

METALLIC MINERAL EXPLORATION IN WISCONSIN

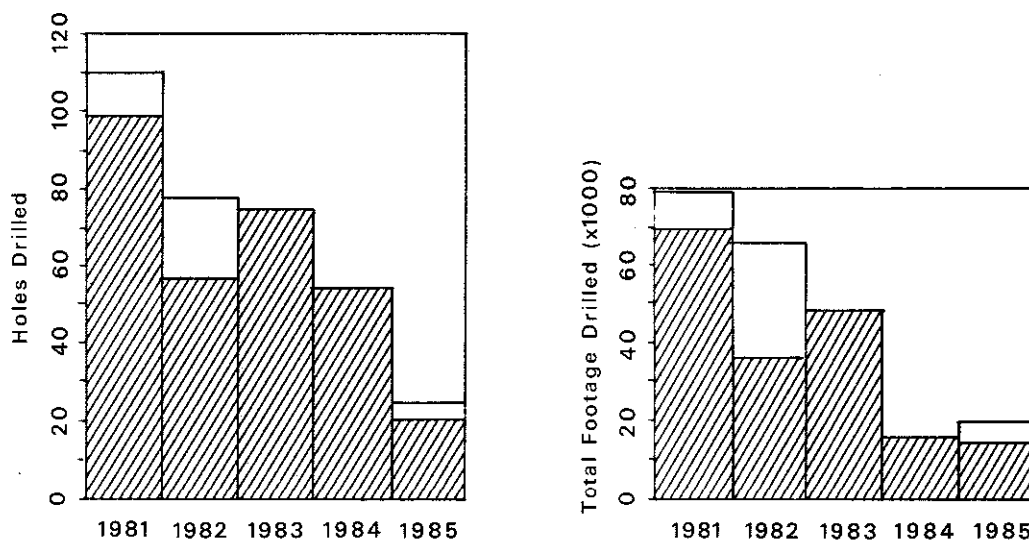
Summary of 1985 Activity

Thomas J. Evans
Wisconsin Geological and Natural History Survey
3817 Mineral Point Road, Madison, Wisconsin 53705
608-262-1705

HIGHLIGHTS OF 1985 ACTIVITY

Metallic mineral exploration¹ in Wisconsin plummeted to its lowest level since accurate records of annual activity became available beginning in 1978. Exploration drilling in 1985 totaled 24 drillholes, down over 55 percent from 1984. Total footage drilled, however, increased 17 percent as compared to 1984 reflecting the shift back to more traditional metallic mineral exploration. (In 1984, 19 drillholes averaging only several tens of feet deep were drilled to evaluate placer gold potential in Pierce County.) Bedrock footage showed a similar increase (15 percent) in 1985. If development drilling related to the Crandon Project is excluded, however, exploration drilling in terms of total footage drilled and footage drilled in bedrock decreased in 1985 as compared to 1984.

Metallic mineral exploration occurred in seven counties in 1985. Five companies were active out of a total of 16 companies that held exploration licenses at some time during the 1985 calendar year.



Hachured part of bar graph represents non-developmental exploration drilling. Nonhachured part represents development drilling on known mineral deposits.

1. "Exploration" has a specific legal definition in Wisconsin (NR 130.03(8), Wis. Admin. Code) that is essentially synonymous with "drilling." Unless otherwise stated, this definition is followed in this report.

Exxon Minerals Company completed four drillholes on the site of its Crandon Project in Forest County. This exploration effort, since it focused on the already announced massive sulfide orebody present in section 25, T. 35 N., R. 12 E. and section 30, T. 35 N., R. 13 E., represent drilling for purposes of mineral development. Developmental drilling is exploration under Wisconsin law, but typically is not designed to locate mineral deposits, but is intended to gather additional information for actual mineral development. The Crandon Project is expected to be the subject of draft and final environmental impact statements during 1986. The master hearing on all related permit applications is scheduled for early 1987.

