KENTUCKY ENERGY AND ENVIRONMENT CABINET ABANDONED MINE LAND (AML) HOMEOWNER AND DEVELOPMENT GUIDE

GET THE FACTS BEFORE YOU ACT

A guide for residents, landowners, developers, and state and local officials to inform them of potential problems of living and developing on abandoned mine land sites in Kentucky

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January 26, 2016

Dear Coalfield Citizen,

Citizens of the coal fields sometimes experience problems living near or on Abandoned Mine Land (AML) sites. To help residents, landowners, and developers avoid problems associated with AML sites, the Energy and Environment Cabinet created the Abandoned Mine Land Homeowner and Development Guide. The primary purpose of the Guide is to ensure citizens understand the risks posed by AML sites before construction or development begins. The Guide also is an important resource for residents, and businesses already living or operating on or near existing AML sites. Finally, the Guide serves as a helpful reference document for local officials and citizens about the AML program and the types of projects that are eligible for AML abatement funding.

As level land for development is often difficult to obtain in the coal fields, sites that have flat surfaces from previous mining activity are appealing. However, not all areas are suitable for development, and AML sites—those that ceased operation prior to May 18, 1982, on which no person or entity has any continuing reclamation responsibility under federal or state law—pose very real hazards for citizens. While the AML program can be used to abate certain AML problems, it cannot be used to abate problems associated with development on these sites. For example, AML funding cannot be used to repair or rebuild *structures* that are damaged or destroyed from subsidence on AML sites. The Guide presents numerous other examples of potential risks linked to development on mined lands in the coal fields and outlines steps that can be taken to avoid these risks.

The adage, "an ounce of prevention is worth a pound of cure," is applicable in many areas of our lives, and is especially relevant to planning for development in or around abandoned mine lands. This Guide is designed to help citizens make wise decisions to prevent costly and sometimes dangerous mistakes. I hope you find it to be a useful resource.

Sincerely,

Charles G. Snavely, Secretary

ABANDONED MINE LAND (AML) HOMEOWNER AND DEVELOPMENT GUIDE

This document is presented as a guide for residents, landowners, developers, and state and local officials of the Kentucky coal fields to inform them of the hazards of building and developing on or near abandoned mine lands (AML).

What is the purpose of this guide?

Citizens of the coal fields experience problems associated with living near and developing on, AML sites. These problems affect their land and their structures and are often dangerous and expensive to repair. The Kentucky Division of Abandoned Mine Lands (DAML) created this guide as an educational outreach resource for the public. The Division is an agency within the Kentucky Department for Natural Resources of the Energy and Environment Cabinet. Citizens, planners, developers, engineers, state and local officials, etc., should use this guide to evaluate AML sites for existing development on those sites and for house and road placement, or other future development. This guide includes descriptions and illustrations of AML problems along with program eligibility guidelines for funding.

Who should read this guide?

Anybody who lives in, relocates to, or develops in the coal fields is the intended audience of this publication. In addition, this guide is useful to any other individual or entity, local or state official, or government agency that has an interest in the coal fields and is potentially impacted by AML.

What is AML?

AML (Abandoned Mine Land) consists of areas affected by coal mining that ceased operation prior to May 18, 1982, on which no person or entity has any continuing reclamation responsibility under federal or state law. Some of the AML problem-types resulting from surface and/or underground mining disturbances include: highwalls, landslides, drainage problems, mine openings, dangerous water impoundments, mine spoil areas, subsidence, hazardous gas emissions, and dangerous equipment/structures.

What is the AML Program?

The Kentucky Abandoned Mine Lands (AML) Program is designed to reclaim areas affected by past mining activity. One requirement of federal and state law governing the AML program is that, in order for a problem to be eligible for AML funding consideration, evidence must be found that shows mining that ceased prior to May 18, 1982, primarily caused the problem. In addition, the law that governs the AML Program specifies various priorities for undertaking AML projects. Generally, higher priorities are assigned to problems that most directly impact public health and safety. In short, higher priorities are assigned to sites which have the most severe problems. DAML does not receive enough funding to address all of the AML-eligible problems needing reclamation in Kentucky. As a result, DAML must prioritize sites for reclamation, under its non-

emergency program, when determining which problems to address. Therefore, the many non-mine-related factors influencing a problem site must be considered, including the actions of property owners, when determining the cause of the problem. A determination regarding whether or not DAML can provide assistance is primarily dependent on available funding levels in consideration with the eligibility and priority criteria mentioned above.

How is the AML Program funded?

The Abandoned Mine Land Program is entirely funded by the federal government. DAML receives an annual AML grant through the federal Office of Surface Mining (OSM). The federal government obtains funding by collecting a fee for every ton of coal that is produced by mining operations. These funds allow DAML to investigate, design, and construct reclamation projects to abate public health and safety and environmental problems related to abandoned mines. Since the cost of all abandoned mine problems far exceeds anticipated program revenues, only high priority public health and safety and environmental problems are selected for reclamation.

Eligibility and Priority Criteria under the AML Program

The following general criteria apply to all types of AML problems.

- Even if the problem is determined to be primarily caused by mining prior to 1982 and eligible for AML reclamation, the AML Program cannot repair home or structure damages caused by eligible mining or reimburse persons affected by mining for their expenditures related to property improvement or repair. The Kentucky AML Program is only permitted to perform land reclamation to abate problems primarily caused by eligible mining.

- Mine-related subsidence damages to homes and or structures may be remedied through the Department of Insurance which administers the Kentucky Mine Subsidence Insurance Fund. DAML provided the start-up funds for that program. County residents, through fiscal court approval, participate in the program. For assistance with subsidence issues regarding damage to homes, property, or other structures, citizen can contact the property insurance company or the Property and Casualty Division of the Department of Insurance, P.O. Box 517, Frankfort, KY 40602-0517, phone number 502/564-3630, 800/648-6056 (TDD), or 800/595-6053 (Toll Free – Kentucky only).

Eligibility: The existence of old mining near a problem site is not sufficient justification on its own to warrant assistance from the Kentucky AML Program. In order for a site to be eligible under the Kentucky AML Reclamation Program, evidence must be found that links the ***primary*** cause of a problem to coal mining that ceased prior to May 18, 1982. This evidence must consist of: 1) a physical connection between the problem and coal mining that ceased prior to May 18, 1982 **and/or** 2) a hydrological connection between the problem and coal mining that ceased prior to May 18, 1982. ***In either case, the connection must establish eligible mining as the primary cause of the problem.***

- A physical connection refers to the problem being physically connected to an eligible mine-related feature, such as a mine bench or surface or deep mine area. For instance, a landslide physically originating from a strip mine bench or consisting of mining-related spoil material cast over the bench would be considered as having a physical connection to mining.

- A hydrological connection refers to the problem being connected to an eligible mine-related feature via water flow. If eligible mining has influenced water in some way such that it is the primary cause of a problem, then a hydrological connection would be present. In order for DAML to establish a hydrological connection between a reported problem and eligible coal mining, one of two conditions must exist.

    1) Water causing a problem must be physically traced from the specific problem area to an eligible mine-related feature, and the water must demonstrate direct and significant influence from an eligible mine feature.

