

United States Department of the Interior
Office of Surface Mining Reclamation and Enforcement



White Paper on:
“People Potentially at Risk From Priority 1 & 2 AML Hazards”

Revised: May 28, 2003

BACKGROUND

The Department of the Interior’s Office of Surface Mining (OSM) is the lead federal agency for carrying out the mandates of the Surface Mining Control and Reclamation Act (SMCRA). OSM’s primary goal is to protect society and the environment from the adverse effects surface coal mining operations.

Congress established, through SMCRA, the Abandoned Mine Land (AML) Fund for the reclamation of mine lands left abandoned prior to 1977. The AML fund authorizes the collection of fees from coal operators. These funds are used for environmental restoration.

Since enactment of the SMCRA in 1977, the Office of Surface Mining (OSM) has provided more than \$2.9 billion in grants to States and Tribes to clean up mine sites that were abandoned before the passage of the SMCRA.

PERFORMANCE GOALS

In the past, each Department of the Interior (DOI) Bureau was responsible for developing their own performance measures and strategic plans. However, beginning in FY 2004, the DOI has decided to develop a consolidated strategic plan for all DOI bureaus. As part of this process, OSM was required to update its strategic goals and submit them to the Department. OSM held several meetings with our State and Tribal partners on performance measures for the AML program. One of the performance goals discussed was “reduce the number of people potentially at risk from priority 1 & 2 abandoned mine land (AML) hazards.” This OSM performance goal has been incorporated into the DOI Draft Strategic Plan which has been distributed for public review. It is found in the following location in the DOI Draft Strategic Plan:

FY 2004 Performance Measures in the DOI Draft Strategic Plan-SERVING COMMUNITIES

End Outcome Goal	Intermediate Outcome	Intermediate Outcome Measure	Bureau(s)
Protecting Lives, Resources, and Property	Improve Public Safety and Security and protect public resources from damage	Mitigate hazards from past mining: Number of people directly affected	OSM

In an effort to prepare ourselves for the FY 2004 Strategic Plan, a preliminary analysis was conducted by the OSM Office of Strategic Planning and Evaluation to determine the universe of approximately how many people are potentially at risk from priority 1 & 2 AML hazards as of February of 2003.

SOURCES OF DATA FOR ANALYSIS

Abandoned Mine Land Inventory System (AMLIS)

The Surface Mining Law, as amended by the Abandoned Mine Reclamation Act of 1990 (Public Law 101-508), requires the Office of Surface Mining to maintain an inventory of eligible abandoned coal mine lands that meet the public health, safety, and general welfare criteria of Section 403(a)(1) and (2). This inventory is maintained and updated to reflect reclamation accomplishments as required by Section 403(c).

The Office of Surface Mining maintains its inventory through the Abandoned Mine Lands Inventory System (AMLIS), which is accessible from the web at <http://www.osmre.gov/aml/inven/zamlis.htm>. The system creates reports on abandoned mine land accomplishments and problems that still require reclamation.

Within the AMLIS, problem areas are classified into five priorities. The most serious AML problems are those posing a threat to health, safety and general welfare of people (Priority 1 and Priority 2, or "high priority"). These are the only problems which the law requires to be inventoried. There are 17 Priority 1 and 2 problem types. For our analysis, we concentrated on Priority 1 & 2 sites exclusively.

Priority 1 & 2 Problem types include:

- Clogged Streams;
- Clogged Stream Lands;
- Dangerous Pile or Embankment;
- Dangerous Highwall;
- Dangerous Impoundment;
- Dangerous Slide;
- Hazardous or Explosive Gases;
- Hazardous Equipment or Facilities;
- Hazardous Recreational Water Body;
- Industrial or Residential Waste;
- Portal;
- Polluted Water: Agricultural/Industrial;
- Polluted Water: Human Consumption;
- Subsidence-Prone Area;
- Surface Burning;
- Underground Mine Fire;
- Vertical Opening

