

## **SUBSIDENCE - ABANDONED MINES IN PENNSYLVANIA**

### Problems and Solutions

Pennsylvania coal has been mined since the 1800's<sup>1</sup>. Before 1977<sup>2</sup> under-regulated mining left open pits, coal refuse, spoil piles, acid mine drainage, open shafts, erosion, clogged streams, undermined areas with subsidence potential, underground fires and damaged buildings throughout the nation.<sup>3</sup> States began promulgating reclamation laws as early as the 1930's<sup>4</sup>. Pennsylvania and the Federal Government further implemented mining reclamation efforts in 1967.<sup>5</sup> Prior to 1967, and to worse effect prior to 1930, the likelihood of finding accurate maps, ownership and mine operations records is reduced.

One of the ill effects of under-regulated mining is subsidence. "Ground subsidence" is a downward displacement of surface materials caused either by natural phenomena (removal of underground fluids, dissolution of underground minerals) or by man-made phenomena (underground mining). Subsidence may occur instantly or gradually over time. It may occur uniformly over a wide area as local depressions or pits separated by areas which have not visibly subsided. It is most common in the sedimentary rocks over abandoned coal and clay mines. Subsidence can also occur where underground water has dissolved subsurface materials or has been withdrawn by wells.<sup>6</sup>

The criteria for recognizing actual or potential ground subsidence conditions include an evaluation of historic, geologic, and hydrologic factors and periodic measurements. Historic evidence includes the deed and title records to the land, common knowledge of long term area residents, official records of state, local, and federal agencies (especially with respect to past mining activity), and unofficial sources of information such as unofficial mine maps, newspaper accounts, and published books of a historical nature.

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<sup>1</sup> PA DEP Bureau of Abandoned Mine Reclamation, [www.dep.state.pa.us/dep](http://www.dep.state.pa.us/dep)

<sup>2</sup> The US Congress passed the Federal Surface Mining Control and Reclamation Act in 1977 (SMCRA).

<sup>3</sup> SMCRA contains an Abandoned Mine Lands (AML) program to clean up previously abandoned coal mines. SMCRA also created the Abandoned Mine Reclamation Fund, a program administered by the Office of Surface Mining (OSM) within the Department of the Interior and funded by a tax on coal production. The requirements concerning the process of abandoning various types of mining operations are covered by the Coal Mine Sealing Act of June 30, 1947, P. L. 1177, the Act of June 2, 1891, P. L. 176, the Act of June 9, 1911, P. L. 756, the Anthracite Strip Mining Law of June 27, 1947, P. L. 1095, the Bituminous Coal Open Pit Mining Conservation Act of May 31, 1945, P. L. 1198, and the Act of July 7, 1955, P. L. 258. See Abandonment of Coal Mines, Pennsylvania Department Of Justice, 17 Pa. D. & C.2d 417; 1958.

<sup>4</sup> Pennsylvania Act of June 2, 1891, P. L. 176, Pa. Stat. tit. 52, §§ 71 to 617 (regulating deep anthracite mining); Pennsylvania Act of June 9, 1911, P. L. 756, Pa. Stat. tit. 52, §805, et seq.; Clean Streams Law enacted in 1937, 35 P.S. § 691.1, et seq.; Pennsylvania Anthracite Strip Mining Law of June 27, 1947, P. L. 1095, as amended, Pa. Stat. tit. 52, §§ 681.1 to 681.22; Pennsylvania Act of July 7, 1955, P. L. 258, Pa. Stat. tit. 52, §§ 682 to 685; The Bituminous Mine Subsidence And Land Conservation Act passed in 1966, amended in 1994, 52 P.S. § 1406.1, et seq.

<sup>5</sup> "A Mine is a Terrible Thing to Waste: Past, Present and Future Reclamation Efforts to Correct the Environmentally Damaging Effects of Coal Mines." A. Brooke Rubenstein, David Winkowski, 13 Vill. Envtl. L.J. 189 (2002).

<sup>6</sup> [geosurvey.state.co.us](http://geosurvey.state.co.us)

If you are buying land (with or without an existing structure) you will customarily obtain a search of the public records with respect to title to the land. These records can be searched back to the 1800's in most counties. Often the customary practice is to search only to a previous owner's title policy date, or to the deed in to your grantor. If the deed or title records contain coal notices, references to mineral or coal deeds or leases, or other evidence of active mining in the area, then explore the public, official and unofficial records further to determine the likelihood that the property may be undermined.