    2) If a physical trace cannot be established, chemical analysis of flowing water found within the specific problem area, and identified as the primary cause of the problem, must reveal chemical characteristics typically associated with water originating from a mine-related source. Chemical analysis of water samples from water believed to be primarily responsible for the existence of the mine hazard must show to have a minimum 80 mg/l of sulfates. Other water quality parameters in the samples are also assessed in conjunction with the level of sulfates. In addition, documented eligible coal mining or eligible coal mining features, physically observed at or near the problem area, must exist in reasonable proximity to the problem.

Priority: If a problem meets eligibility requirements, priority of the problem must then be considered. Generally, higher priorities are assigned to problems that most directly affect public health and safety. In short, higher priorities are assigned to sites which have the most severe problems. Priority is also determined in relation to the priority of all other problems reviewed and/or on inventory with the Kentucky AML program.

Additional eligibility and priority considerations:

- DAML cannot assist with land owner, or other non-mining development of property, regardless if eligible mine-related problems are present or discovered during development. If property is developed after DAML determines mine-related issues are present, DAML assistance will remain unavailable.

- DAML cannot assist with problems affecting utilities or public roads where the primary responsibility for ensuring the integrity and safety of these features rests with other entities, such as utility companies or road departments.

- Regardless of whether OSM or DAML performed AML-related reclamation work at a site, property owners should accept normal maintenance responsibilities of features, mine-related or not, such as roads, culverts or ponds when they use these features long after the point when nearby, or associated mining ceased.

- Residential well water problems are not addressed individually by DAML. However, DAML does study groundwater conditions for larger areas when requested by the county fiscal court or the county judge executive. If you are concerned about your well/spring water, please contact your county judge executive or your magistrate.

- Poor water quality, such as acidic drainage or water containing high levels of metals, where the primary impact is to the environment will be reviewed and possibly remediated with funds solely dedicated to correcting poor water quality problems.

What about active, or more recent, mining?

Active mining sites are defined as areas permitted by the state regulatory authority that have been mined after May 18, 1982 and fall under the federal Surface Mining Control and Reclamation Act (SMCRA) regulations. The same types of problems that occur on AML sites can occur as a result of active, or recent, mining. The Kentucky Division of Mine Reclamation and Enforcement (DMRE) has jurisdiction over mining that ceased after May 18, 1982. DMRE's main office phone number is (502) 564-2320.

What about forfeited mining sites?

In addition to the AML Reclamation Program, the Kentucky Division of Abandoned Mine Lands operates the Bond Forfeiture (BF) Reclamation Program. Forfeited mining sites are those sites mined after May 18, 1982, where a coal company forfeited the reclamation performance bonds for a particular permitted area. Forfeitures can occur for various reasons and the most common result is that the permitted area is left in an inadequately reclaimed state. Available funds from the forfeited performance bonds are used to reclaim problems associated with the permitted area as best as possible with the funds available.

Stay Out – Stay Alive Campaign

Kentucky, along with other states, participates in the federal "Stay Out-Stay Alive" national public awareness campaign to warn children and adults about the dangers of exploring and playing on active and abandoned mine sites. For more information go to *http://www.msha.gov/SOSA/SOSAhome.asp* or call (614) 265-6910.

Other Information

The Kentucky Division of Abandoned Mine Lands did not create or cause the various mine-related problems existing throughout Kentucky. DAML is simply a government agency with the ability to reclaim problems related to old mining. Living near or developing on or near, AML sites is not an assurance that our program can provide assistance. Many factors are involved in the eligibility and priority decision regarding a particular problem and each problem is evaluated individually. The Kentucky DAML discourages residing and/or developing on or near AML sites. We recommend that a qualified engineer, or other appropriate professional, assist in site evaluation for AML hazards prior to development or property improvement. However, DAML is not able to assist landowners or developers with AML site evaluations for development purposes.

AML PROBLEM TYPES

There are many different types of abandoned mine land problems. These problems include highwalls, landslides, drainage problems, mine entries, vertical openings, water impoundments, mine spoils, subsidence, and others. Some of the most common problems are discussed in detail in this guide.

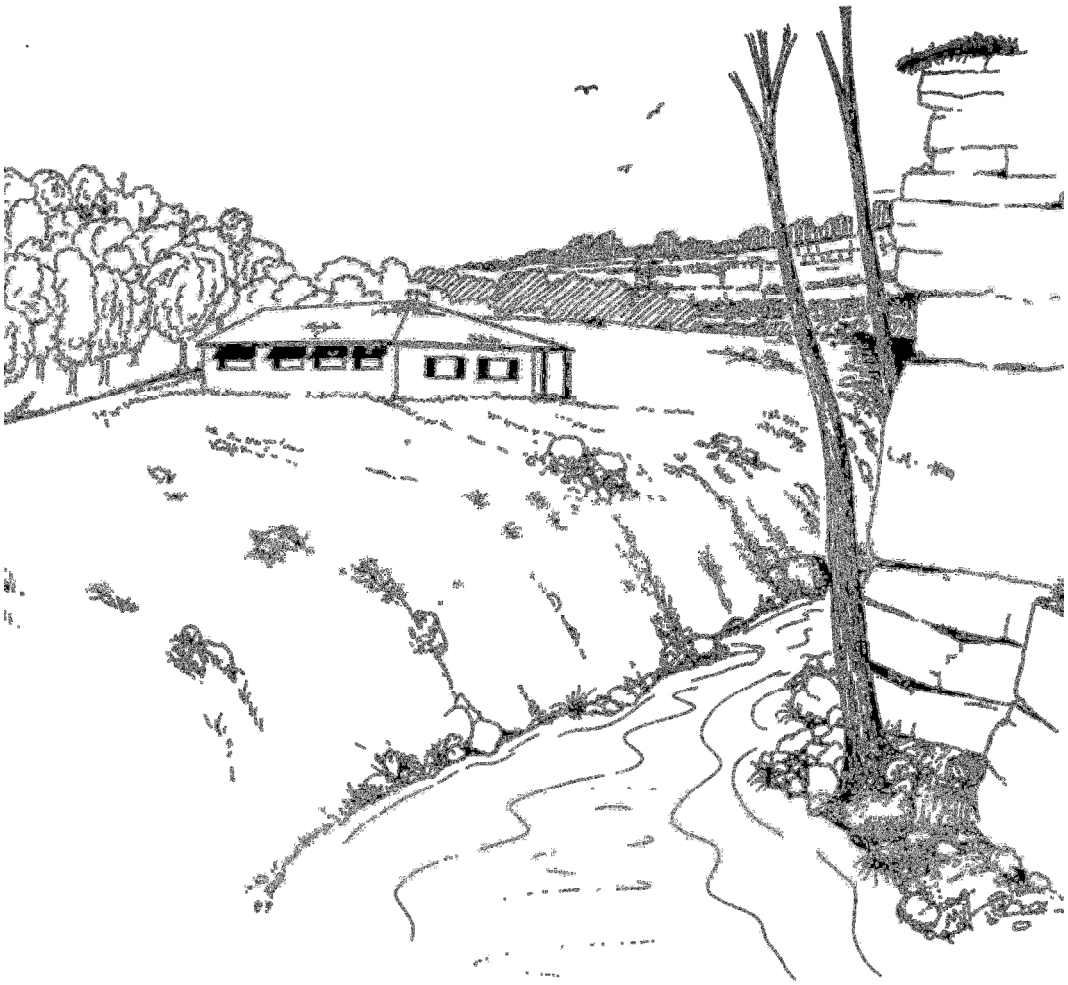
HIGHWALL PROBLEMS

Background

Prior to the requirement of returning mine land to approximate original contour (AOC), vertical rock faces, called highwalls, were often left as a result of mining operations. These highwalls were not created with long term stability in mind. Some highwalls exceed 100 feet in height and, depending on the rock strata composition, can be unstable. As a result, highwalls can present a significant danger when in close proximity to occupied structures, public roads and/or frequently visited sites.