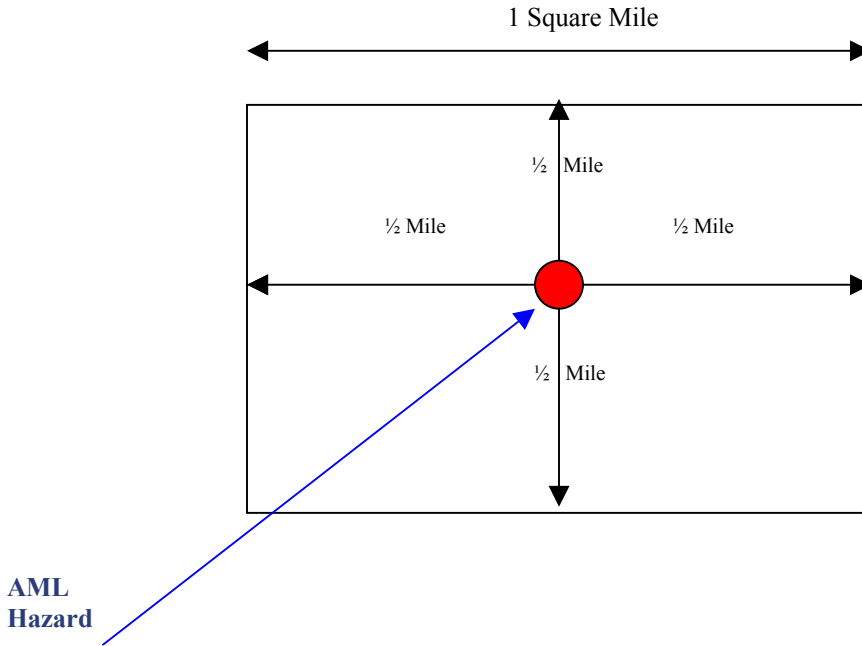
Census Bureau Data for 2000

Population density figures were based upon data obtained from the United States Census Bureau for 2000.

HOW WAS ANALYSIS CONDUCTED

Utilizing census tract information compiled by the United States Census Bureau for 2000 and OSM’s AMLIS system, OSM staff determined the approximate number of people potentially at risk from priority 1 & 2 AML hazards. The estimates were conducted based upon the population of individuals residing within ½ Mile and 1 Mile of each Priority 1 & 2 AML site.

Figure 1

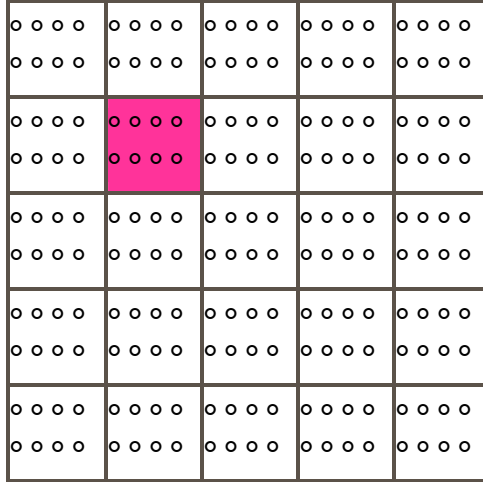


In conducting the analysis, the OSM had to make several assumptions. First, the use of census tracts which are geographically plotted in square miles, or portions thereof, and the population of each census tract. Secondly, the population contained in the census tract is evenly distributed (the exact geographic location of the population is unknown, only the population of the entire census tract is known). Thirdly (See Figure 1), the AML site was a geographic point on the ground represented by latitude and longitude. A half-mile north, south, east or west of the site would constitute one square mile. With these assumptions in mind, and for the analysis for the at risk population within a ½ mile of a hazard, any census tract less than one square mile would count the entire census tract population. For those that were larger than one square mile than, 1/nth of population of the census tract area would be counted.

For example (see figure 2), a 25 square mile census tract evenly distributed with a population of 200 would contain 8 people per square mile. Thus, if the AML site were located within any square mile census tract, it would result in 8 people being potentially at risk within a half mile of the AML hazard.

