

# Pennsylvania

## The Largest Inventory of Abandoned Mine Land problems

For almost two centuries, coal has played a major role in the economic and industrial development of Pennsylvania. In the western region of the state, bituminous coal seams underlie about 12,000 square miles and account for 5.3 percent of U.S. reserves. Coal from that area fueled the steel industry of the Pittsburgh-Cleveland region. The anthracite coal region, located in the northeast, covers approximately 3,000 square miles and includes 97 percent of U.S. anthracite reserves. Anthracite coal was significant in the early industrial revolution of the country, first for steel production and later for heating fuel.

Pennsylvania received conditional approval of its regulatory program July 31, 1982. Pennsylvania's Abandoned Mine Land Program was approved on the same date.

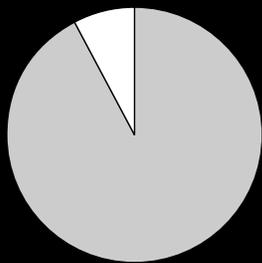
The Office of Surface Mining, through its offices in Pittsburgh and Wilkes-Barre, conducts all emergency abatement in Pennsylvania. Since 1977, 1,625 emergency projects (33 percent of the national total) have been completed at a cost of approximately \$64 million. Over 75 percent of these projects were for subsidence problems, which are particularly common in the anthracite region.

Since 1977, the Pennsylvania Abandoned Mine Land program has spent more than \$360 million reclaiming dangerous highwalls, mine fires, and subsidence high-priority problems. Since 1982, the program has issued contracts for 700 high priority projects, and has used an in-house work force to reclaim an additional 1,400 problems. Pennsylvania has also handled approximately 9,000 complaints of potential mining-related problems.

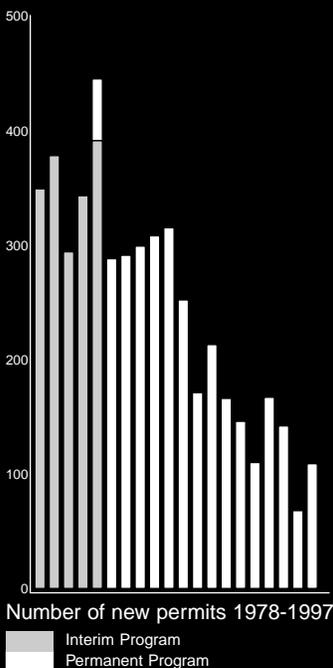
Pennsylvania's inventory of unreclaimed Abandoned Mine Land problems totals over \$1 billion (over 33 percent of the remaining high priority problems in the nation). The Pennsylvania inventory includes 94 percent of the remaining underground fires, 90 percent of the hazardous and explosive gas problems, and 50 percent of the hazardous water bodies.

## coal production<sup>10</sup>

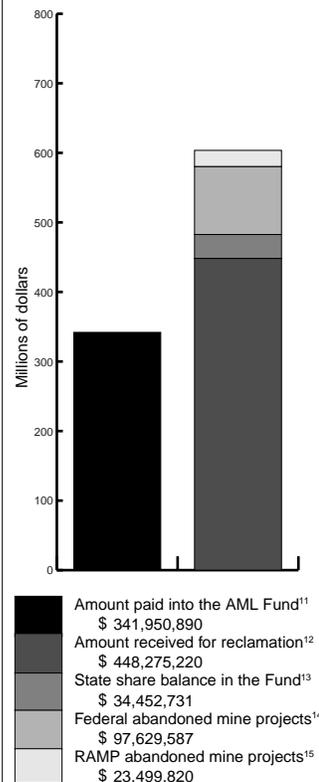
|                                  | 1978              |                    | 1997              |                    | 1978-1997 Rank |
|----------------------------------|-------------------|--------------------|-------------------|--------------------|----------------|
|                                  | Amount            | Percent U.S. Total | Amount            | Percent U.S. Total |                |
| <b>Tons Produced</b>             |                   |                    |                   |                    |                |
| Surface                          | 29,966,795        | 12.2%              | 18,608,480        | 3.2%               | 4              |
| Underground                      | 19,783,979        | 13.1%              | 48,280,113        | 11.4%              | 3              |
| Lignite                          | 0                 | 0%                 | 0                 | 0%                 | 8              |
| <b>Total</b>                     | <b>49,750,775</b> | <b>11.9%</b>       | <b>66,888,593</b> | <b>6.1%</b>        | <b>4</b>       |
| <b>Number of Producing Mines</b> |                   |                    |                   |                    |                |
| Surface (bituminous coal)        | 862               | 25.9%              | 812               | 33.8%              | 2              |
| Underground                      | 226               | 8.9%               | 116               | 6.8%               | 4              |
| Lignite (surface)                | 0                 | 0%                 | 1                 | 0.4%               | 9              |
| <b>Total</b>                     | <b>1,088</b>      | <b>18.5%</b>       | <b>929</b>        | <b>22.4%</b>       | <b>3</b>       |
| <b>Mine Production</b>           |                   |                    |                   |                    |                |
| Average                          | 45,726            | 64.3%              | 72,000            | 27.3%              |                |
| >1,000,000 tons                  | 1                 | 2.0%               | 12                | 5.8%               |                |
| 300,000-1,000,000 tons           | 33                | 16.0%              | 16                | 4.7%               |                |
| <300,000 tons                    | 1,066             | 18.9%              | 901               | 25.1%              |                |



