production known; not for degasification wells such as Emerald Mines Corporation.

CBM/OT Top (number)
Top depth of CBM target group/formation/coal (ft); based on driller/perforation (P)/stimulation (HS) top; tops not labeled P/HS are from driller log.

CBM/OT Bottom (number)
Bottom depth of CBM target group/formation/coal (ft); based on driller/ perforation (P)/stimulation (HS) bottom; bottoms not labeled P/HS are from driller log.

Deepest Target/Producing Unit (yes/no)
Checked box indicates deepest target/producing unit containing coal.

IT Coal Owner/Lessee/Operator
IT Coal Owner/Lessee/Operator contains the following fields regarding coal ownership, leasing, and operation: unique counter code for IT Coal Owner/Lessee/Operator (primary key), coal owner/lessee/operator permit number, coal owner, coal lessee, WIS and author coal seam codes, operator or owner of coal mine, and additional information (including local names of coal seams) as remarks.

Source: Permitted plats from the PA*IRIS. Author codes used for coal seams not in the WIS.

CO/L/Op ID* (autonumber)
Unique code for IT Coal Owner/Lessee/Operator.

CO/L/Op Permit Number (text) ← IT Location
API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

Coal Owner (text)
Owner of coal seam.

Coal Lessee (text)
Lessee of coal seam.

Coal Seam ID (text) → LT Stratigraphic/Rock Unit
WIS and author codes for name of coal seam.

Mine Operator (text)
Operator or owner of coal mine.

Remarks (text)
Additional information including local names of coal seams.

IT Driller/Geologist Log
IT Driller/Geologist Log contains the following fields regarding rock units derived from the driller and/or geologist log: unique counter code for IT Driller/Geologist Log (primary key), driller/geologist log permit number, WIS and author rock interval codes, additional information on rock interval, rock interval top depth, rock interval bottom depth, and if geologist log exists.

Sources: Permitted well completion reports from the PA*IRIS and WIS. Author codes used for rock intervals not in the WIS.

D/G Log ID* (autonumber)

Unique code for IT Driller/Geologist Log.

D/G Log Permit Number (text) ← IT Location
API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

Interval ID (text)
WIS and author codes for **c**oal and selected associated marker group/formation/ member name from driller log; mostly limestones, red rock, major group, formations, and members.

Interval Detail (text)
Additional information/observations on driller log interval.

Interval Top (number)
Top depth of driller log interval (ft).

Interval Bottom (number)
Bottom depth of driller log interval (ft).

Geologist Log (yes/no)
Checked box indicates a geologic interpretation.

IT Gas Show
IT Gas Show contains the following fields regarding the occurrence and depth of gas shows: unique counter code for IT Gas Show (primary key), gas show permit number, WIS and author codes for rock units with reported gas shows, additional information on rock unit, gas show unit top depth, gas show unit bottom depth, and additional information on depth.

Sources: Permitted well completion reports from the PA*IRIS, the WIS, Adams and others (1984), and Geomega (1977). Author codes used for rock units with reported gas shows not in the WIS.

Gas Show ID* (autonumber)
Unique code for IT Gas Show.

Gas Show Permit Number (text) ← IT Location
API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

Unit ID (text)
WIS and author codes for group/formation/coal/noncoal rock units with reported gas shows.

Unit Detail (text)

Additional information/observations and references cited (see IT Reference in the Access database for complete citation or under References at the end of this Metadata).

Unit Top (number)
Top depth of unit gas show reported (ft).

Unit Bottom (number)
Bottom depth of unit gas show reported (ft).

Depth Detail (text)
Additional information/observations and references cited (see IT Reference in the Access database for complete citation or under References at the end of this Metadata).

IT Geophysical Well Log
IT Geophysical Well Log contains the following fields regarding geophysical well logs: unique counter code for IT Geophysical Well Log (primary key), geophysical well log permit number, former Department of Environmental Resources (DER) log type code, number of geophysical logs per CBM well, and additional information on log as geophysical well log remarks.

Source: The WIS.

GWL ID* (autonumber)
Unique code for IT Geophysical Well Log.