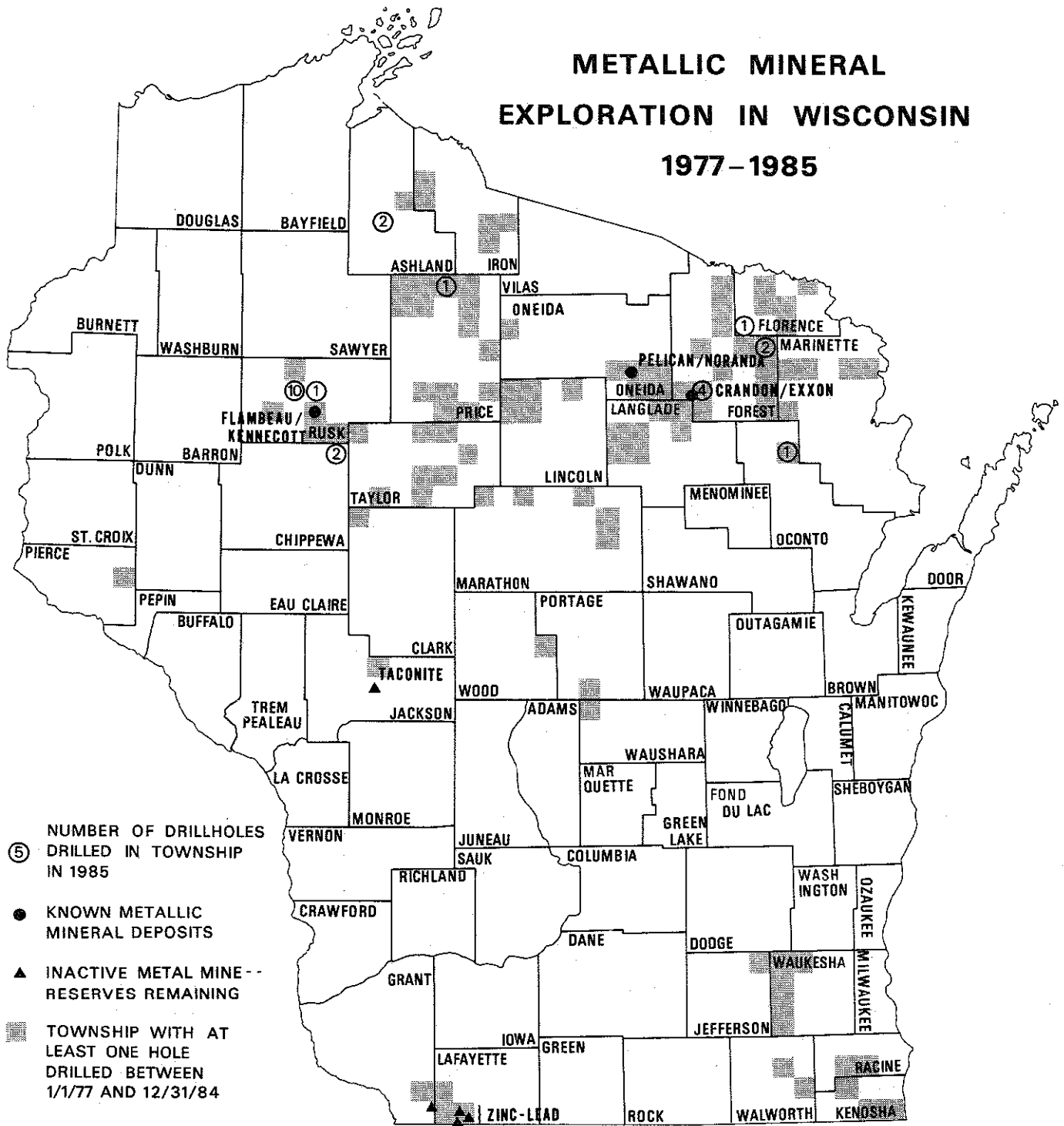
Leasing for purposes of metallic mineral exploration was minimal in 1985 according to a survey completed in early 1986². Only 1,110 additional acres were leased for metallic minerals in Wisconsin last year as compared to over 477,000 acres leased for purposes of oil and gas exploration. This limited new leased acreage for metallic minerals indicates the currently weak interest in metallic mineral development in Wisconsin. Leasing in 1985 was down by 60 percent as compared to 1984, which had declined by over 80 percent from the 1983 leasing level.

Nonmetallic mineral exploration activity of interest in 1985 included the May 1985 announcement by Amoco Production Company of its intent to construct a 12,000-foot deep exploration drillhole for purposes of evaluating petroleum potential along the billion-year-old (Keweenaw) Midcontinent Rift. The proposed drillhole was to be located in Bayfield County. Amoco announced a postponement of its drilling plans just two weeks later. Falling oil prices late in 1985 make the possibility of petroleum exploration in Wisconsin in 1986 most unlikely. Collection of geophysical data in 1985 for purposes of evaluating petroleum potential was highlighted by the acquisition of over 200 line-miles of seismic information in Lakes Michigan and Superior by a consortium of companies. Land-based geophysical activity for 1985 is not available but in 1984 included over 350 line-miles of seismic information. Parts of these data are available for purchase whereas other parts remain proprietary.

Also of interest in terms of nonmetallic mineral exploration was leasing and exploration for diamonds in southeastern Wisconsin and in the Pierce County area of west-central Wisconsin. At yearend, all diamond-related activity in southeastern Wisconsin had ceased and leases were dropped. The Pierce County area remained under evaluation going into 1986.