Production tonnage 1978-1997  
 U.S. Total  
 Pennsylvania Coal Production



Number of new permits 1978-1997  
 Interim Program  
 Permanent Program



# Active mining and reclamation<sup>16</sup>

|                              | 1978  | 79    | 80  | 81    | 82    | 83     | 84     | 85     | 86     | 87     | 88     | 89     | 90     | 91     | 92     | 93     | 94     | 95     | 96     | 97     | Total   |
|------------------------------|-------|-------|-----|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| <b>Number of New Permits</b> |       |       |     |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Surface Mining               | 339   | 366   | 290 | 340   | 440   | 283    | 278    | 268    | 282    | 236    | 187    | 144    | 174    | 138    | 123    | 89     | 129    | 111    | 54     | 93     | 4,334   |
| Underground Mining           | 10    | 12    | 4   | 3     | 5     | 2      | 3      | 4      | 13     | 49     | 33     | 12     | 13     | 16     | 6      | 12     | 6      | 8      | 6      | 3      | 220     |
| Other                        | 0     | 0     | 0   | 0     | 0     | 3      | 10     | 27     | 13     | 30     | 32     | 15     | 26     | 12     | 17     | 9      | 32     | 23     | 8      | 13     | 270     |
| <b>Acres Permitted</b>       |       |       |     |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Surface Mining               | NA    | NA    | NA  | NA    | NA    | NA     | NA     | NA     | 88,800 | 32,046 | 18,842 | 15,564 | 1,897  | 5,399  | 4,186  | 2,469  | 4,429  | 3,434  | 1,278  | NA     | 178,344 |
| Underground Mining           | NA    | NA    | NA  | NA    | NA    | NA     | NA     | NA     | 92     | 247    | 435    | 467    | 0      | 20     | 8      | 20     | 17     | 20     | 13     | NA     | 1,339   |
| Other                        | NA    | NA    | NA  | NA    | NA    | NA     | NA     | NA     | 4,173  | 2,992  | 542    | 294    | 24     | 480    | 1,130  | 517    | 878    | 430    | 80     | NA     | 11,540  |
| <b>Acres of Bond Release</b> |       |       |     |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Interim Prog. (final)        | 5,114 | 7,015 | 0   | 6,305 | 5,443 | 1,832  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 25,709  |
| Phase 1                      | 0     | 0     | 0   | 0     | 0     | 0      | 0      | 0      | 0      | 13,112 | 12,732 | 14,094 | 10,662 | 8,349  | 13,626 | 14,796 | 15,669 | 20,014 | 6,751  | 8,729  | 138,534 |
| Phase 2                      | 0     | 0     | 0   | 0     | 0     | 0      | 0      | 0      | 0      | 11,816 | 12,816 | 11,757 | 12,039 | 10,277 | 10,168 | 14,894 | 11,689 | 22,909 | 9,480  | 13,919 | 141,764 |
| Phase 3                      | 0     | 0     | 0   | 0     | 0     | 0      | 0      | 0      | 0      | 8,051  | 14,819 | 11,423 | 12,674 | 12,410 | 11,323 | 16,681 | 16,123 | 20,562 | 9,256  | 12,697 | 146,019 |
| <b>Inspections</b>           |       |       |     |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| Complete                     | NA    | NA    | NA  | NA    | 2,353 | 6,853  | 9,861  | 13,745 | 15,556 | 15,275 | 15,264 | 14,411 | 14,006 | 12,170 | 12,091 | 12,039 | 11,316 | 11,678 | 7,677  | 9,343  | 183,638 |
| Partial                      | NA    | NA    | NA  | NA    | 1,331 | 12,357 | 15,698 | 21,572 | 24,356 | 24,334 | 24,148 | 23,137 | 23,101 | 22,640 | 9,999  | 19,846 | 19,333 | 7,912  | 12,312 | 14,537 | 276,613 |
| Oversight                    | 0     | 0     | 0   | 0     | NA    | 903    | 762    | 956    | NA     | 788    | 820    | 772    | 664    | 732    | 764    | 692    | 673    | 458    | 126    | 371    | 9,481   |
| <b>Citations Issued</b>      |       |       |     |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |
| NOV's                        | NA    | NA    | NA  | NA    | 123   | 509    | 1,177  | 1,351  | 617    | 708    | 910    | 868    | 2,832  | 3,020  | 2,356  | 1,999  | 1,728  | 1,466  | 878    | 1,135  | 21,677  |
| CO's                         | NA    | NA    | NA  | NA    | 41    | 96     | 368    | 569    | 40     | 155    | 284    | 135    | 250    | 76     | 119    | 138    | 281    | 195    | 57     | 77     | 2,881   |