GWL Permit Number (text) ← IT Location
API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

GWL Type ID (text) → LT Geophysical Well Log
Former DER code for geophysical well log type for each well such as: bulk density, caliper, cement bond, casing collar, compensated density, compensated neutron, dual induction, dual laterolog, gamma ray, gamma ray neutron density, induction, lithodensity, sonic, spherically focused, and temperature.

Number of GWLs (number)
Number of geophysical well logs run for well.

GWL Remarks (text)
Additional information on geophysical well log.

IT Header
IT Header contains the following fields regarding basic header information: unique permit number for IT Header (primary key), well operator, surface landowner, surface

landowner and water purveyor, WIS and author codes for well/permit status, additional information on well/permit status, historical and/or additional information on production, additional information in header remarks, year well completed, additional information on year well completed, and if well record exists in PA*IRIS.

Sources: The WIS, permitted well completion reports and plats from the PA*IRIS, IHS Drilling Wire, and some information from the operator. Author codes used for well/permit statuses not in the WIS.

Header Permit Number* (text) ← IT Location
Unique API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance for IT Header.

Well Operator (text)
Company or individual responsible for well operations.

Surface Landowner (text)
Surface property owner.

Surface Landowner & Water Purveyor (text)
Surface property owner and public utility, mutual water company, county water district, or municipality that delivers water to customers; water supply within 1000 ft.

Well/Permit Status ID (number) → LT Well/Permit Status
WIS and author codes for current well/permit status based in part on WIS status such as: abandoned, active, cancelled/ never drilled, expired/never drilled, inactive, nonproducing or core, plugged and abandoned, and unknown. If the status should change, updates will be provided.

Well/Permit Status Detail (text)
Additional information on well/permit status based in part on WIS status.

Historical/Production Info (text)
Historical and/or additional well production information.

Header Remarks (memo)
Additional information including some gas content data from literature.

Year Completed (text)
Year well completed.

Year Completed Detail (text)
Additional information on year well completed; waiting on well records/the WIS for confirmation.

PA*IRIS Well Record Status (yes/no)
Checked box indicates well record exists in PA*IRIS.

IT Location
IT Location contains the following fields regarding general and specific locations: unique permit number for IT Location (primary key), FIPS county code, former DER quadrangle code, WIS field code, WIS pool code, farm name, FIPS municipality/ township code, mine name, decimal degrees latitude, and decimal degrees longitude.

The datum is usually found on scanned well location plats in the PA*IRIS. Most of the available plats do not have a datum reported (although these locations are interpreted to be NAD27 based). Other locations are primarily based on NAD27, except for 36 cases in Cambria, Greene, Washington, and Westmoreland Counties at NAD83. Remaining locations include 35 that are not on record in PA*IRIS and two reported in PA*IRIS a datum of MSL (mean sea level) in Cambria County. The datum is not indicated for individual wells in the database.

Sources: The WIS and permitted well completion reports or plats from the PA*IRIS.

Location Permit Number* (text) → IT CBM/Other Target, IT Coal Owner/Lessee/ Operator, IT Driller/Geologist Log, IT Gas Show, IT Geophysical Well Log, IT Header, IT Open Flow/Rock Pressure, IT Production 1988-2009, IT Reference, IT Total Depth, IT Water, IT Well Completion, and IT Well Type.
Unique API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance for IT Location.

County ID (text) → LT County
FIPS code for geographic subdivision of a state (or federal territory) and the largest administrative division of most states in the United States that has jurisdiction of local government.

Quadrangle ID (text) → LT Quadrangle
Former DER code for USGS topographic map based on a 1:24,000 scale quadrangle map.

Field ID (number)
WIS code for field or group of pools related to a single geologic feature, either structural or stratigraphic.

Pool ID (number) → LT Field/Pool/Discovery Date
WIS code for pool or body of oil or gas or both occurring in a separate reservoir and under a single pressure system; simplest unit of commercial occurrence.

Farm (text)

Name of property on which an industrial function is carried out, such as for a CBM well.

Mun/Twp ID (text) → LT Municipality/Township
FIPS code for a municipality or township (city, town, village, or multiple settlements) that has status and powers of a unit of local government.

Mine (text)
Name of coal mine associated with CBM drilling.

DD Latitude (number)
Latitude in decimal degrees.

