

North Dakota

Second Largest producer of Lignite coal

North Dakota's coal reserves are estimated to be approximately 9.8 billion tons, which represent two percent of U.S. reserves. The coal fields underlie about 40 percent of the state's surface area. The coal is generally classified as lignite, and is recovered from surface mines in beds that vary in thickness from 3 to 30 feet. The lignite is used in electrical generation facilities within the state.

The first commercial coal mine in North Dakota opened in Morton County in 1873. As the railroads crossed the plains, the demand for coal increased. By 1884, North Dakota's annual lignite production had reached 35,000 tons. North Dakota was among the first states to shift from underground to large-scale commercial surface coal mining. By 1927, 40 percent of total production was by surface mining, compared to 2 percent for the nation as a whole. Since 1966, surface mining has been the exclusive coal production method in North Dakota.

North Dakota's regulatory program received conditional approval December 15, 1980. Following approval of amendments to the program, it received full approval February 18, 1986. The Abandoned Mine Lands Program was approved December 23, 1981, and emergency projects authority granted in 1993.

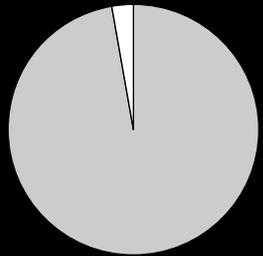
Early abandoned underground mines are now causing most of the Abandoned Mine Land reclamation problems in the state. Many of the old mines were poorly mapped, or not mapped at all, and sinkholes are now appearing in major roadways, yards, and under both commercial and private structures. Most of the sinkholes have vertical sides and may be 60-80 feet deep, and represent most of the emergency projects undertaken in North Dakota.

North Dakota receives the minimum program annual Abandoned Mine Land reclamation grant. Most of the hazards eliminated have been subsidence and vertical openings.

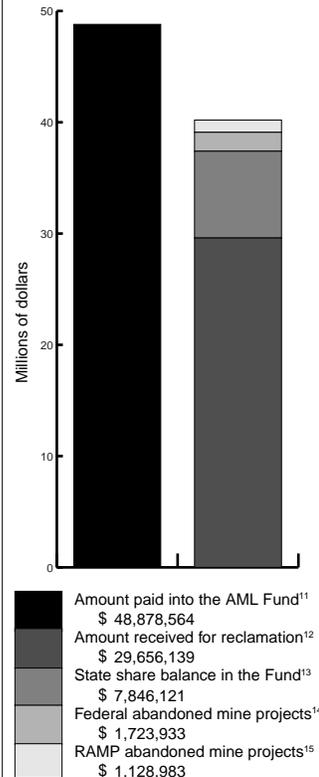
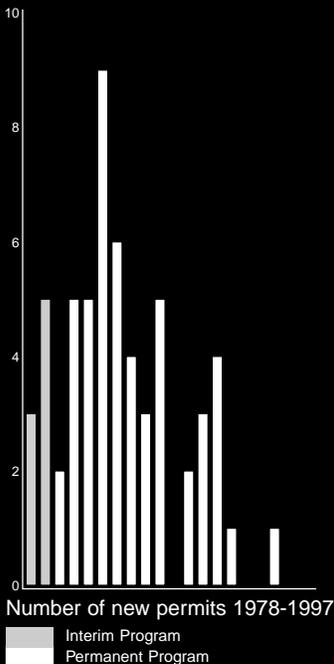
With rich topsoil and annual precipitation of about 17 inches, North Dakota does not have the reclamation problems of the more arid western states. The inventory of remaining North Dakota hazards is estimated at \$35,000,000.

coal production¹⁰

	1978		1997		1978-1997 Rank
	Amount	Percent U.S. Total	Amount	Percent U.S. Total	
Tons Produced					
Surface	0	0%	0	0%	0
Underground	0	0%	0	0%	0
Lignite	9,847,925	43.8%	29,435,895	34.3%	2
Total	9,847,925	2.3%	29,435,895	2.7%	12
Number of Producing Mines					
Surface (bituminous coal)	0	0%	0	0%	0
Underground	0	0%	0	0%	0
Lignite (surface)	9	52.9%	4	16.6%	2
Total	9	0.1%	4	0.09%	20
Mine Production					
Average	1,094,213	1,539.8%	7,358,973	2,796.4%	
>1,000,000 tons	4	8.1%	3	1.4%	
300,000-1,000,000 tons	2	0.9%	1	0.2%	
<300,000 tons	3	0.05%	0	0%	