The following are links to internet sites that contain some mine maps and information, and/or have links to sources for additional mine data: The Pennsylvania Department of Environmental Protection Mine Map Repository, at [www.dep.state.pa.us/dms\\_apps/search\\_maps.htm](http://www.dep.state.pa.us/dms_apps/search_maps.htm) ; The Earth and Mineral Sciences Library at [www.cat.libraries.psu.edu/minemap](http://www.cat.libraries.psu.edu/minemap) ; the Pennsylvania Department of Conservation and Natural Resources at [www.dcnr.state.pa.us/topgeo](http://www.dcnr.state.pa.us/topgeo) ; the US Department of the Interior Office of Surface Mining at [www.arcc.osmre.gov](http://www.arcc.osmre.gov). Pennsylvania is currently in the process of compiling a comprehensive mine map resource.

If you determine the property is likely undermined, and/or if you notice physical subsidence of the land, determine whether the subsidence problem is caused by abandoned mine conditions and the extent of the condition. In addition to actual undermined cavities, additional hazards can be posed by mine air shafts and various other mine workings. You may also find acid mine drainage conditions. "Final mine maps" may not show the actual extent of mining or the location of shafts. Discrepancies in survey ties between the mine maps and surface reference points may be sizeable. Many undermined areas have incomplete or nonexistent records.<sup>7</sup> There are geotechnical engineers and mine reclamation experts who specialize in identifying and remedying mine subsidence conditions. If a municipality, municipal authority or non profit organization qualifies for aid, the PA DEP, through the Bureau of Abandoned Mine Reclamation may provide assistance or funding for mine reclamation efforts. The BAMR site is at [www.dep.state.pa.us/dep/deputate/mineres/bamr/bamr.htm](http://www.dep.state.pa.us/dep/deputate/mineres/bamr/bamr.htm).

Damage to existing structures: The Bituminous Mine Subsidence and Land Conservation Act (BMSLCA) provides for restoration or compensation for certain structures damaged by underground mining, and requires that mines leave surface support for existing structures<sup>8</sup> whether or not the title to surface support has been severed. An owner of such a structure which is damaged by or at risk of damage due to mine subsidence can claim against the mine owner or operator. This remedy is often not viable in the case of old, abandoned mines, where the responsible parties cannot be located.

Property owners can obtain insurance against potential subsidence risk or loss. Standard homeowners' and "all risk" insurance policies usually exclude coverage for losses caused by mine subsidence. Pennsylvania established the Mine Subsidence Insurance Fund in 1961 to provide a source of insurance against losses caused by underground coal and clay mine subsidence. Structures eligible for coverage are completed buildings with walls, a roof and a foundation that firmly anchors the building to the earth. Homes that have unrepaired damage from an earlier mine-subsidence problem are not eligible. If the earlier damage already is repaired, then those homes would be

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<sup>7</sup> [geosurvey.state.co.us](http://geosurvey.state.co.us)

<sup>8</sup> 52 P.S. §1406.5d; 52 P.S. §1407.

eligible. Buildings that are under construction also may be eligible for coverage under a special construction policy.<sup>9</sup>

**Raw or Vacant Land:** The owner or purchaser of vacant land which is in danger of subsidence, and where title to surface support has been severed, does not have the benefit of the BMSLCA provisions requiring surface support for existing structures. A party intending to build structures on undermined land, or land where the mineral rights have been conveyed to another, should first determine the rights that have been conveyed and the likelihood of additional mining activity occurring beneath the land. Often a mine may contain remnants of coal, coal pillars, or veins not yet mined. The mine may, or may not have been abandoned.

Pennsylvania recognizes three separate estates in land: the mineral estate, the surface estate, and the "support estate". *Keystone Bituminous Coal Assn et al v. DeBenedictis, Secty, Pa DEP*, 480 U.S. 470 (1987). When acquiring title to the mineral estate, the mining entity may also acquire additional rights, such as the surface support, the right to deposit wastes, the right to provide for drainage and ventilation, and the right to erect facilities such as tipples, rail tracks, and roads on the surface (*Id.* at 484). Title to the surface of land carries with it the right to the minerals underneath unless there has been a physical severance of the minerals from the land or a severance of the mineral estate from the surface estate by a conveyance or otherwise. Minerals which have been physically severed from the land constitute personalty (goods, not real estate).

