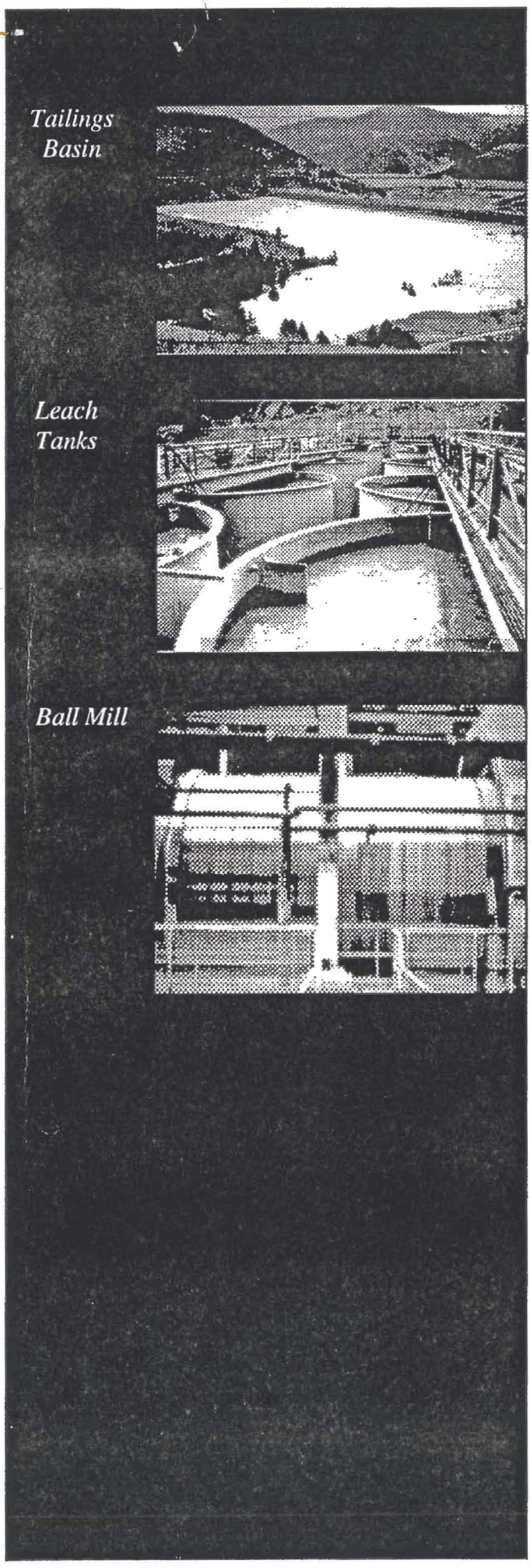

The Report on the Mining Simulation Project

Executive Summary

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Minnesota Department of Natural Resources
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Project Environment Foundation

January 1990

REPORT ON
THE MINING SIMULATION PROJECT

by

Minnesota Department of Natural Resources

Minnesota Pollution Control Agency

Project Environment Foundation

Ernest K. Lehmann & Associates, Inc.

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REPORT ON
THE MINING SIMULATION PROJECT

ABSTRACT

This cooperative study has been undertaken by representatives of the environmental community, the mining industry, the Minnesota Department of Natural Resources (DNR) and the Minnesota Pollution Control Agency (MPCA) in order to identify and resolve environmental issues associated with base and precious metal mining in a neutral atmosphere before a commercial mining development is announced. The study is an outgrowth of the 1987-88 Minnesota Minerals Forum sponsored by the Blandin Foundation. The participants reviewed the existing permitting and environmental review processes and visited mining operations in other areas of the country and of Canada which had attributes similar to those that might be encountered in an operation in Minnesota. In addition, the MPCA prepared a literature study on the environmental effects of nonferrous mining. Central to the study has been testing Minnesota's as-yet-untried nonferrous mining regulatory program using three hypothetical mining developments sited in environmentally sensitive areas where future mining could occur. Results include identification of critical paths for regulatory decision making, identification of particularly sensitive environmental issues that will need continued deliberation before resolution, and characterization of data necessary for environmental review and permitting decisions. Consensus based conclusions have been reached on aspects of seven major issue areas: exploratory drilling; environmental review and permitting processes and procedures; land-use conflicts; water quality and quantity; air quality; design operation, closure and postclosure care; and financial assurance.