DD Longitude (number)
Longitude in decimal degrees.

IT Miscellaneous
IT Miscellaneous contains the following fields regarding descriptive terms and measurement units: miscellaneous term and author code for miscellaneous term. No relationships or primary key are assigned to IT Miscellaneous.

Source: Permitted well completion reports from the PA*IRIS. Author codes used for miscellaneous terms not in the WIS.

Misc Term (text)
Various descriptive terms and measurement units from the well completion report.

Misc ID (text)
Author code for various descriptive terms and measurement units from the well completion report in IT Miscellaneous.

IT Open Flow/Rock Pressure
IT Open Flow/Rock Pressure contains the following fields regarding gas and pressure yields: unique permit number for IT Open Flow/Rock Pressure (primary key), natural open flow, additional information on natural open flow, other flow information such as short-term production (usually historic) and depths, after treatment open flow, additional information on after treatment open flow, natural rock pressure, natural rock pressure time, additional information on natural rock pressure, after treatment rock pressure, after treatment rock pressure time, and additional information on after treatment rock pressure.

Sources: Permitted well completion reports from the PA*IRIS and WIS.

OF/RP Permit Number* (text) ← IT Location
Unique API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance for IT Open Flow/Rock Pressure.

Natural Open Flow (number)
Natural open flow in thousand cubic feet per day (Mcfd).

Natural Open Flow Detail (text)
Additional information on natural open flow and/or if flow in other unit of measurement.

Other Flow Detail (text)
Short-term production (usually historic) and depths (not a natural open flow or a gas show).

AT Open Flow (number)
Open flow after treatment in thousand cubic feet per day (Mcfd).

AT Open Flow Detail (text)
Additional information on open flow after treatment and/or if flow in other unit of measurement.

Natural Rock Pressure (number)
Natural rock pressure in pounds per square inch (psi).

Natural Rock Pressure Time (number)
Time interval for natural rock pressure in hours (hrs).

Natural Rock Pressure Detail (text)
Additional information on natural rock pressure and/or if pressure in other unit of measurement.

AT Rock Pressure (number)
Rock pressure after treatment in pounds per square inch (psi).

AT Rock Pressure Time (number)
Time interval for rock pressure after treatment (hrs).

AT Rock Pressure Detail (text)
Additional information on rock pressure after treatment and/or if pressure in other unit of measurement.

IT Production 1988-2009
IT Production 1988-2009 contains the following fields regarding gas and water (brine) production: unique counter code for IT Production 1988-2009 (primary key), production permit number, year of reporting, total quantity gas, total days production reported, and total quantity water (brine).

Sources: The Pennsylvania Department of Environmental Protection's Bureau of Oil and Gas Management (DEP – BOGM) and distribution by the Pittsburgh PaGS office.

Prod ID* (autonumber)
Unique code for IT Production 1988-2009.

Prod Permit Number (text) ← IT Location
API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

Year (text)
Year of reported production to DEP – BOGM.

Total Quantity Gas (number)
Total quantity gas in Mcf (thousand cubic feet).

Total Days (number)
Total number of days for gas and water production.

Total Quantity Water (number)
Total quantity water/fluid in Bbl (barrel/s).

IT Reference
IT Reference contains the following fields regarding reference citations for specific CBM wells: unique counter code for IT Reference (primary key), reference permit number, and reference citation.

Sources: Various CBM reports as cited at IT Reference in the Access database and under References at the end of this Metadata.

Ref ID* (autonumber)
Unique code for IT Reference.

Ref Permit Number (text) ← IT Location
API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

Ref Citation (memo)
Full citation of individual report.

IT Total Depth
IT Total Depth contains the following fields regarding various methods of obtaining total depths and the rock unit at total depth: unique permit number for IT Total Depth (primary key), total projected/anticipated depth, additional information on total projected/ anticipated depth, total driller log depth, total logger depth, total depth reported on well record, additional information on well record's total depth, WIS and author codes for unit at total depth, and additional information on unit at total depth.

Sources: Permitted well completion reports from the PA*IRIS and WIS. Author codes used for rock units at total depth not in the WIS.

TD Permit Number* (text) ← IT Location
Unique API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance for IT Total Depth.

TD Projected (number)
Total projected or anticipated depth (ft).