Figure 2

**People at Risk – Census Data
25 Sq. Mi. Block – Pop = 200**

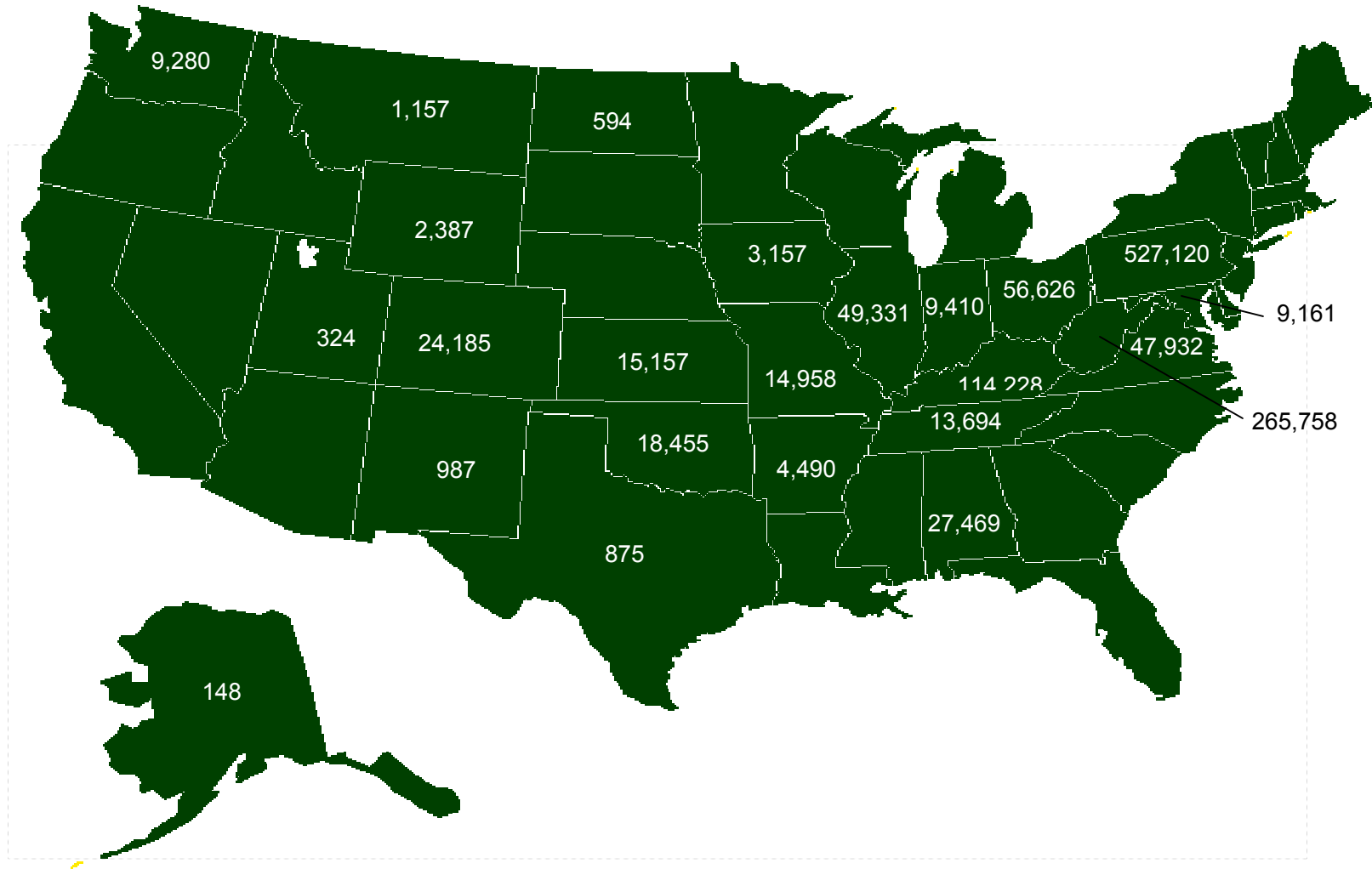


APPROXIMATE NUMBER OF PEOPLE AT RISK

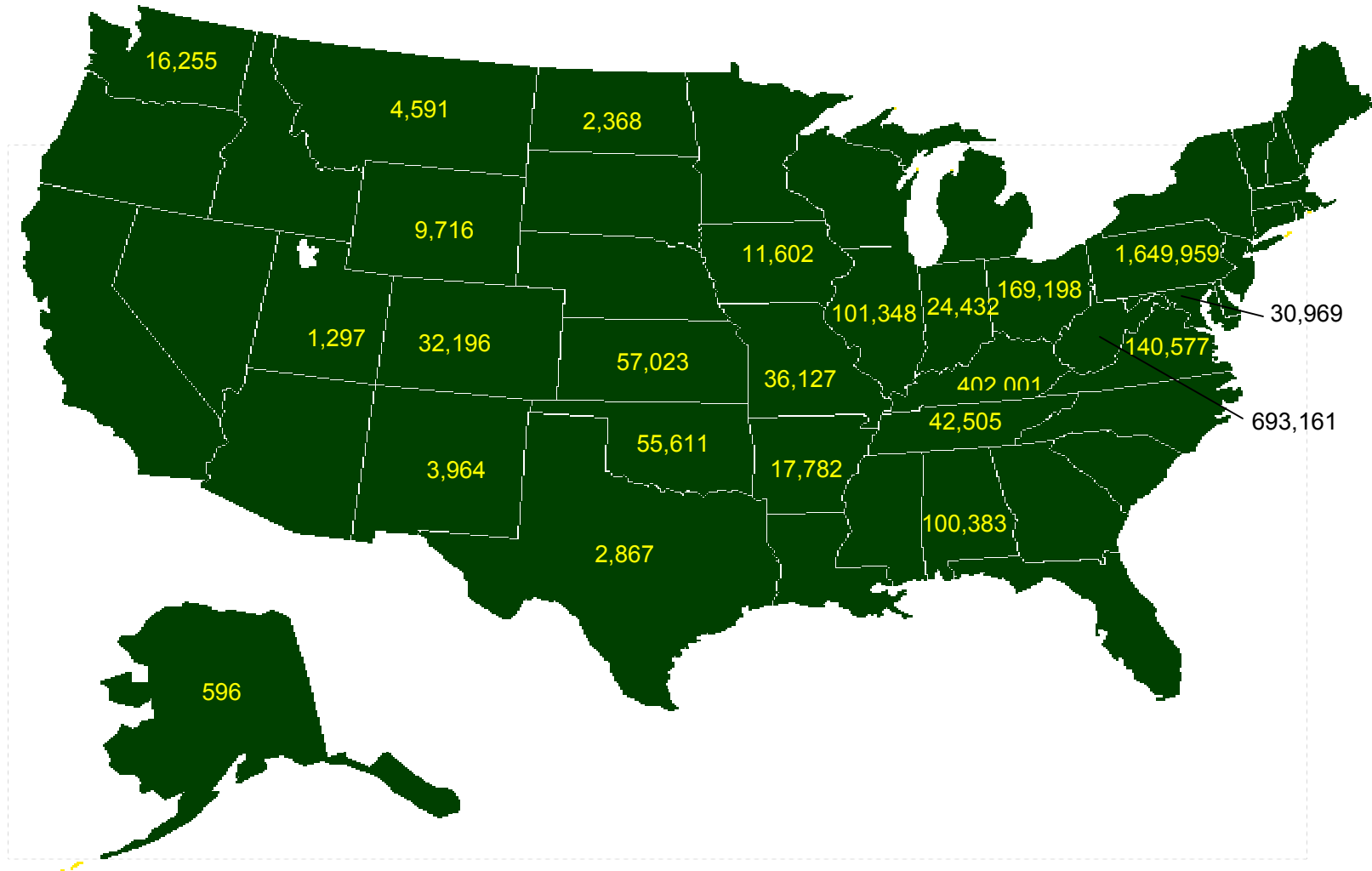
From a ½ mile radius of each priority 1 & 2 AML site in the continental United States, the national total number of people at risk is estimated at over 1.2 million. The individual State and Tribal range of people potentially at risk from priority 1 & 2 AML hazards is from 0 to 527,120 in the coal producing entities. At the 1 mile radius of each priority 1 & 2 AML site in the continental United States, the national total number of people potentially at risk rises to over 3.6 million people. This coincides with an individual State and Tribal range of people potentially at risk from 0 to 1,649,959 in entities that have produced coal. At both intervals, the Eastern part of the United States incurred the most people potentially at risk from priority 1 & 2 AML hazards.

State	People Potentially at Risk-1/2 Mile	People Potentially at Risk-1 Mile
Alabama	27,469	100,383
Alaska	148	596
Arkansas	4,490	17,782
Colorado	24,185	32,196
Illinois	49,331	101,348
Indiana	9,410	24,432
Iowa	3,440	11,602
Kansas	15,157	57,023
Kentucky	114,228	402,001
Louisiana	0	0
Maryland	9,161	30,969
Missouri	14,958	36,127
Montana	1,157	4,591
New Mexico	987	3,964
North Dakota	594	2,368
Ohio	56,626	169,198
Oklahoma	18,455	55,611
Pennsylvania	527,120	1,649,959
Tennessee	13,694	42,505
Texas	875	2,867
Utah	324	1,297
Virginia	47,932	140,577
Washington	9,280	16,255
West Virginia	265,758	693,161
Wyoming	2387	9,716
Cheyenne River	3	11
Crow Tribe	5	18
Hopi Tribe	0	0
Navajo Nation	42	166
Windriver	4	19
Total/Average	1,217,220	3,606,742