REPORT ON
THE MINING SIMULATION PROJECT

EXECUTIVE SUMMARY

Increasing sensitivity to environmental concerns on the part of the public, special-interest groups, government and industry, coupled with an increasingly litigious and adversarial climate often characterized by opposition to new industrial development, mandates the search for ways to anticipate, mitigate and resolve environmental conflicts in order to facilitate appropriate and environmentally-sound economic development. This is particularly true in the area of new mineral developments.

Mineral production has long been a significant part of the economic and social fabric of Minnesota. Since the late 19th century the state has been the leading U.S. producer of iron ore as well as producing important amounts of aggregate, dimension stone, silica sands and heavy clays.

Minnesota has significant unexplored and undeveloped potential for additional mineral production. Nonferrous mineral exploration began in the 1860s with the search for gold in Minnesota. In the 1950s and 1960s exploration for copper-nickel resulted in the identification of two large low-grade deposits whose development was then deferred to allow for a generic environmental study. At the conclusion of this study, the economics of the base metal industry had changed. The development of these deposits has been indefinitely postponed.

Since 1980, interest in nonferrous mineral exploration, principally for gold, base-metal sulfides and platinum-group metals, has been heightened by discoveries and developments in Ontario, Manitoba and Wisconsin, as well as by evolving geological concepts regarding deposits of such metals. However, mineral exploration in Minnesota has been perceived by industry to be hampered by an adverse tax structure, problems of land availability and a potentially unfriendly regulatory climate.

In September 1987, in order to examine factors affecting development of the state's mineral resources, the Blandin Foundation, a Grand Rapids-based philanthropic organization, convened the Minnesota Minerals Forum. Participants in the Forum included senior state agency officials and representatives of the mining industry, academic community and environmental groups.

The Forum participants believed that for the nonferrous and precious metals industry, tax issues had been addressed by bills passed during the 1987 legislative session. A major item of concern, particularly to industry, was a regulatory climate which could potentially inhibit mineral development. Though there is in place in Minnesota an operating body of rules and

precedents governing iron mining, no such precedents exist for the nonferrous and precious metals industry. Accordingly, a unique project was developed to examine the as-yet-untested regulatory framework through a series of hypothetical "case studies," thereby evaluating the environmental review and permitting process for several geologically and economically realistic though nonexistent mine developments.

A working group for this project was formed by the Minnesota Department of Natural Resources (DNR), the Minnesota Pollution Control Agency (MPCA), the environmental community as represented by Project Environment Foundation (PEF), and mineral industry interests represented by Ernest K. Lehmann & Associates, Inc. (ELA), a Minneapolis-based geological consulting firm.

The working group formulated the following objectives for the proposed Nonferrous Mining Project:

1. Identify the environmental issues associated with precious- and base-metal mining.

2. Anticipate the data needed by industry and government to address those issues.

3. Determine shortcomings and duplication in the regulatory process to reduce costs and time requirements for industry and government while ensuring effective environmental safeguards.

4. Educate government, the environmental community and industry about the economic impact of development on the state's economy and on the mining industry.

5. Help all participants better prepare for participating in the permitting process.

6. Develop state policies to better address environmental and economic issues that may be identified during the study.

In order to fund the project, the two state agencies, DNR and MPCA, received an appropriation of $185,000 from the Minnesota Legislature. Project Environment Foundation and ELA jointly requested and received funding by a major grant from the Blandin Foundation, smaller grants from several other foundations and donations from a number of mining companies, service companies and individuals; approximately $130,000 in private funding was raised. A number of other parties assisted the industry group in the technical aspects of the project, and several major state and national environmental groups assisted PEF in its work.