# Abandoned coal mine reclamation 1977-1997<sup>17</sup>

|                                                                                                             | Reclaimed Problems |                 |               | Remaining Problems |                         |
|-------------------------------------------------------------------------------------------------------------|--------------------|-----------------|---------------|--------------------|-------------------------|
|                                                                                                             | OSM Emergency      | State Emergency | Non-Emergency | Number             | Estimated Cost          |
| <b>Priority 1 &amp; 2 (Protection of Public Health, Safety, and General Welfare) and Emergency Projects</b> |                    |                 |               |                    |                         |
| Clogged Streams (miles)                                                                                     | 0                  | 0               | 51.8          | 34.9               | \$ 6,370,023            |
| Clogged Stream Lands (acres)                                                                                | 0                  | 0               | 116.2         | 569.0              | 11,144,601              |
| Highwalls (feet)                                                                                            | 3,143.0            | 0               | 829,746.5     | 1,106,771.0        | 136,871,714             |
| Impoundments (count)                                                                                        | 6.0                | 0               | 67.0          | 28.0               | 1,606,500               |
| Piles & Embankments (acres)                                                                                 | 0                  | 0               | 1,659.3       | 5,293.8            | 182,012,136             |
| Slides (acres)                                                                                              | 19.5               | 0               | 52.4          | 7.0                | 70,000                  |
| Gases (count)                                                                                               | 0                  | 0               | 1.0           | 7.0                | 2,038,000               |
| Equipment & Facilities (count)                                                                              | 34.0               | 0               | 376.0         | 412.0              | 6,872,177               |
| Water Bodies (count)                                                                                        | 0                  | 0               | 130.0         | 177.0              | 24,693,314              |
| Industrial Waste (acres)                                                                                    | 0                  | 0               | 31.0          | 146.2              | 8,665,423               |
| Portals (count)                                                                                             | 254.0              | 0               | 485.0         | 389.0              | 2,284,104               |
| Polluted Water: Agriculture & Industrial (count)                                                            | 2.0                | 0               | 15.0          | 18.0               | 4,360,000               |
| Polluted Water: Human Consumption (count)                                                                   | 0                  | 0               | 87.0          | 138.0              | 4,298,662               |
| Subsidence (acres)                                                                                          | 151.4              | 0               | 2,436.5       | 665.5              | 44,199,875              |
| Surface Burning (acres)                                                                                     | 8.4                | 0               | 129.7         | 81.1               | 6,469,900               |
| Underground Mine Fires (acres)                                                                              | 8.7                | 0               | 866.7         | 1,276.1            | 592,538,800             |
| Vertical Openings (count)                                                                                   | 113.0              | 0               | 516.0         | 575.0              | 3,675,886               |
| <b>Total</b>                                                                                                |                    |                 |               |                    | <b>\$ 1,038,171,115</b> |
| <b>Priority 3 (Environmental Restoration)</b>                                                               |                    |                 |               |                    |                         |
| Bench (acres)                                                                                               | 0                  | 0               | 0             | 72.0               | \$ 362,000              |
| Industrial Waste (acres)                                                                                    | 0                  | 0               | 0             | 0.1                | 1,000                   |
| Equipment & Facilities (count)                                                                              | 0                  | 0               | 23.0          | 59.0               | 539,601                 |
| Gob (acres)                                                                                                 | 0                  | 0               | 92.3          | 1,122.5            | 11,981,060              |
| Highwall (feet)                                                                                             | 0                  | 0               | 6,508.0       | 352,244.0          | 108,334,527             |
| Haul Road (acres)                                                                                           | 0                  | 0               | 0             | 2.0                | 2,011,666               |
| Mine Opening (count)                                                                                        | 0                  | 0               | 22.0          | 55.0               | 4,195,567               |
| Pit (acres)                                                                                                 | 0                  | 0               | 124.1         | 947.7              | 22,258,579              |
| Spoil Area (acres)                                                                                          | 0                  | 0               | 1,826.2       | 3,250.4            | 24,374,382              |
| Slurry (acres)                                                                                              | 0                  | 0               | 1.0           | 118.0              | 1,880,816               |
| Slump (acres)                                                                                               | 0                  | 0               | 25.6          | 272.2              | 5,730,669               |
| Water (gallons/minute)                                                                                      | 0                  | 0               | 91,289.0      | 33,375.3           | 58,275,908              |
| <b>Total</b>                                                                                                |                    |                 |               |                    | <b>\$ 239,945,775</b>   |