Development Considerations

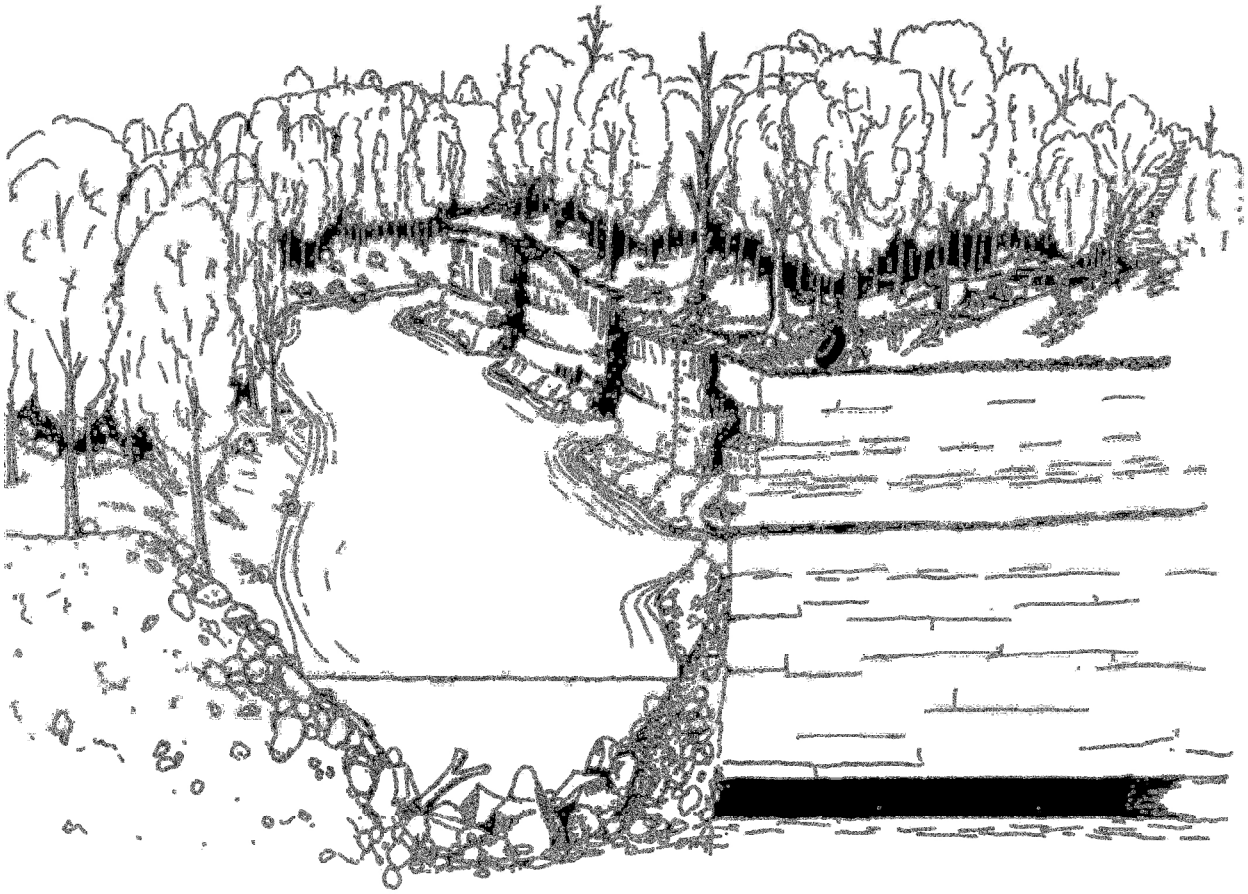
- Structures built above or below highwalls may be damaged by falling rock. Highwalls are inherently unstable because blasting and heavy mining equipment were used to create these vertical rock faces.
- Building near a highwall increases safety concerns. Falling and impact injuries can result from human activity above or below highwalls via unnoticed drop-offs or rock faces giving way. Falling rocks can damage homes, roads, and utilities.



Home built on mine spoil next to dangerous highwall

Eligibility Criteria

The primary responsibility for preventing injury or property damage from rockfalls or other highwall-related problems rests with the property owner because highwalls, and their inherent dangers, are clearly evident before locating near them. Prudence dictates that buildings, play areas and other facilities frequented by people should not be located near a highwall. A rock wall created by blasting to facilitate coal removal is inherently unstable. The fractured rock is apt to fall at any time because of the instability. As with many mine features, caution is advised and avoidance is strongly encouraged. As a result, the Division of Abandoned Mine Lands will not offer assistance for problems related to highwalls except under the following conditions as described in the Kentucky DAML Highwall Policy.



Dangerous highwall created by mining operation

Kentucky DAML Highwall Policy

In order for a highwall to qualify for AML assistance under the Kentucky AML Program, the highwall must have been created by coal mining that ceased prior to May 18, 1982. Additionally, the highwall must also be evaluated under the following criteria.

1) Has the highwall been affected by non-mining activity since the cessation of mining operations? If "yes", not including disturbances mentioned in #2 below, the highwall does not qualify for DAML assistance. If "No", go to # 3.

2) Is the affected portion of the highwall part of, or immediately adjacent to, a previous OSM or DAML reclamation project that addressed instability problems of a portion of the highwall? If "Yes", the highwall may qualify for AML assistance. If "No", go to # 3.

3) Was the structure being impacted (home, road, or other structure) placed in its current location prior to May 18, 1982? If "Yes", the affected portion of the highwall may qualify for AML assistance. If "No", go to # 4.