OSM Priority 1 & 2 Abandoned Mine Lands By State – People Potentially at Risk Within 1/2 Mile



OSM Priority 1 & 2 Abandoned Mine Lands By State – People Potentially at Risk Within 1 Mile



GRANT FUNDS SPENT ON PEOPLE POTENTIALLY IMPACTED

Building upon the work on the number of people potentially impacted by priority 1 & 2 AML sites, OSM staff wanted to determine the amount of grant funding that was being spent per persons’ potentially impacted. To accomplish this task, the OSM staff utilized the following formula:

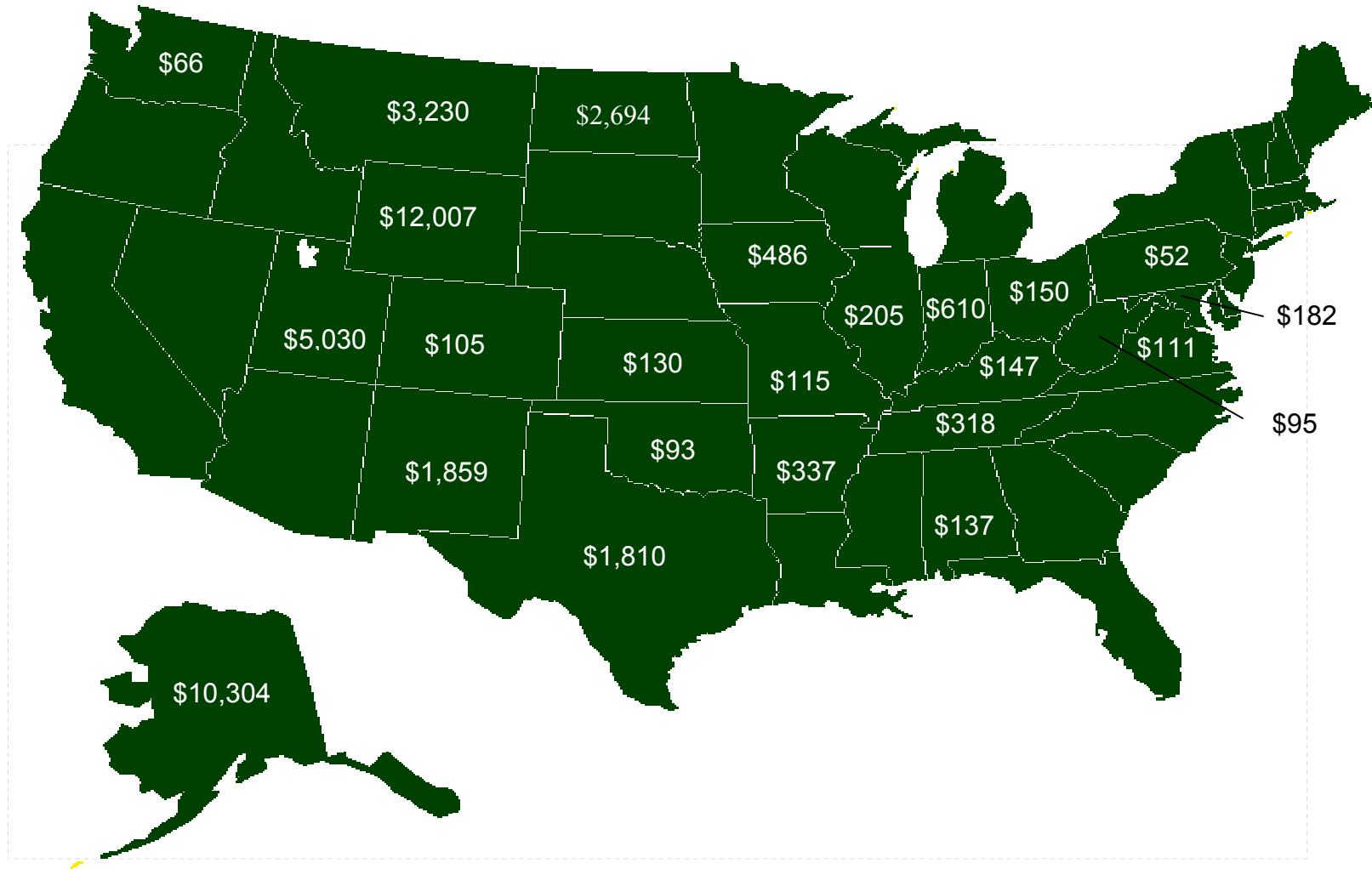
$$\frac{\text{Total FY 2002 State Grant Distribution}}{\text{People Potentially Impacted by Priority 1 \& 2 AML Sites}} = \text{Grant Funds Spent Per Person}$$