The project activities carried out included the following:

1. An initial conference sponsored by the regulatory agencies to review the existing regulatory process.

2. Visits by participants to active mining operations in the U.S. and Canada that have particular attributes similar to what would be expected in new mining developments in Minnesota.

3. The development, review, discussion and analysis of three hypothetical mining case studies.

4. A review of the literature on environmental impacts of base- and precious-metal mining.

5. An analysis of the environmental review and permitting process and construction of a chart depicting the existing process.

6. Identification and examination of major issue areas.

7. Preparation of a report that includes conclusions and recommendations of the participants.

The first volume of this report discusses the work done and the conclusions and recommendations of the project team. Volume II contains appendices including notes on field trips, the actual case studies and formal responses, lists of participants and the interagency memorandum of understanding. Volume III is the literature study of environmental impacts prepared by the MPCA.

Field trips to operating mines were undertaken because they permitted participants to view problems of existing operations, assess solutions applied and learn from the experience of others.

In order to focus analysis and discussion, three realistic, site-specific, but hypothetical mine models were developed by the industry representative:

1. An underground platinum-palladium mine located in the Duluth gabbro complex. The proposed site is within an area that drains into the Boundary Waters Canoe Wilderness Area. Both existing iron mining areas and areas of high recreational values (mainly sport fishing) border the site. In addition, it is a wolf habitat area. Mining at 600 tons per day (tpd) would be by room-and-pillar methods. A bulk flotation concentrate would be produced which would be shipped out of state or out of the country for smelting.

2. A 4000-tpd copper-zinc-gold-silver massive-sulfide deposit in Archean greenstones located in a terminal moraine area. The area where the hypothetical deposit is located has summer cabin sites,

wetlands and streams, recreational value and timber value. The deposit was postulated as a open pit mine initially with conversion to underground mining after seven years. A three-product flotation mill was assumed, with all products shipped out of state for smelting.

3. An arsenical gold deposit associated with an Archean iron formation, located in and adjacent to one of Minnesota's environmentally significant "patterned" peatlands. This deposit was postulated to be mined by underground methods at a rate of 2000 tpd with a projected mine life of 11 years. The ores were to be treated by a cyanide agitation leach with gold recovery by the Merrill-Crowe process.

Each case study was prepared in written form (Volume II) and included a description of the site characteristics and mining and treatment plans. Other physical and operating characteristics were specified as well. Maps and sections were provided, as were data on geology, soils, hydrology, the composition of potential waste, tailings, processing, reagents used, socio-economic impacts and other factors.

Each case was then discussed by the participants in a one-day session. These sessions were in part a simulation of an initial "scoping session" that might occur at the outset of agency review of a project. As many as 30 to 40 persons from the agencies and environmental and industry groups attended each session. In addition to discussions, the agencies and the environmental community presented prepared written comments. (Volume II)

Out of the discussions of the cases grew a graphic representation of the environmental review and permitting process, in the form of a chart (Figure 1). The development of this timetable has been essential to an understanding by all parties of the existing process and regulations. It is a key to working through that process most efficiently.

The chart is based on the environmental review and permitting requirements as required by law and regulation. It outlines agency timetables and identifies actions and major data required of the project sponsor, as well as of the regulatory agencies. The time frame is "optimistic" in that it postulates that data needs will be met adequately and in a timely manner by the sponsor. It also assumes that there are no legal challenges resulting in additional public hearings or court procedures.

The chart suggests areas for possible substantive simplification and improvement of the review process. These include the possibility of combined hearings for major permits and the environmental review process, single reports and interrelated data sets.

Discussion and analysis brought about by the case-study review and the construction of the flow chart suggested seven major issue areas. These were discussed at length among the participants and their individual views are presented in Section 5 of the report. These issue areas are:

Exploratory Drilling
Environmental Review and Permitting Processes and Procedures
Land-use Conflicts
Water Quality and Quantity
Air Quality
Design/Operation/Closure/Postclosure Care
Financial Assurance

Some consensus conclusions and recommendations have been reached in each major issue area.