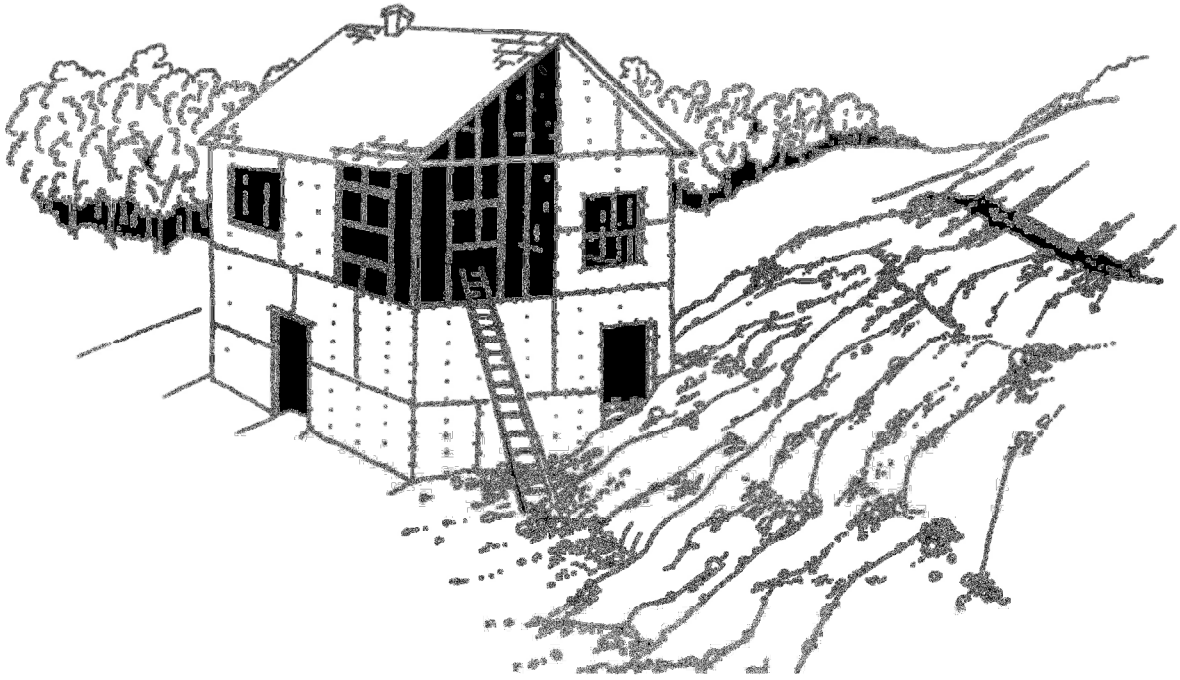
4) Was the structure placed at a distance from the highwall approximately equal to, or greater than, the height of the highwall? If "Yes" go to #5. If "No", this is an indication that the property owner failed to address the obvious hazards of the highwall and, as a result, AML assistance will not be provided with inappropriate site development as the reason. However, there may be other measures taken by the property owner at the time of site development, such as construction of a barrier wall, netting, reverse grading of the property to protect against rolling debris, etc., that can be evaluated as to appropriate design and anticipated effectiveness. If additional measures taken by the property owner were found to have been a reasonable alternative to just location, then go to # 5.

5) Is the current unstable condition of the highwall a result of normal weathering process such as freeze/thaw or wind/water erosion, or is it the result of some unforeseen mine-related activity (i.e. mine opening collapse, mine subsidence, etc.)? If the answer to the former is "Yes", AML assistance will not be provided because the problem is the result of natural geomorphic processes and not an unforeseen occurrence directly related to past mining activity. If the answer is "No", the affected portion of the highwall may qualify for AML assistance.

LANDSLIDE PROBLEMS

Background

Steep terrain is naturally subject to instability in the form of landslides. This is the case regardless if mining occurred in the vicinity or not. However, abandoned mining can cause or contribute to landslides in various ways. Material cast over the slope during excavation to reach coal seams, or drainage coming from a mine-related source, are two mine-related causal connections of landslides.



Site grading for house construction can cause landslides

Development Considerations

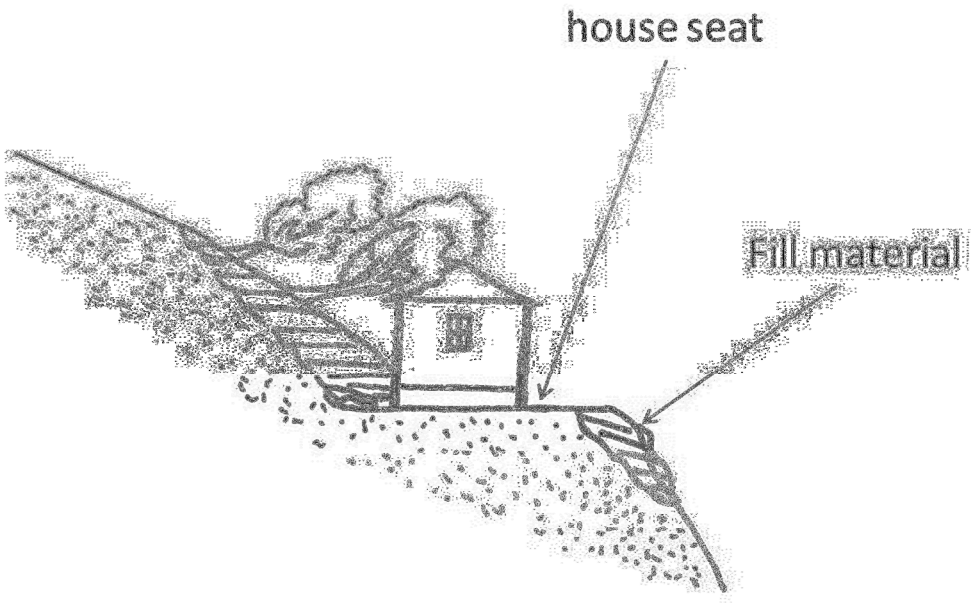
- Hillsides are often disturbed to accommodate roads, houses, mobile homes, or other development. Constructing a bench or a level area on a hillside, whether composed of undisturbed natural ground or mine spoil, and not incorporating proper support measures, can result in landslides because:

    - Undercutting material on a hillside will reduce toe or base support for the upper portion of the slope.

    - Excavating hillside material and improperly placing it can overload a slope. This activity can cause a landslide because the excavated spoil material adds additional weight to the slope, which can make the entire hillside unstable. In addition, excavated material is generally unconsolidated, and as a result, is subject to drainage-related instability.

- Subsurface waters or springs can cause hillsides to become saturated and eventually unstable, regardless of whether or not they are excavated or near mining. Hillside excavation and grading without installing proper drainage and support systems can result in hillside instability.

- Placing a septic system in house seat fill material is not prudent. Septic system construction loosens soils and provides a mechanism for natural water flow and septic discharges to saturate slopes. This action has resulted in many landslide occurrences.



House seat excavation and fill activities have caused landslides in front of and behind homes. Septic systems placed in fill material in front of homes cause landslides also.

- Vegetation plays a vital role in hillside stability. Unvegetated or poorly vegetated slopes lack adequate root anchoring and water infiltration control abilities to help prevent landslides.

Eligibility Criteria

In order for a landslide to qualify for AML assistance under the Kentucky AML Program, the landslide must have been primarily caused by coal mining that ceased prior to May 18, 1982. The primary cause must be established via a physical and/or hydrological connection. Factors disqualifying a landslide for reclamation under the DAML Program are as follows:

- Placing unconsolidated material generated from house seat construction or road building activities on a slope and failing to properly compact, vegetate, provide drainage controls, and support the material.

- Excavating the toe of a slope and not properly supporting the slope, regardless of whether or not the material that is excavated is natural ground or mine-related pushover spoil material.
- Directing household water into an area that is, or could become, unstable. Household water includes septic system water, household water not discharged into the septic system such as wash water, and roof drainage water from gutter downspouts.
- When reasonable measures are not taken to adequately route or control naturally occurring surface or subsurface water away from a property. This includes surface perimeter ditches at the base of slopes, gutter discharge controls, and driveway ditches and culverts.
- Locating buildings or other areas in the path of a natural drainage courses. This action is not prudent and potentially subjects the area to significant drainage problems and related landslides, regardless if mining exists in the area.

DRAINAGE PROBLEMS

Background

Surface and subsurface drainage patterns and flow rates may have been altered as a result of land use practices, development, and vegetative changes. Past mining is one activity that may impact these long established drainage patterns and flow rates. Areas disturbed by surface mining, and especially underground mining, can store and discharge a significant amount of water to both surface and groundwater flow. This water flow can cause, or contribute to, slope instability, foundation damage, wet basements, saturated yards, mold and mildew problems, and road hazards.