Utilizing the above formula for all State and Tribal Coal producing entities, the following chart was developed.

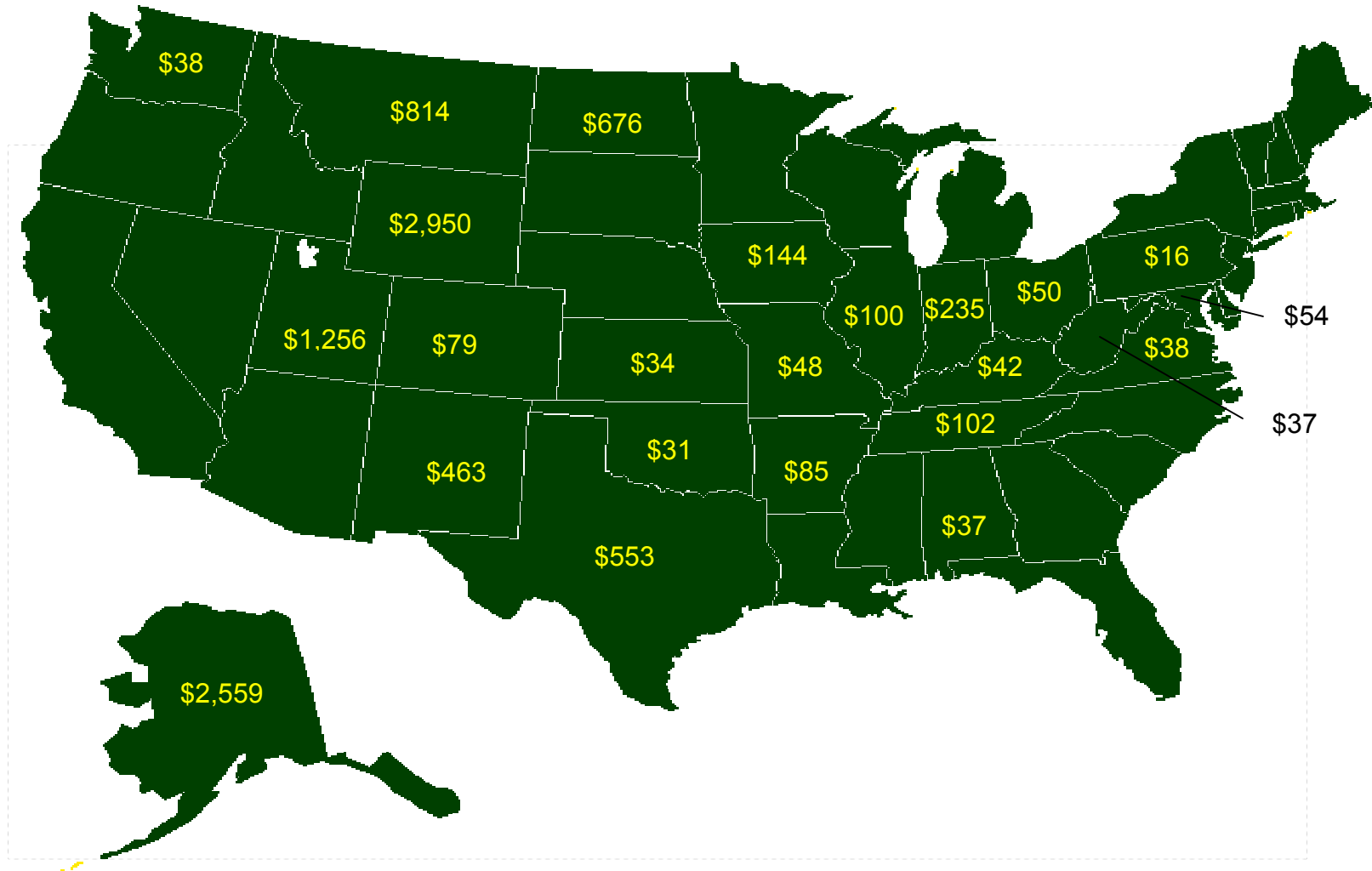
State	Total FY 2002 State/Tribal Grant Distribution	Grant Funds Per Person-1/2 Mile	Grant Funds Per Person-1 Mile
Alabama	\$3,751,100	\$137	\$37
Alaska	\$1,525,000	\$10,304	\$2,559
Arkansas	\$1,515,000	\$337	\$85
Colorado	\$2,537,574	\$105	\$79
Illinois	\$10,093,413	\$205	\$100
Indiana	\$5,744,338	\$610	\$235
Iowa	\$1,673,253	\$486	\$144
Kansas	\$1,965,000	\$130	\$34
Kentucky	\$16,759,599	\$147	\$42
Louisiana	\$99,758	\$0	\$0
Maryland	\$1,663,769	\$182	\$54
Missouri	\$1,722,031	\$115	\$48
Montana	\$3,736,665	\$3,230	\$814
New Mexico	\$1,834,749	\$1,859	\$463
North Dakota	\$1,600,000	\$2,694	\$676
Ohio	\$8,520,317	\$150	\$50
Oklahoma	\$1,713,135	\$93	\$31
Pennsylvania	\$27,176,830	\$52	\$16
Tennessee	\$4,351,000	\$318	\$102
Texas	\$1,584,087	\$1,810	\$553
Utah	\$1,629,570	\$5,030	\$1,256
Virginia	\$5,328,704	\$111	\$38
Washington	\$614,210	\$66	\$38
West Virginia	\$25,356,855	\$95	\$37
Wyoming	\$28,659,989	\$12,007	\$2,950
Cheyenne River	\$0	\$0	\$0
Crow Tribe	\$550,551	\$110,110	\$30,586
Hopi Tribe	\$428,219	\$0	\$0
Navajo Nation	\$241,477	\$5,749	\$1,455
Windriver	\$0	\$0	\$0
Total/Average	\$162,376,193	\$133	\$45