TD Projected Detail (text)
Total projected or anticipated depth (ft) with additional information.

TD Driller (number)
Total driller depth (ft).

TD Logger (number)
Total logger depth (ft).

TD Well Record (number)
Total depth from first page of well record (ft).

TD Well Record Detail (text)
Additional information/observations on total depth from first page of well record.

TD Unit ID (text) → LT Stratigraphic/Rock Unit
WIS and author codes for group/formation/coal at total depth.

TD Unit Detail (text)
Additional information on group/formation/coal at total depth.

IT Water
IT Water contains the following fields regarding occurrence and depth of water: unique counter code for IT Water (primary key), water permit number, WIS and author codes for rock units with reported presence of water, additional information on water unit, water unit top depth, water unit bottom depth, additional information on water quantity and depth (top), and additional information on water quality and/or quantity as remarks.

Sources: Permitted well completion reports from the PA*IRIS and WIS. Author codes used for rock units with reported presence of water not in the WIS.

Water ID* (autonumber)
Unique code for IT Water.

Water Permit Number (text) ← IT Location

API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

Water Unit ID (text)
WIS and author codes for group/formation/coal/noncoal rock units with reported presence of water.

Water Unit Detail (text)
Additional information on water unit.

Water Unit Top (number)
Top depth of unit water reported (ft).

Water Unit Bottom (number)
Bottom depth of unit water reported (ft).

Water Depth Detail (text)
Additional information on water quantity and tops (ft).

Water Remarks (text)
Additional information on water quality and quantity.

IT Well Completion
IT Well Completion contains the following fields regarding CBM well completion: unique counter code for IT Well Completion (primary key), link for IT Well Completion and IT CBM/Other Target, well completion permit number, author code for well completion, well completion top depth, well completion bottom depth, and completion/stimulation method.

Sources: Permitted well completion reports from the PA*IRIS, the WIS, and Adams and others (1984). Author codes used for well completions not in the WIS.

Well Compl ID 1* (autonumber)
Unique code for IT Well Completion.

Well Compl Link IT CBM/Other Target (number)
Links IT Well Completion with IT CBM/Other Target.

Well Compl Permit Number (text) ← IT Location
API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance.

Well Compl ID 2 (text) → LT Well Completion
Author code for well completion type such as: horizontal, hydraulic stimulation, open hole, open mine, perforation, pinnate, slant hole, and vertical.

Well Compl Top (number)
Top depth of coal if open hole/perforation/stimulation/other (ft); may include associated noncoal units.

Well Compl Bottom (number)
Bottom depth of coal perforation/stimulation/open hole/other (ft); may include associated noncoal units.

Method and Detail (memo)
Stimulation method; fluid in gallons/barrels/day (gals/bbls/d), barrels of foam (BF), proppant (lbs/sack), standard cubic feet (Scf), average injection rate barrels/minute (Bpm), pressure in pounds per square inch gauge (psig); and freshwater (F/W).

IT Well Type
IT Well Type contains the following fields regarding CBM well type: unique permit number for IT Well Type (primary key), WIS and author codes for well type, additional information for well type, WIS code for general well class, WIS code for special well class, and WIS code for exploratory type.

Source: The WIS. Author codes used for well types not in the WIS.

Well Type Permit Number* (text) ← IT Location
Unique API number comprised of a three-digit county number from the FIPS code followed by a five-digit incremental number assigned during the process of permit issuance for IT Well Type.

Well Type ID (number) → LT Well Type
WIS and author codes for well type based on origin of the gas and historical, exploratory, or production status such as: coal mine methane, coal test, CBM, conventional gas, degasification (no treatment), degasification (treatment), dry, gob gas, incomplete, junk, observation, storage, stratigraphic and fracture test, and stratigraphic core test.

Well Type Detail (text)
Additional information on well type.

General Well Class ID (number) → LT General Well Class
WIS code for active well status such as: nonproducing, producing, and service.

Special Well Class ID (number) → LT Special Well Class
WIS code for active well status such as: development, exploratory, and miscellaneous.

Exploratory Type ID (number) → LT Exploratory Type
WIS code for exploratory well type such as: extension, new pool, shallower pool, and shallower pool discovery.