Development Considerations

Extreme caution should be exercised when excavating near mine entries or seepage areas near coal seam outcrops to avoid intercepting a flooded underground mine. Underground mines can store large volumes of water, and if suddenly discharged, can result in physical harm, property damage, downstream flooding, and/or water pollution problems. Available documented mining resources for both surface and underground mining should be reviewed to determine the existence and extent of mining prior to development or property improvement. The Kentucky Office of Mine Safety and Licensing (KOMSL) is an excellent resource for documented mining. www.minemaps.ky.gov.

Eligibility Considerations

In order for mine drainage to qualify for AML assistance under the Kentucky DAML Program, the mine drainage must be the result of coal mining that ceased prior to May 18, 1982. Landowner responsibility for mine drainage problems must also be considered when eligibility determinations are made. Factors disqualifying mine drainage problems for reclamation under the DAML Program are as follows:

- The landowner has contributed to the drainage problem by adopting poor land management practices such as allowing over grazing or removing vegetation.

- The landowner or public road authority has improperly sized culverts.

- The landowner has failed to maintain a stream course and existing drainage controls by not removing debris such as logjams or garbage.

- The landowner has placed structures in the path of a natural drainage course or attempted to move, or reroute, the natural drainage channel around a developed area.

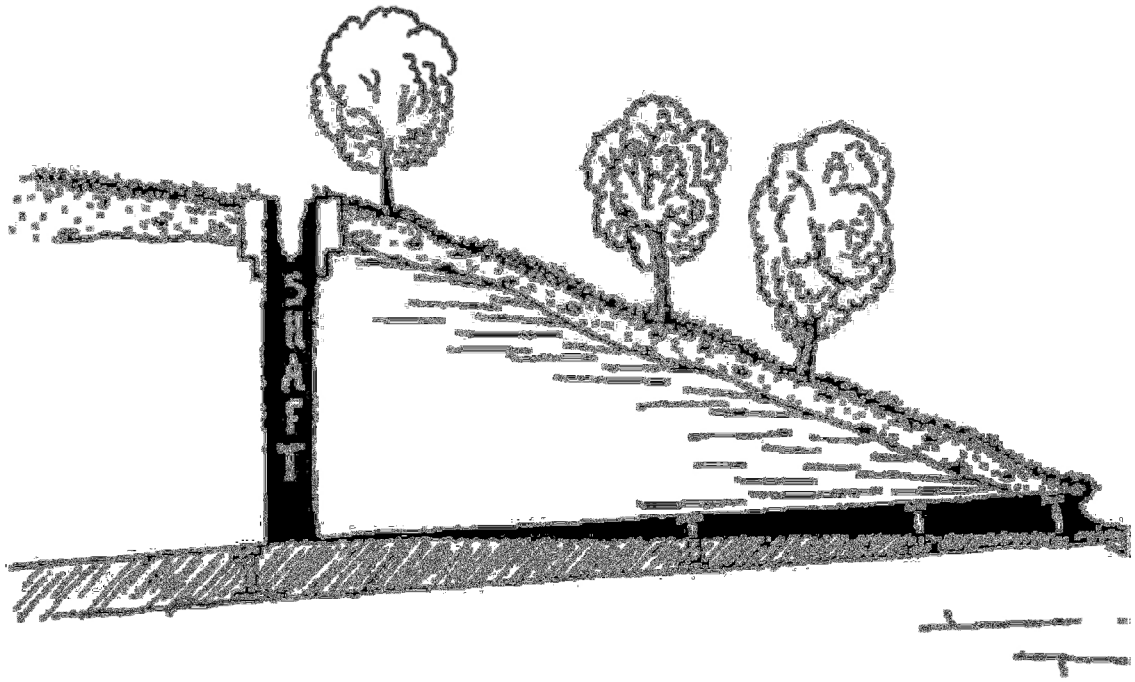
- The landowner has placed structures in a floodplain such that the property would be subject to flooding and drainage problems regardless of the existence of mining in the area.

- The landowner has not adequately addressed surface drainage around the structure (existence and conditions of roof gutters, establishing proper surface grades and placement of subdrains and ditches on the house seat to prevent property saturation and hillside instability).

MINE ENTRY PROBLEMS (Portals and Vertical Shafts)

Background

Underground mines are entered through horizontal or sloped entrances (portals or adits) or vertical openings (shafts). With no provision for continuous maintenance, previously sealed entrances, as well as unsealed open entrances, can pose serious public health and safety problems. These problems include the presence of potentially explosive levels of methane gas and low levels of oxygen. The collapse of mine shafts and tunnels leading away from the portals and slope entrances can also have negative consequences for those entering abandoned mines and for the immediate area surrounding the entries.



Vertical mine shaft entry and portal (horizontal or sloped mine entry)

Development Considerations

Mine openings that are open, or improperly sealed, are inherently unsafe. These entries can be easy to see or could be concealed by years of vegetative growth or past landscaping practices. Some portals (horizontal entries) are the sources of mine drainage discharge. Mine openings are considered dangerous attractive nuisances especially to children and young adults. Developing near these openings increases public access. Portals and vertical mine openings are dangerous to people who locate or venture near them because of cave-ins, mine gases, and drainage problems. Problems with developing or building near mine entries include:

- Potential foundation problems for structures built above an old mine in the event of a collapse of the opening, or portion of the mine, under the structure or road.
- Mine drainage seepage into foundations or basement areas.
- Mine drainage seepage can cause hillside instability.
- Mine gas infiltration onto property located near mine entries.

Eligibility Criteria

In order for mine entries to qualify for AML assistance under the Kentucky DAML Program, they must be the result of coal mining that ceased prior to May 18, 1982.

- Collapsed or sealed mine entries that are purposefully or inadvertently opened during the course of property development, improvement, or other property-owner action will not qualify for AML assistance.