2. Harkin, Duncan A., 1986, Mineral transactions activity and terms in Wisconsin--1985: University of Wisconsin--Extension Agricultural Economics Staff Paper Series No. 252, 11 p.

METALLIC MINERAL EXPLORATION IN WISCONSIN 1977-1985



All drillhole data are from public records--drillhole abandonment reports submitted to the Wisconsin Department of Natural Resources

FIVE-YEAR METALLIC MINERAL EXPLORATION SUMMARY

| | 1981 | 1982 | 1983 | 1984 | 1985 |
|--|--------------------------|--------------------|--------------------|--------------------|--------------------|
| Companies Licensed to Drill ¹ | 14 | 14 | 17 | 18 | 16 |
| Newly Licensed Companies | 1 | 2 | 3 | 3 | 1 |
| Companies Conducting Drilling | 10 | 8 | 9 | 8 | 5 |
| Total Counties with Drilling | 10 | 10 | 14 | 10 | 7 |
| Total Holes Drilled | 111 (97) ² | 77 (57) | 74 (57) | 54 (54) | 24 (20) |
| Total Footage Drilled | 77,999 (69,618) | 66,580 (37,586) | 48,594 (48,594) | 16,664 (16,664) | 19,444 (14,691) |
| Total Bedrock Footage | 66,037 (60,096) | 56,334 (31,481) | 40,350 (40,350) | 13,573 (13,573) | 15,944 (11,601) |

Source: Wisconsin Department of Natural Resources drillhole abandonment reports and metallic mineral exploration licenses. Contact: Mr. Archie Wilson (North-Central District) and Larry Lynch (Central Office).

1. An exploration license may be obtained during any month of the year, but expires on July 1. This total includes companies licensed to drill for all or part of the indicated year.
2. Numbers in parentheses indicate number of drillholes, total footage, or bedrock footage drilled for non-developmental exploration, that is for exploration performed at sites that are not publicly announced mineral deposits.

1985 METALLIC MINERAL EXPLORATION BY COMPANY AND COUNTY

| <u>Company</u> | <u>Drillholes</u> | <u>Bedrock Footage</u> | <u>Total Footage</u> |
|---|-------------------|------------------------|----------------------|
| AMAX Exploration, Inc. | 2 | 1,178 | 1,278 |
| American Copper and Nickel Co., Inc. | 1 | 301 | 363 |
| Exxon Minerals Co. | 4 | 4,343 | 4,753 |
| Kerr-McGee Corporation | 5 | 2,877 | 3,631 |
| E.K. Lehmann and Associates of Wisconsin, Inc. | 12 | 7,245 | 9,419 |
| TOTAL | 24 | 15,944 | 19,444 |

| <u>County</u> | <u>Drillholes</u> | <u>Bedrock Footage</u> | <u>Total Footage</u> |
|---------------|-------------------|------------------------|----------------------|
| Chippewa | 2 | 1,178 | 1,278 |
| Florence | 1 | 582 | 670 |
| Forest | 6 | 5,433 | 6,037 |
| Iron | 2 | 1,205 | 1,677 |
| Lincoln | 11 | 6,826 | 8,876 |
| Oconto | 1 | 301 | 363 |
| Price | 1 | 419 | 543 |
| TOTAL | 24 | 15,944 | 19,444 |

1985 METALLIC MINERAL EXPLORATION LICENSEES¹

| License No. | Company | License No. | Company |
|----------------|--|----------------|---|
| 1 | Exxon Mineral Company | 10 | Amax Exploration, Inc. |
| 3 | Noranda Exploration, Inc. | 12 | Inspiration Development Co. ² |
| 5 | E.K. Lehmann and Associates of Wisconsin, Inc. | 17 | Kerr-McGee Corporation |
| 6 | Central Wisconsin Joint Venture ² (Getty Oil Co. E.K. Lehmann and Associates of Wisconsin, Inc.) | 18 | Amoco Minerals Company ² |
| | | 21 | Mineralco, Inc. ² |
| | | 22 | Mobil Oil Corporation ² |
| | | 23 | Molycorp, Inc. |
| 7 | St. Joe American Corp. ² | 24 | U.S. Borax and Chemical Corp. ² |
| 9 | American Copper and Nickel Co., Inc. | 26 | Superior Mining Company ² |
| | | 27 | Interesources, Inc. ³ |

1. Companies listed were licensed to drill for all or part of 1985. License numbers not listed were issued previously to companies that did not renew their license for the period of July 1984 to June 1985.
2. This company did not renew its license for the July 1985 to June 1986 license year.
3. This company has not previously held a license to explore in Wisconsin.