- Note: Monetary amounts for the States of Tennessee and Washington were based upon the estimated costs by OSM to operate their programs for FY 2002.

OSM Priority 1 & 2 Abandoned Mine Lands By State – Grant Funds Per Person Within 1/2 Mile



OSM Priority 1 & 2 Abandoned Mine Lands By State – Grant Funds Per Person Within 1 Mile



WHATS NEXT?

This is the initial step in OSM’s analysis of people potentially impacted by priority 1 & 2 AML sites. It is our intent to develop further statistical measures in conjunction with other database overlays to refine our analysis in the future. Beginning in the near future, OSM will request that State and Tribal entities complete a form with the following information each time they complete a reclamation project:

Pad #	People No Longer at Risk (Census Data)	People No Longer at Risk (Special Source Data)	Date Project Completed
	OSM Will Determine		

Pad # - Each priority 1 & 2 problem area in the OSM AML inventory has a specific identifier which will give the exact location of the problem.

People no longer at risk-Census – This will be determined by the OSM staff utilizing the mathematical process outlined above.

People no longer at risk-special source data - For areas where the population figures are not representative of the number of people that are truly impacted by the AML hazard, States and Tribes will have the ability to enter into the database a more representative number of people residing in the area of the AML hazard. For example, a location may not have a large population; however, it may have a park or road which brings many people to that area. States and Tribes will then be able to enter into the database the number of people they feel are being impacted by the AML hazard. For a park, it may be the number of yearly visitors; for a road, it may be the approximate number of individuals driving on that road each year.

Date project completed – The date when the AML hazard area has been reclaimed.

At the end of each year, OSM staff will be able to conduct analysis of the information, perform the required calculations based on the methods discussed above and determine the number of people we are potentially impacting though the reclamation of priority 1 & 2 AML hazards on a yearly basis. Likewise, OSM staff will be able to take the grant \$\$ distributed to each State and Tribal entity for each year and determine how much Grant funding is being spent per person impacted.