WATER IMPOUNDMENT PROBLEMS

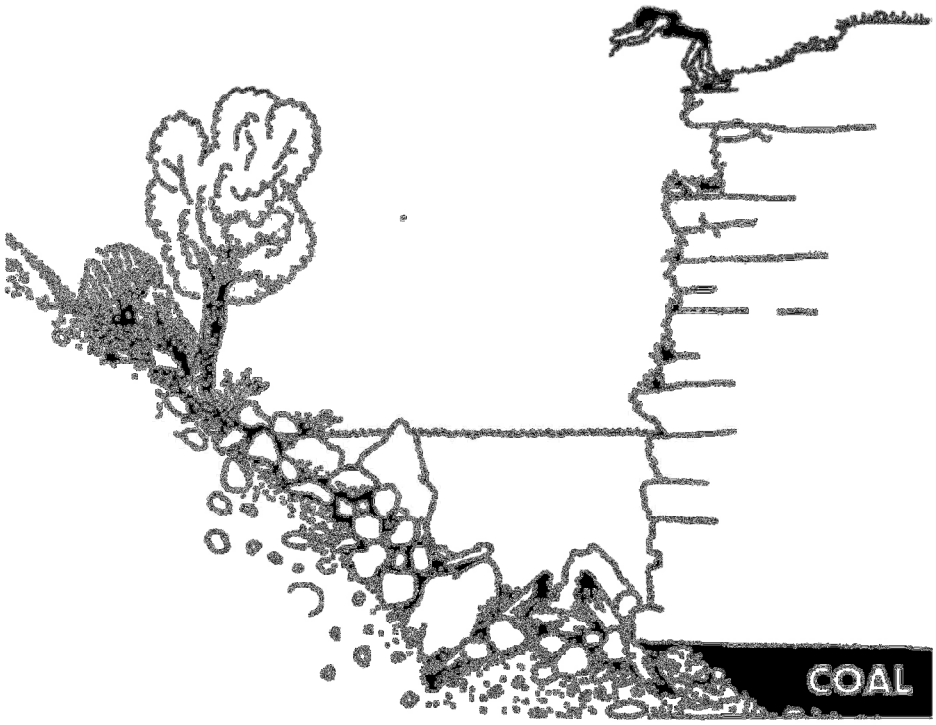
Background

Prior to the requirement of returning mine land to approximate original contour, the final cut of a strip mining operation often left an open pit between the highwall face and a spoil pile. Depending on the area of surface drainage and the configuration of the spoil material, these pits can impound water. In addition, impoundments also exist in the form of sediment control structures left after mining ceased. If water quality is good, both of these types of impoundments can be attractive nuisances to recreational enthusiasts. Impoundments can also present a flooding potential if the spoil or dam retaining the water is unstable. These impoundments can retain large quantities of water, sediment and coal slurry that, if suddenly discharged, can result in flooding and sediment deposition downstream.

Development Considerations

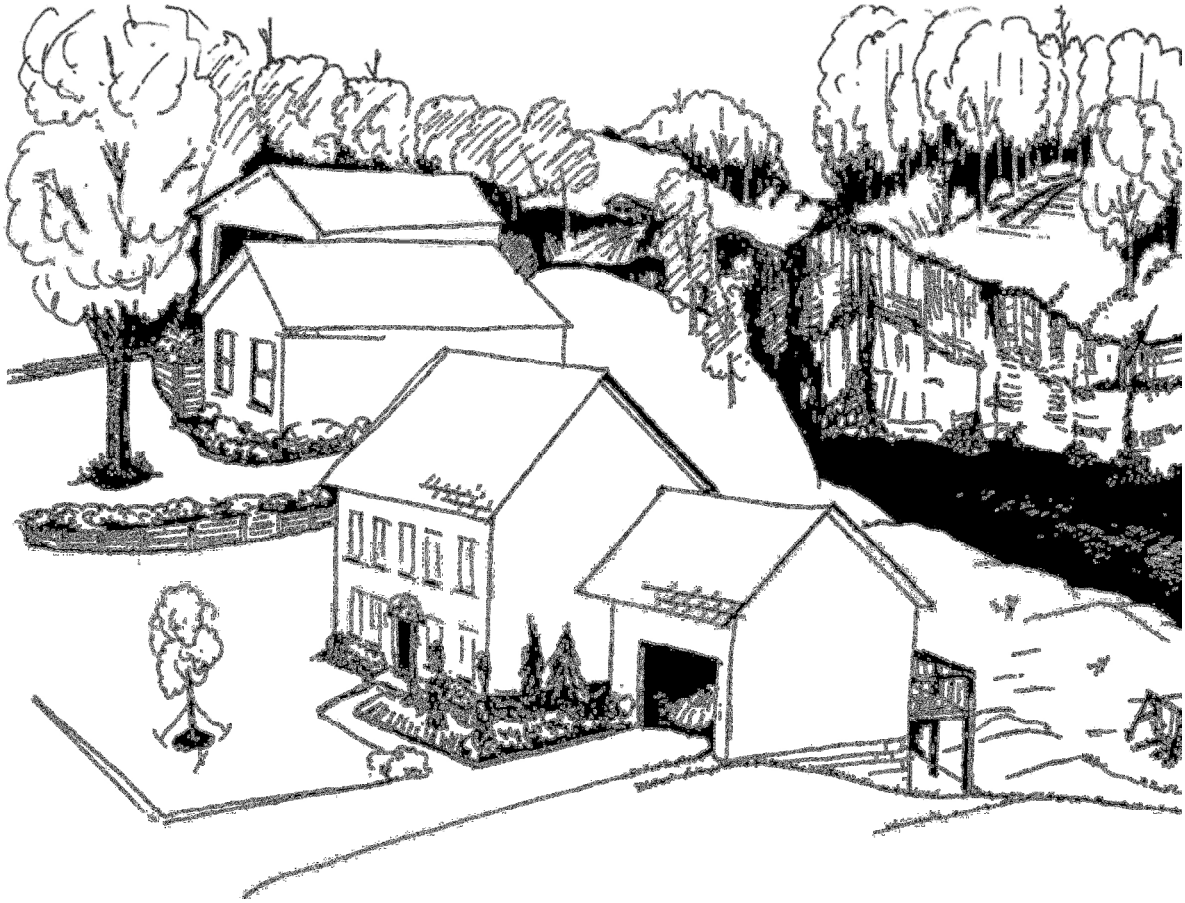
Impoundments left behind by mining operations can pose many safety problems, such as:

- Potential flooding problems due to heavy seasonal rains.
- Impoundments can saturate surrounding areas and create seeps, which can cause hillside instability.



Underwater dangers of swimming in an impoundment created by mining.

- Water quality problems can make the impoundment unsuitable for aquatic life or swimming. Impoundments can also be breeding grounds for mosquitoes.
- Impoundments can be very dangerous for swimmers due to unstable vertical rock faces, steep drop-offs, large rocks, abandoned mining equipment, garbage, trees, or other debris hidden beneath the water surface.
- Impoundments can be attractive nuisances for the public, causing visitation and dangerous usage practices.



Homes constructed near mine impoundment.

Eligibility Criteria

In order for a water impoundment to qualify for AML assistance under the Kentucky DAML Program, the impoundment must have been created by, or primarily caused by, coal mining that ceased prior to May 18, 1982.

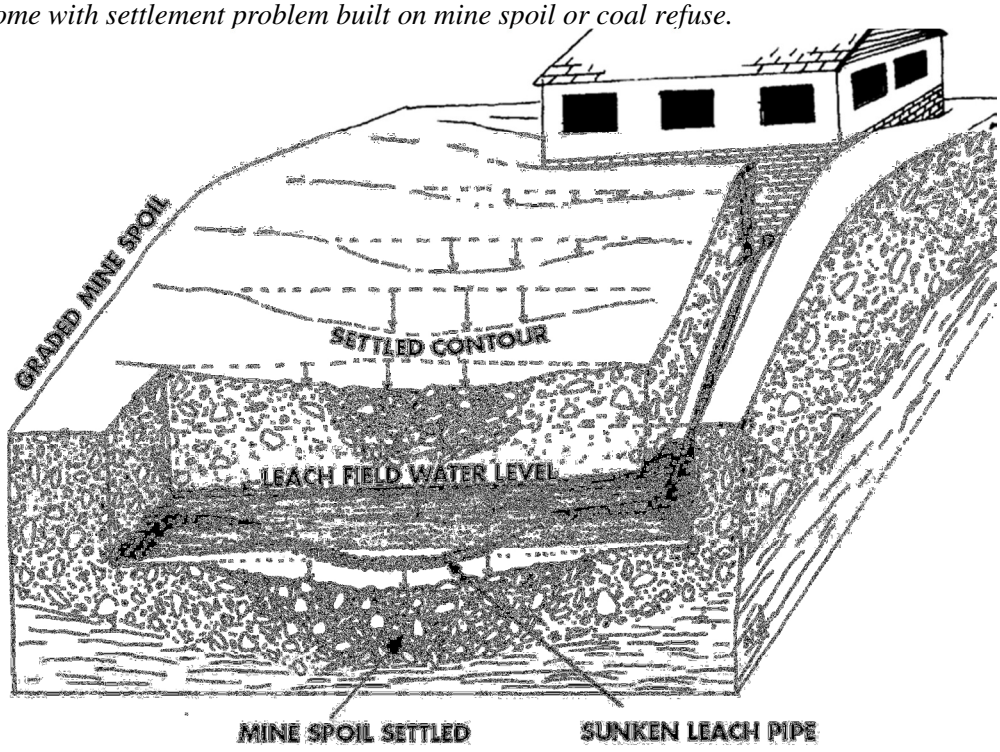
- Problems with mining-related impoundments, where 1) the property is owned by the same owners at the time the mining occurred and 2) the property owners legally released the mining entity from further liability of an impounding structure after the mining ended (via signing a waiver requesting that an impoundment be left in place thereby accepting the associated maintenance responsibility) are not eligible for AML funding.