The Pennsylvania courts have held that the air space in the mine from which coal has been removed remains the property and under the control of the owner of the coal mine with mining rights and which estate had been severed from the surface estate. *Cramer v. Alberts*, 395 Pa. 510; 150 A.2d 840 (1959) (defendants caused sanitary sewers to empty into an air ventilating shaft which led from the surface above the coal mine, which plaintiffs alleged had been abandoned).

If the mineral or mining rights to a property have been severed, the current owner must make a determination whether those rights are still active and held by another, or if the mine has been abandoned, before the owner can take action that would affect an existing mine, such as remedial action to allow new construction. In some cases this determination can be difficult to make.

The Pennsylvania statutes define the term "abandoned coal mine" to mean any coal mine in which mining operations have ceased because of the complete exhaustion of coal, or the exhaustion of coal which it is practical to mine within the foreseeable future, or where exemption from taxation has been allowed because of the absence of mineable coal. 52 P.S. § 28.2. To assist with guidelines to determine whether or not a mine is "abandoned", the Pennsylvania Department of Justice has published the following guidelines:

I. To define "abandonment" in the abstract is a difficult task since it involves a factual determination of the intention of the mine operator or owner as ascertained

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<sup>9</sup> Pennsylvania Mine Subsidence Insurance Site at [www.pamsi.org](http://www.pamsi.org). The PA DEP Homeowners Guide to Mine Subsidence is at [www.dep.state.pa.us/MSIHomeowners](http://www.dep.state.pa.us/MSIHomeowners). The criteria for mine subsidence insurance is set forth in the Pennsylvania Code, Chapter 401, online at [www.pacode.com](http://www.pacode.com).

by his conduct or expressions. HN1Whether a mining operation is or is not abandoned, therefore, can be determined only in relation to a given set of facts.

Webster's New International Dictionary, 2d Ed., 1950, defines "abandonment" thusly: "Act of abandoning, or state of being abandoned (in any sense); total desertion";

"Abandon" is defined as: "To relinquish or give up with the intent of never again resuming or claiming one's rights or interests in; to give up absolutely";

Black's Law Dictionary contains the following: "Abandonment. The surrender, relinquishment, disclaimer, or cession of property or of rights." . . .

"To constitute 'abandonment' of a mining claim, there must be an intention to abandon, coupled with an act by which the intention is carried into effect." See 1 Words and Phrases 47 et seq.; 58 C. J. S. §§ 77 and 89.

Section 2 of the Coal Mine Sealing Act of June 30, 1947, P. L. 1177, 52 PS § 28.2, defines "abandoned coal mine" thusly:

"The term 'abandoned coal mine' shall mean any coal mine in which mining operations have ceased because of the complete exhaustion of coal which it is practical to mine within the foreseeable future, or where exemption from taxation has been allowed because of the absence of mineable coal."

It appears that unless a statute defines "abandonment", as does the Coal Mine Sealing Act of 1947, and does so clearly, the matter becomes one of examining the mining operation to determine the intention of the owner or operator. Even the Mine Sealing Act definition leaves open questions in other than the situation where exemption from taxation has been allowed because of the absence of mineable coal, e.g., when is coal completely exhausted? When is coal exhausted to a point where it is not practical to mine within the foreseeable future?

To aid in determining whether the facts indicate abandonment, the following lines of inquiry may be pursued:

A. If the owner or operator has stated in the filing of a notice with the Department of Mines and Mineral Industries or has affirmatively stated in some report filed with that department or any other agency that he intends to abandon his operation, that would be the clearest expression of intention. Such situation should preclude further inquiry, provided that the operator or owner has done nothing inconsistent with his expressions and that there is physical evidence of abandonment to substantiate the affirmative expressions.

B. If the owner or operator has stated in the filing of some report with the Department of Mines and Mineral Industries or in some other manner merely that he intends halting operations, the question remains whether the cessation of operations is equivalent to or is in fact abandonment; a study of the operation itself, in such case, would have to be undertaken.

The factors to be considered and the lines of inquiry to be pursued may be as set out below. It should be pointed out that determining whether a deep mine has been abandoned is a bit easier since there is more physical evidence than in the case of a stripping operation, and some of the following apply to only one of the two methods of operation:

1. If there was a lease, was it terminated or cancelled? The termination of a lease might indicate abandonment of operations.