Production tonnage 1978-1997
 U.S. Total
 North Dakota Coal Production



Active mining and reclamation¹⁶

	1978	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	Total
Number of New Permits																					
Surface Mining	3	5	2	5	5	9	6	4	3	4	0	2	3	4	1	0	0	1	0	0	57
Underground Mining	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Acres Permitted																					
Surface Mining	1,424	7,206	790	7,645	6,916	13,227	4,042	1,807	6,552	2,420	13	11,348	6,921	5,391	7,885	0	0	102	12,671	0	96,360
Underground Mining	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	15
Acres of Bond Release																					
Interim Prog. (final)	15	0	0	6	41	0	0	0	19	221	173	21	32	0	0	0	0	0	0	0	528
Phase 1	0	0	0	0	0	21	0	834	818	1,146	348	699	684	0	4	397	845	17	0	80	5,893
Phase 2	0	0	0	0	0	21	0	0	48	256	438	421	174	57	35	95	314	919	101	249	3,128
Phase 3	0	0	0	0	0	21	0	0	48	256	4	21	105	265	7	109	0	113	135	541	1,625
Inspections																					
Complete	NA	NA	NA	NA	148	274	240	211	228	208	216	204	219	197	197	193	175	175	134	193	3,212
Partial	NA	NA	NA	NA	208	685	621	1,014	914	853	994	797	684	641	641	779	680	665	451	675	11,302
Oversight	NA	NA	NA	NA	14	19	NA	NA	46	48	38	13	23	26	12	37	24	37	7	38	387
Citations Issued																					
NOV's	NA	NA	NA	NA	7	5	1	NA	2	5	1	1	4	3	2	8	3	3	0	2	47
CO's	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Abandoned coal mine reclamation 1977-1997¹⁷

	Reclaimed Problems			Remaining Problems	
	OSM Emergency	State Emergency	Non-Emergency	Number	Estimated Cost
Priority 1 & 2 (Protection of Public Health, Safety, and General Welfare) and Emergency Projects					
Clogged Streams (miles)	0	0	0	0	\$ 0
Clogged Stream Lands (acres)	0	0	0	0	0
Highwalls (feet)	0	0	56,449.0	98,225.0	19,185,150
Impoundments (count)	0	0	4.0	0	0
Piles & Embankments (acres)	0	0	303.0	30.0	105,000
Slides (acres)	0	0	35.0	0	0
Gases (count)	0	0	0	0	0
Equipment & Facilities (count)	0	0	14.0	5.0	65,000
Water Bodies (count)	0	0	18.0	0	0
Industrial Waste (acres)	0	0	2.0	17.0	95,000
Portals (count)	0	0	13.0	10.0	50,000
Polluted Water: Agriculture & Industrial (count)	0	0	6.0	5.0	308,700
Polluted Water: Human Consumption (count)	0	0	0	1.0	7,500
Subsidence (acres)	3.1	0	1,997.9	1,254.0	14,343,563
Surface Burning (acres)	0	0	1.0	0	0
Underground Mine Fires (acres)	0.1	0	0	0	0
Vertical Openings (count)	0	0	108.0	194.0	560,002
Total					\$ 34,719,915
Priority 3 (Environmental Restoration)					
Bench (acres)	0	0	0	0	\$ 0
Industrial Waste (acres)	0	0	0	1.0	1,500
Equipment & Facilities (count)	0	0	0	0	0
Gob (acres)	0	0	0	1.0	5,000
Highwall (feet)	0	0	0	0	0
Haul Road (acres)	0	0	0	0	0
Mine Opening (count)	0	0	0	0	0
Pit (acres)	0	0	0	0	0
Spoil Area (acres)	0	0	0	110.0	388,500
Slurry (acres)	0	0	0	0	0
Slump (acres)	0	0	0	0	0
Water (gallons/minute)	0	0	10.0	0	0
Total					\$ 395,000