Part II – Lookup Tables

LT County
LT County contains the following fields: county name and unique county code (primary key).

Sources: The WIS, permitted well completion reports or plats from the PA*IRIS.

County (text)
Geographic subdivision of a state (or federal territory) and the largest administrative division of most states in the United States that has jurisdiction of local government.

County ID* (text) ← IT Location
Unique FIPS code for geographic subdivision of a state (or federal territory) and the largest administrative division of most states in the United States that has jurisdiction of local government in LT County.

LT Exploratory Type
LT Exploratory Type contains the following fields regarding an exploratory type well: exploratory type, WIS short name for exploratory type, unique WIS and author codes for exploratory type (primary key), and definition of exploratory type.

Source: The WIS. Author code used for exploratory type not in the WIS.

Exploratory Type (text)
Well drilled for the purpose of discovering new reserves of oil, gas, or CBM in unproven areas (sometimes referred to as a wildcat well) such as: extension, new pool, shallower pool, or shallower pool discovery.

Short Name Exploratory Type (text)
WIS short name for exploratory type well.

Exploratory Type ID* (number) ← IT Well Type
Unique WIS and author codes for a well drilled for the purpose of discovering new reserves of oil, gas, or CBM in unproven areas (sometimes referred to as a wildcat well) such as: extension, new pool, shallower pool, or shallower pool discovery in LT Exploratory Type.

Exploratory Type Definition (memo)
Definition of each exploratory well type.

LT Field/Pool/Discovery Date
LT Field/Pool/Discovery Date contains the following fields: unique field/pool/discovery date code (primary key), field name, WIS code for field, pool name, WIS code for pool, discovery well date for pool, and WIS code for discovery well of pool.

Source: The WIS.

F/P/DD ID* (autonumber)
Unique code for LT Field/Pool/Discovery Date.

Field (text)
Name of field or group of pools related to a single geologic feature, either structural or stratigraphic.

Field ID (number)
WIS code for name of field or group of pools related to a single geologic feature, either structural or stratigraphic.

Pool (text)
Name of pool or body of oil or gas or both occurring in a separate reservoir and under a single pressure system; simplest unit of commercial occurrence.

Pool ID (number) ← IT Location
WIS code for pool or body of oil or gas or both occurring in a separate reservoir and under a single pressure system; simplest unit of commercial occurrence.

Discovery Well Date (date/time)
Date of discovery well for pool.

Discovery Well ID (number)
WIS code for discovery well for pool.

LT General Well Class
LT General Well Class contains the following fields: general well class (production status of well), WIS short name for general well class, unique WIS code for general well class (primary key), and definition of general well class.

Source: The WIS.

General Well Class (text)
Status of an active well such as: nonproducing, producing, and service.

Short Name General Well Class (text)
WIS short name for general well class.

General Well Class ID* (number) ← IT Well Type
Unique WIS code for status of an active well such as: nonproducing, producing, and service in LT General Well Class.

General Well Class Definition (memo)
Definition of each general well class.

LT Geophysical Well Log
LT Geophysical Well Log contains the following fields: geophysical well log name, unique former DER code for geophysical well log (primary key), and former DER short name for oil and gas code.

Source: The WIS.

GWL (text)
Geophysical well log type.

GWL ID* (text) ← IT Geophysical Well Log
Unique former DER code for geophysical well log type in LT Geophysical Well Log.

Oil and Gas ID (text)
Short name for oil and gas code.

LT Municipality/Township
LT Municipality/Township contains the following fields: unique municipality/township code (primary key), municipality/township name, FIPS code for municipality/township, FIPS code for county, proper name of municipality/township, and full name of municipality/township.

Sources: The WIS and permitted well completion reports or plats from the PA*IRIS.

Mun/Twp ID 1* (autonumber)
Unique code for LT Municipality/Township.

Mun/Twp (text)
City, town, village, or multiple settlements that have status and powers of a unit of local government.

Mun/Twp ID 2 (text) ← IT Location
FIPS code for a municipality or township.

County ID (text)
FIPS code for a county.

Proper Name (text)
Proper name of municipality or township.

Full Name (text)
Full name of municipality/township.