MINE SPOIL/COAL REFUSE PROBLEMS

Background

Mine spoil is intermixed unconsolidated rock, rock fragments and soil that can result from mining operations. Coal refuse is waste coal, with some crushed rock impurities, left as a result of coal processing or separating. In its post-mining state, mine spoil and coal refuse may still be combustible, and if unvegetated, can be highly erosive, and can be a significant source of sediment and acid mine drainage to streams. Stream flow capacity can be reduced or constricted due to sediment accumulation. Mine spoil and coal refuse, even if reclaimed, are prone to burning, erosion, settlement, and other movement via freeze-thaw cycles.

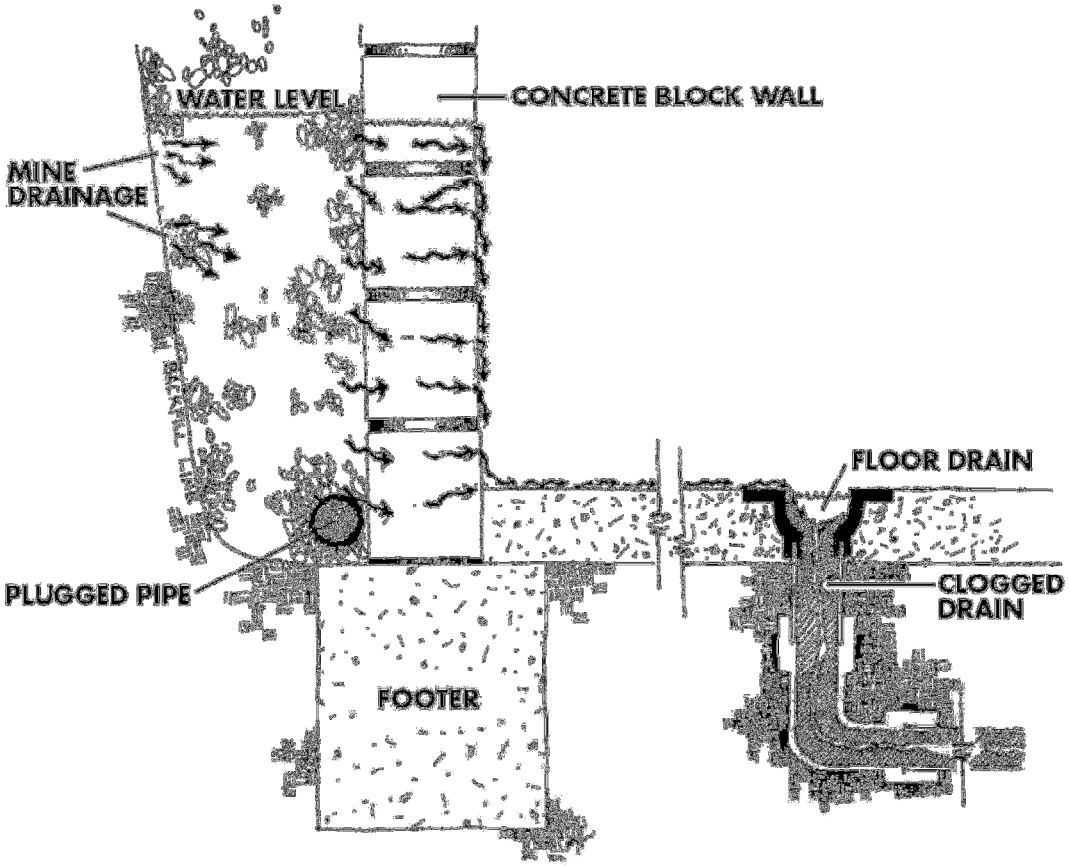
Home with settlement problem built on mine spoil or coal refuse.



Development Considerations

- Development on, or near, mine spoil or coal refuse is highly discouraged. Buildings and septic systems can be damaged as a result of mine spoil settling under the foundation, or sliding down slope.

- A building's footer drains can stop functioning as a result of mineral leachate clogging the drainage system. Coal refuse and certain types of mine spoils have high amounts of minerals, which are susceptible to leaching when introduced to air and water.



Mine water clogging foundation drainage system

- Septic systems and their leach fields can be damaged and no longer function properly as mine spoil settles. Improperly constructed septic systems, whether in mine spoil or not, are subject to settle in inadequately compacted and stabilized material. This settlement can result in numerous problems including landslides caused by septic system influenced drainage.

- Mine spoil/coal refuse piles are composed of flammable coal fragments that can ignite in a variety of ways including burning trash on or around a refuse area, lightning strikes, forest fires, careless home owners or campers, spontaneous combustion, or arson. Mine spoil/refuse fires and associated toxic smoke and fumes can threaten the health and safety of nearby residents. Even after a fire is extinguished, voids are sometimes created from burnt material below the surface. The surface area above the voids can suddenly collapse and injure persons or animals walking on the area.

- In certain circumstances, such as wet conditions and low atmospheric pressure, mine spoils can emit hazardous gases such as carbon dioxide (CO2), possibly affecting a home, and its residents, if it is located on or near mine spoil.

Eligibility Criteria

In order for mine spoil or coal refuse problem to qualify for AML assistance under the Kentucky AML Program, the mine spoil or coal refuse must have been created and placed at its current location by coal mining that ceased prior to May 18, 1982.

- A landowner is responsible for determining the presence of mine spoil or coal refuse when considering a site for development. Furthermore, a landowner is responsible for adopting construction methods that will ensure stability and control drainage should an abandoned site, either in a reclaimed or unreclaimed state, be developed. The fact that eligible mine spoil or refuse may exist at a site is not enough justification on its own to warrant assistance from DAML.

- Consult a trained professional who can provide proper design and construction techniques for minimizing mine-spoil-related problems prior to site development. This may include, but is not limited to, compaction of mine spoil to prevent settling, selecting certain soil types for sanitary leach fields, and incorporating proper retention and drainage systems as needed.

