

METALLIC MINERAL EXPLORATION IN WISCONSIN

Summary of 1981 Activity

This is the second in a series of annual summaries of metallic mineral exploration activity in Wisconsin. Included are statistical reviews of exploration activity, highlights of the year's activity, and reviews of legislative and legal actions affecting exploration. This year's summary also includes a table of the past four years of activity, however the 1977 records may be incomplete since drilling activity reporting for that year pre-dates current administrative rules for metallic mineral exploration.

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HIGHLIGHTS OF 1981 ACTIVITY

Contrary to expectations, 1980 levels of metallic mineral exploration activity did not taper off in 1981. In fact, increases in most of the activity categories that can be measured from DNR drillhole abandonment reports and licensing records have put 1981 at the top of a four-year exploration growth trend. As in 1980, the 1981 drilling activity centered on non-ferrous, base metal targets, but also included some uranium exploration drilling. The uranium drilling, down sharply from 1980 levels, was undertaken by two companies working in Florence County. The map in Figure 1 shows where all metallic mineral exploration took place.

URANIUM EXPLORATION

The number of drill holes exploring for uranium fell from 30 in 1980 to 12 in 1981. Under the directive of the Legislative Council Mining Committee's Subcommittee on Uranium Exploration Safety, the Radiation Protection Section of the State Department of Health, Industry and Labor Relations continued its program of radiological monitoring of uranium exploration drilling by monitoring eight exploratory drillholes in Florence County. The program is designed to measure environmental and health effects produced as a result of the drilling. Monitoring took place to measure the levels of radon gas in the atmosphere and water near the drilling site, and the levels of gamma radiation and air particulates in the site area. The general conclusions of a soon-to-be-published report, entitled "Radiological Monitoring of Uranium Exploration Drilling in Northern Wisconsin", are that the drilling produced no environmental or health effect, but that safety is still a question because no uranium was found. The program will continue in the future in spite of the recommendation that monitoring would be more cost-effective if performed on holes drilled into a known uranium occurrence rather than on holes that are merely looking for a uranium occurrence.

1981 METALLIC MINERAL EXPLORATION IN WISCONSIN

③ NUMBER OF DRILLHOLES DRILLED IN TOWNSHIP

● KNOWN METALLIC MINERAL DEPOSITS

▲ ACTIVE METAL MINE

■ MINE PERMITS EXTANT, BUT MINING INACTIVE

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The four additional uranium exploration holes also drilled, in Florence County, were monitored for radon gas emissions by the company conducting the drilling. The monitoring showed that radon remained within background levels. No mineral deposits were discovered by this drilling.

THE LEGAL FRONT

Two legal actions of note occurred in 1981. The first is that the State appealed a December, 1980 decision of the Oneida County Circuit Court which declared unconstitutional a statute providing for certain geologic information from metallic mineral exploration to be submitted to the State Geologist. Oral argument on the appeal was heard by the District III Court of appeals in Wausau on November 19, 1981. The Appellate Court decision, filed March 23, 1982, reverses the judgement of the Circuit Court and dissolves the injunction barring enforcement of the statute. The second legal action is that the definitions of exploration, mining, mining operation and prospecting were changed in Statute 107.15 to have the meanings designated in s. 144.81. This resulted in a minor modification in the definition of prospecting but the other definitions were unchanged. Because of these cross-referenced definitions, the Statutes are now consistent and any changes in the metallic mining reclamation act (s. 144.81) will be automatically adopted by the geologic information law (s. 107.15).

1981 METALLIC MINERAL EXPLORATION ACTIVITY

The Wisconsin Statutes define metallic mineral exploration to mean, basically, drilling in search of metallic minerals. The regulation of this drilling activity creates public records which can be used to assess the level of exploration in terms of the number of companies that conducted drilling, the number of holes drilled, the footage drilled and the locations where drilling occurred. One can postulate other, more meaningful, gauges of exploration activity, such as the number of exploration targets that are drilled or the number of companies and total land acreage involved in geophysical and geochemical exploration, but information on these activities is not publicly available.

The use of public information from the Department of Natural Resources (DNR) allowed construction of the following tables. The tables show that in 1981 a total of 111 holes were drilled in 10 counties by 10 companies. They also show that new companies continue to be attracted to the state even though some of the previously licensed companies are leaving. Companies that find a mineral deposit generally remain licensed and continue their drilling to refine preliminary estimates of deposit size, shape and quality. Because this drilling is defined as "exploration" by Wisconsin law, it is useful to separate drilling on publicly announced mineral deposits from other drilling. Table 4 shows that if drilling on publicly announced mineral deposits is excluded, 1981 ranks above the previous four years in both the number of holes drilled and the footage drilled, and marks the fourth consecutive year of growth in the number of holes and total footage drilled.