LT Quadrangle

LT Quadrangle contains the following fields: quadrangle name, unique former DER code for quadrangle (primary key), and code for UTM zone.

Sources: The WIS and permitted well completion reports or plats from the PA*IRIS.

Quadrangle (text)
USGS topographic map based on a 1:24,000 scale (7.5-minute quadrangle map).

Quadrangle ID* (text) ← IT Location
Unique former DER code for a 7.5-minute quadrangle map in LT Quadrangle.

UTM Zone (number)
Code for Universal Transverse Mercator geographic coordinate system grid-based method specifying locations on the Earth's surface that is a practical application of a 2-dimensional Cartesian coordinate system.

LT Special Well Class
LT Special Well Class contains the following fields: special well class, WIS short name for special well class, unique WIS code for special well class (primary key), and definition of special well class.

Source: The WIS.

Special Well Class (text)
Active well type such as: development, exploratory, and miscellaneous.

Short Name Special Well Class (text)
WIS short name for special well class.

Special Well Class ID* (number) ← IT Well Type
Unique WIS code for active well type such as: development, exploratory, and miscellaneous in LT Special Well Class.

Special Well Class Definition (memo)
Definition of active well type such as: development, exploratory, and miscellaneous.

LT Stratigraphic/Rock Unit
LT Stratigraphic/Rock Unit contains the following fields: stratigraphic/rock unit name, unique WIS and author codes for stratigraphic/rock unit (primary key), local name, and driller name or other explanation.

For the stratigraphic/rock unit codes or IDs, there are instances where duplicate names exist for rock units and coalbeds. These duplicate names are assigned to different stratigraphic codes from the parent WIS database because they are based on a combination of stratigraphic relationship and geography (E-mail communication per John Harper, PaGS, March 9, 2011).

These distinctions, however, were not followed or fully understood over the years during data entry in the WIS, so there are group names used for formations, names from central Pennsylvania used in western Pennsylvania, and other inconsistencies.
For the CBMD, the stratigraphic/rock unit code is assigned the first code or lowest number in a duplicate name set, rather than importing the code from WIS. This practice is to ensure a sense of consistency in naming stratigraphic/rock units based on the history of WIS limitations as presented above.

Sources: Permitted well completion reports from the PA*IRIS and WIS. Author codes used for stratigraphic/rock units not in the WIS.

Strat/Rock Unit (text)
Name of coal seam, rock unit, group, or formation.

Strat/Rock Unit ID* (text) ← IT CBM/Other Target, IT Coal Owner/Lessee/ Operator, and IT Total Depth
Unique WIS and author codes for name of coal seam, rock unit, group, or formation in LT Stratigraphic/Rock Unit.

Local Name (text)
Local name for coal seam, selected associated rock unit, group, or formation.

Driller Name/Other Explanation (memo)
Driller name for rock unit, group, or formation.

LT Well Completion
LT Well Completion contains the following fields: well completion type, unique author code for well completion (primary key), definition of well completion, and additional source of information on well completion at the hyperlink.

Sources: Permitted well completion reports from the PA*IRIS and WIS. Author codes used for well completions not in the WIS.

Well Compl (text)
Well completion type such as: horizontal, hydraulic stimulation, open hole, open mine, perforation, pinnate, slant hole, and vertical.

Well Compl ID* (text) ← IT Well Completion
Unique author code for well completion type such as: horizontal, hydraulic stimulation, open hole, open mine, perforation, pinnate, slant hole, and vertical in LT Well Completion.

Well Compl Definition (memo)
Definition of well completion type.

Well Compl Hyperlink (hyperlink)

Additional source of information at hyperlink**.**

LT Well Type
LT Well Type contains the following fields: well type, WIS short name for well type, unique WIS and author codes for well type (primary key), definition of well type, additional information on well type, and additional source of well type information at the hyperlink.

Sources: Permitted well completion reports from the PA*IRIS and WIS. Author codes used for well types not in the WIS.

Well Type (text)
Well type based on origin of the gas and historical, exploratory, or production status.

Short Name Well Type (text)
WIS short name for well type.

Well Type ID* (number) ← IT Well Type
Unique WIS and author codes for well type based on origin of the gas and historical, exploratory, or production status in LT Well Type.

Well Type Definition (memo)
Definition of well type.