MINE SUBSIDENCE PROBLEMS

Background

Extracting coal from deep mines can result in mine subsidence when the pillars of coal and the roof supports that were left in the mine can no longer support the bedrock above the mine. This loss of support is transferred to the ground surface which also drops, creating possible structural problems for houses, roads or utilities in the subsidence area as well as possible surface cracks, holes, and voids that can be a public safety concern. When buildings are damaged as a result of mine subsidence most insurance policies do not automatically cover the damage to your home. The Kentucky Mine Subsidence Insurance Fund is administered by the Department of Insurance. This fund allows individuals residing in certain counties to purchase insurance for protection from structural losses due to mine subsidence. For assistance with subsidence issues regarding damage to homes, property, or other structures, you can contact your property insurance company or the Property and Casualty Division of the Department of Insurance, P.O. Box 517, Frankfort, KY 40602-0517, phone number (502)564-3630, (800)648-6056 (TDD), or (800)595-6053 (Toll Free – Kentucky only).

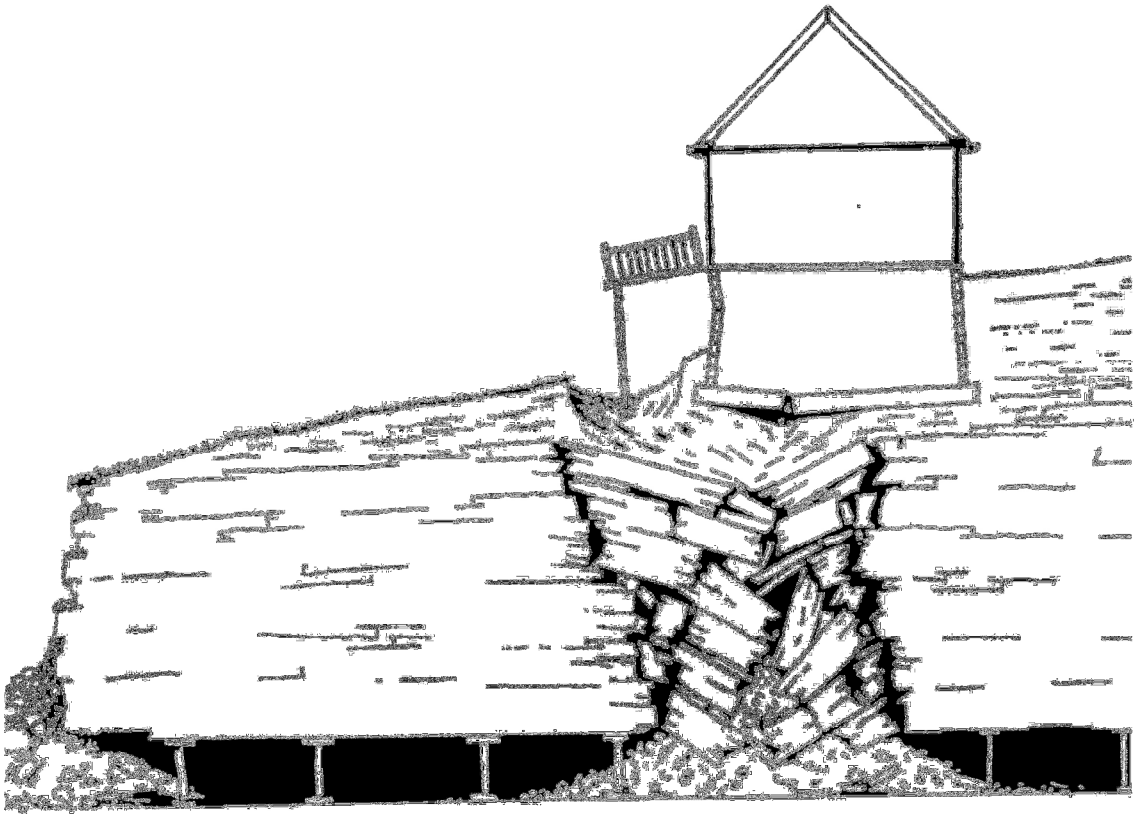
Development Considerations

- Building homes, garages, roads, septic systems and other such features above or near abandoned underground mines can result in structural problems if subsidence occurs.

- Yards, parks, gardens or other areas near structures can be impacted by surface impacts of mine subsidence. These impacts include holes, voids, and cracks that can present a safety hazard to people or animals in the area.

- Depending on the depth of the mine relative to the surface elevation, problems can develop even if the area is not located directly over mine workings.

- Building near or above an abandoned underground mine, like many AML areas, requires a thorough review to determine subsidence potential. Documented mine map resources should be thoroughly reviewed. www.minemaps.ky.gov is an excellent resource.



House impacted by mine subsidence.

Eligibility Criteria

In order for subsidence-related problems to qualify for AML assistance under the Kentucky AML Program, the subsidence-related problem must be primarily caused by mining that ceased prior to May 18, 1982.

- AML funding cannot be used to repair structures that have been impacted by subsidence. Funding can only be used in an effort to abate the subsidence problem, such as filling a subsidence-related void to eliminate the void and stabilize the area.

ADDITIONAL INFORMATION

Recommendations to local zoning, land use planning, and development entities for developing, improving, and residing on land in the Kentucky coal fields:

- Make mine map resources available at county offices and encourage their use.
- Incorporate mine map resources into your comprehensive planning process and direct development to areas that are geologically stable.
- Use regulations to ensure that developers have provided for land stability if surface and/or underground mines are in the area. Specifically cite "surface and underground mines" in your regulations. Areas more susceptible to underground mine subsidence can be set aside as open space if underground mine subsidence stabilization is cost prohibitive.
- Add "underground mines" and "surface mines" to your site review checklists.
- Be aware that not all mines are mapped, particularly older mines, and many records no longer exist.
- Mine maps may not be very accurate and should be used only as a general planning tool, not as a guarantee of the exact location of mine features.
- Gather detailed information about surface and subsurface conditions through mine map resources and geotechnical investigations (core borings and analysis).
- Compile a list of geotechnical firms and available resources in your region.

ADDITIONAL RESOURCES

Kentucky Division of Abandoned Mine Lands

www.aml.ky.gov

Frankfort Office (headquarters):
300 Sower Blvd.
Frankfort, KY 40601 502-564-2141

Prestonsburg (regional) Office:
3140 South Lake Drive, Suite 5
Prestonsburg, KY 41653 606-889-1741 or 606-889-1742

Counties covered:
Boyd, Carter, Elliott, Floyd, Greenup, Johnson, Knott, Lawrence, Letcher, Magoffin, Martin, Menifee, Morgan, Pike

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London (regional) Office:
85 State Police Road
London, KY 40741 606-330-2085

Counties covered:
Bell, Breathitt, Clay, Clinton, Estill, Harlan, Jackson, Knox, Laurel, Lee, Leslie, McCreary, Owsley, Perry, Pulaski, Rockcastle, Wayne, Whitley, Wolfe

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Madisonville (regional) Office:
625 Hospital Drive
Madisonville, KY 42431 270-824-7534 or 270-824-7535

Counties covered:
Breckenridge, Butler, Caldwell, Christian, Crittenden, Daviess, Edmonson, Grayson, Hancock, Hart, Henderson, Hopkins, Logan, McClean, Muhlenberg, Ohio, Todd, Union, Webster

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Hazard Office (Emergency Branch)
Hal Rogers Center
101 Bulldog Lane, Suite 103
Hazard, KY 41701 606-487-1110 or 606-487-1111

Counties covered: *Entire state (Eastern and Western KY coalfields)*

Kentucky Division of Mine Permits (DMP) www.minepermits.ky.gov

Kentucky Mine Mapping Information System www.minemaps.ky.gov

Federal Office of Surface Mining Reclamation and Enforcement (OSMRE) www.osmre.gov