Present indications are that 1982 exploration drilling footage will show an increase over 1981 totals, that the number of newly licensed companies will rise or remain constant, and that the total number of companies conducting drilling will increase slightly, pushing 1982 to the top of a five-year growth trend in exploration activity.

TABLE 1. 1981 METALLIC MINERAL EXPLORATION BY COUNTY

<u>County</u>	<u>Drillholes</u>	<u>Bedrock Footage</u>	<u>Total Footage</u>
1. Clark	1	471	519
2. Florence	19	6,206	7,439
3. Forest			
including Crandon			
Project	37	21,688	26,298
excluding Crandon			
Project	23	15,747	17,917
4. Iron	2	664	991
5. Langlade	1	605	883
6. Marathon	11	6,010	6,853
7. Marinette	1	189	285
8. Oconto	3	1,201	1,459
9. Oneida	5	3,659	3,995
10. Price	31	25,344	29,277
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TOTAL	111	66,037'	77,999'
Excluding Crandon			
Project	97	60,096'	69,618'

Source: DNR Drillhole Abandonment Reports

TABLE 2. 1981 METALLIC MINERAL EXPLORATION BY COMPANY

<u>Company</u>	<u>Drillholes</u>	<u>Bedrock Footage</u>	<u>Total Footage</u>
Amax Exploration, Inc.	6	1,582	2,344
American Copper and Nickel Co., Inc.	11	6,010	6,853
Amoco Minerals Co.	13	11,231	12,331
E.K. Lehmann and Assoc. of Wisconsin, Inc.	28	25,865	29,282
Exxon Minerals Co., USA	15	6,390	8,940
Kerr-McGee Resources Corporation	12	4,287	5,816
Minatome Corporation	8	1,184	1,309
Noranda Exploration, Inc.	2	1,556	1,646
St. Joe American Corp.	2	794	1,168
Mineral Sciences Division, UOP, Inc.	14	7,138	8,310
TOTAL	111	66,037'	77,999'
Excluding Crandon Project	97	60,096'	69,618'

Source: DNR Drillhole Abandonment Reports

TABLE 3. 1981 METALLIC MINERAL EXPLORATION LICENSEES

<u>License No.</u>	<u>Company</u>	<u>License No.</u>	<u>Company</u>
1	Exxon Minerals Co., U.S.A.	10	AMAX Exploration, Inc.
* 2	Western Nuclear, Inc.	11	Mineral Sciences Division, UOP, Inc.
3	Noranda Exploration, Inc.	12	Inspiration Development Co.
5	Ernest K. Lehmann & Associates of Wisconsin, Inc.	*14	Duval Corporation
6.	Central Wisconsin Joint Venture (Getty Oil Co., Denison Mines U.S. Inc., E.K. Lehmann & Associates of Wisconsin)	15	Minatome Corporation
7	St. Joe American Corporation	17	Kerr-McGee Corporation
9	American Copper and Nickel Co., Inc.	18	Amoco Minerals Company

Source: DNR Metallic Mineral Exploration Licenses

* Exploration licenses are renewable on July 1 of each year--an asterisk (*) indicates a company holding a license in the first half of 1981, but not renewing the license after July 1st for the 1981-1982 year.

TABLE 4. FIVE-YEAR METALLIC MINERAL EXPLORATION SUMMARY

	1977*	1978	1979	1980	1981
Companies Licensed To Drill**	no license required	13	16	15	14
Newly Licensed Companies	no license required	13	3	1	1
Companies Conducting Drilling	8	10	9	9	10
Total Counties Drilled	9	9	10	12	10
Total Holes Drilled	85 + (75)	230 (49)	89	98 (96)	111 (97)
Total Footage Drilled	48,991' + (38,927')	339,928' (29,711')	34,660'	49,562' (40,303')	77,999' (69,618')
Total Bedrock Footage	40,271' + (32,926')	300,452' (23,871')	27,040'	39,203' (31,520')	66,037' (60,096')

Source: DNR Drillhole Abandonment Reports and Metallic Mineral Exploration Licenses

* The 1977 totals shown are documented but may be lower than the actual totals due to the lack of a legal requirement for companies to submit such information.

** An exploration license may be obtained during any month of the year, but must be renewed each July 1. This total includes companies licensed to drill for all or part of the indicated year.

+ The footages without parentheses include all exploration drilling documented to have taken place during the given year. The footages in parentheses do not include Exxon's Crandon Project drilling, because it occurred after the deposit was publicly announced.