Well Type Detail (text)
Additional information on well type.

Well Type Hyperlink (hyperlink)
Additional source of information at hyperlink.

LT Well/Permit Status
LT Well/Permit Status contains the following fields: well/permit status, WIS short name for well/permit status, unique WIS and author codes for well/permit status (primary key), additional information on well/permit status, and additional source of well/permit status information at the hyperlink.

Sources: The WIS, permitted well completion reports or plats from the PA*IRIS, and some operator information. Author codes used for well/permit statuses not in the WIS.

Well/Permit Status (text)
Current well/permit status based in part on the WIS status such as: abandoned, active, cancelled/never drilled, expired/never drilled, inactive, nonproducing or core, plugged and abandoned, and unknown.

Short Name Well/Permit Status (text)
WIS short name for well/permit status.

Well/Permit Status ID* (number) ← IT Header
Unique WIS and author codes for current well/permit status based in part on the WIS status such as: abandoned, active, cancelled/never drilled, expired/never drilled, inactive, nonproducing or core, plugged and abandoned, and unknown in LT Well/Permit Status.

Well/Permit Status Detail (memo)
Additional information on well/permit status based in part on the WIS status.

Well/Permit Status Hyperlink (hyperlink)
Additional source of information at hyperlink.

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Data Limitations

Original CBM data for the Access database was downloaded from an Excel spreadsheet in various stages of completion, based primarily on the PA*IRIS well completion reports and plats up to and including 1998. Additional information in the database is included from reports listed under References at the end of this Metadata.

The latest available production data are based on previous WIS reports from the DEP – BOGM. Since the production data in IT Production 1988-2009 contains the most current information in the database, and since there are database relationships with the production data, there will be records in other information tables that have blank cells after the permit number. The permit number exists to maintain database links with other information tables, but lack data in the rest of the record at this time. As a result, data accuracy and integrity are subject to variability. Also, in particular, the accuracy of pool names and production data may be variable as this information is dependent on reporting and data entry from the DEP – BOGM and WIS.

The Access database is designed to accommodate CBM updates and future imports from the WIS. Therefore, data accuracy and integrity of the Access database are dependent upon the data accuracy and integrity from the DEP – BOGM and WIS.

References

Adams, M.A., Eddy, G.E., Hewitt, J.L., Kirr, J.N., and Rightmire, C.T. (1984), Geologic overview, coal resources, and potential methane recovery from coalbeds of the Northern Appalachian coal basin - Pennsylvania, Ohio, Maryland, West Virginia, and Kentucky, p. 15-43, in Rightmire, C.T., Eddy, G.E., and Kirr, J.N., eds., Coalbed methane resources of the United States, American Association of Petroleum Geologists Studies in Geology Series 17, 378 p.

Edmunds, W.E. (1969), Revised lithostratigraphic nomenclature of the Pottsville and Allegheny Groups (Pennsylvanian), Clearfield County, Pennsylvania, Information Circular 61, 36 p.

Note: IC 61 (Edmunds, 1969) is currently out of print, however, this publication may be viewed by contacting the following: 1) the PaGS libraries in our Middletown and/or Pittsburgh offices, 2) a known repository or university library at this link: http://www.dcnr.state.pa.us/topogeo/pub/lop.pdf (see list on 2nd page after front cover page), or 3) your local library for an interlibrary loan.

Elder, C.H., and Irani, M.C. (1977), Geology and gas content of coalbeds in vicinity of Bureau of Mines, Bruceton, Pennsylvania, U.S. Bureau of Mines Report of Investigations RI-8247, 22 p.

Geomega, Inc. (1977), Geology and resource potential of the Mary Jo Hoge et al lease, Whiteley Township, Greene County, Pennsylvania, prepared for Mary L. Cunningham, Waynesburg, Pennsylvania, June 10, 1977, 11 p.

Harper, John A., Pennsylvania Geological Survey, E-mail communication March 9, 2011.

Hunt, A.M., and Steele, D.J. (1991), Coalbed methane technology development in the Appalachian basin, Topical Report, prepared for Gas Research Institute, Contract Number 5089-214-1783, Chicago, IL, 111 p.

IHS Drilling Wire, January 28, 1993.