2. Inquiry of taxing authorities for reports filed by operator or owner should be made. Real estate assessment evaluations and appeal statements in regard thereto should be reviewed. Frequently, to invite a reduction of assessment, there may be a statement of abandonment included in the proceedings. If so, that would be clear expression of intent.

3. If the operator has ceased to file reports regularly with the Department of Mines and Mineral Industries, that may be taken as an indication of abandonment. If the operation is one of stripping and the operator has permitted his stripping registration to lapse, that would point to abandonment.

4. Physical facts tending to show abandonment may be ascertained by actual inspection. Thus, evidencing an intent to abandon are the following, some of which items are applicable to only strip operations and some to only deep mining:

- a. All mineable coal has been extracted.
- b. The workings have been exhausted.
- c. Backfilling of stripping operations has been accomplished.
- d. The mine has been sealed.
- e. Highwall erosion has started.
- f. Maintenance of the operation has been discontinued.
- g. Ventilating equipment, rails, roadways, machinery and premises have been neglected.
- h. Machinery such as pumps, rails, etc., have been removed.
- i. The workings have been permitted to seep out water.
- j. The roof has been permitted to cave.
- k. The workings have been fenced off.
- l. The operation has not been fire bossed.

m. The work of maintaining supporting pillars to prevent surface subsidence, etc., has been discontinued.

n. It is impracticable to mine further because of fire, water, gas, or surface hazards.

o. It is impracticable to mine further because of lack of machinery or because of inadequate machinery.

5. Economic conditions may tend to show abandonment as when: (a) The quality of coal is so poor as to make the continuation of the operation inadvisable or economically unsound; (b) the amount of coal remaining is so small in amount as to negate the economic feasibility of operation; (c) the operator lacks capital or credit to continue the operation; (d) market conditions are such as to negate possible sale of the coal produceable at this particular operation; (e) it is impracticable to continue further mining because of excessive costs; (f) the mining site has been made inaccessible in some fashion.

6. The time in which an operation remains idle may be evidence of abandonment; there is a strong indication of abandonment if there is a long span of idleness.

To summarize, if the person viewing the operation, on the basis of experience in the field and considering those of the foregoing criteria applicable to the operation, finds as a reasonable conclusion that there has been abandonment, then that conclusion should be respected and the operator called upon to prove otherwise.

*-Abandonment of Coal Mines*, Pennsylvania Department Of Justice, 17 Pa. D. & C.2d 417 (1958).

If a coal mine is active, and not abandoned, any disruption of the mine areas or cavities would be prohibited without the consent of the person owning the mining rights. Once abandonment has been determined, the developer of undermined property would then make the determination as to the risk of subsidence. This determination would best be made with the advice of professional geotechnical engineers competent to analyze the depth of the mines and the characteristics of the land to calculate the risks of subsidence. If the undermined cavities do pose a risk to new structures, the cavities may be grouted to provide the necessary support. The impact of this activity, and potential for drainage of hazardous substances from the mining areas, must also be considered. Permitting and review of the plans will be required in connection with the mine grouting activity.

Any grantor of land by deed must disclose, pursuant to 52 P.S. §1406.14, whether any structure on the land conveyed is entitled to support from the underlying coal. The notice requirements are specific and read:

After the effective date of this act the grantor in every deed for the conveyance of surface land in a county in which bituminous coal has been found and is separately assessed for taxation shall certify in the deed whether any structure then or thereafter

erected on the land so conveyed is entitled to support from the underlying coal. If the grantor shall not certify that there is such a right of support, the grantee shall sign a statement printed in the deed in a contrasting color with no less than twelve point type that he knows that he may not be obtaining the right of protection against subsidence resulting from coal mining operations and that the purchased property may be protected from damage due to mine subsidence by a private contract with the owners of the economic interests in the coal. Such statement shall be preceded by the word "Notice" printed in the same color as the statement with no less than twenty-four point type. 52 P.S. §1406.14

In conclusion, property owners should take any evidence of mining activity near their land seriously, and investigate the potential for subsidence before damage occurs. If there is a potential for subsidence cost-effective insurance is available. Remedying an undermined land condition is possible with the assistance of engineers with expertise in the field, and must be done in compliance with the applicable federal and state statutes and regulations.