Major conclusions and agreements are:

1. Exploratory Drilling. Though no instances of ground water contamination from exploratory drilling are known in the state, a further review of drilling additives by the Minnesota Department of Health is recommended.

2. Environmental Review and Permitting Processes and Procedures. In Minnesota, two agencies have primary permitting authority for mining. A number of other state, federal and local authorities are involved in permits as well. Therefore, when a mining proposal is submitted for initial review, we recommend that an existing interagency (DNR and MPCA) coordinating committee establish a review and permitting team; standardize map, data and monitoring needs; develop a project-specific timetable; and evaluate the practicality of joint permit applications (including permit plans) and hearings for various permits.

   Early and frequent involvement of local units of government, the public and special-interest groups is highly desirable and needs to be fostered. We suggest the formation by the project sponsor of local or regional advisory boards.

   Everyone should play by the same rules; that is, the regulations as they exist at the time of the application. In other words, "end runs" by any of the parties do more harm than good in terms of credibility of the participants and the process. Such "end runs" will probably slow down, rather than expedite, the process.

3. Land-use Conflicts. Land-use conflicts triggered by a mining proposal probably represent the most difficult conflicts to resolve. This is largely because the judgments involved in such conflicts are subjective and value-based. To facilitate evaluation of the merits of various viewpoints in these difficult matters, we recommend that Minnesota's environmental review rules should be amended to require a cost/benefit analysis based on an inventory of all costs and benefits, including those that are not quantifiable in dollar terms.

4. Water Quality and Quantity. In technical terms these encompass the most significant probable impacts of new mining development. We conclude that minimization of these impacts will require adequate base-line monitoring, characterization of expected mine wastes, determination of receiving water criteria, determination of operating procedures and mitigative measures, and collection of operational and postclosure monitoring data. The existing and proposed rules address these issues.

5. Air Quality. Current regulations appear to be sufficient to handle expected impacts of mining and milling operations.

6. Design/Operation/Closure/Postclosure Care. Applicants for permits are required to submit mine design data, operational plans, closure (reclamation) plans, and postclosure care plans. In order to produce these effectively, data and information needs of the agencies must be identified and coordinated early in the process. Plans must be updated periodically during the life of the operation. At the time of closure, the closure plan will be reviewed and implemented. The agencies will evaluate the possibility of using a joint closure plan.

   If initial waste characterization studies are not conclusive as to acid production potential, metal release or other hazards, regulatory decisions regarding waste disposal and treatment should be made in a conservative manner.

7. Financial Assurance. Assurance of the sponsor's financial ability to meet regulatory obligations will be required. However, we believe that this can be provided in a variety of forms, that is, "bonds" are not the only way such assurance can be provided. However, such assurance must reflect projected closure and postclosure costs as well as credible accident clean-up costs.

We further conclude that the Mining Simulation Project has constituted a unique cooperative effort by industry, government and the environmental community to examine the environmental and regulatory concerns related to

the potential for a new base- and precious-metal mining industry in Minnesota.

We also conclude that the use of a hypothetical "case study" approach has allowed participants to focus on real issues without encountering the make-or-break environment of an actual development project. It gave the participants a deeper understanding of the potential benefits and costs of new mining developments.

The construction of a chart depicting the existing permitting and environmental review process has helped develop consensus on possible ways to improve the regulatory process to the benefit of the responsible agencies, industry, the public and the environment.

Report on
The Mining Simulation Project
Volume I
Table of Contents

REPORT ON
THE MINING SIMULATION PROJECT

VOLUME II
Appendices to the Final Report: Non Ferrous Mineral Project

CONTENTS

REPORT ON
THE MINING SIMULATION PROJECT

VOLUME III
The Nonferrous Mining and Processing Industry:
A Review of Literature and Other Information

CONTENTS

ETHICS scandal truth tax

Sharon and Husband, Jim — Marine Vet, Silver Star. Hobbies are politics and bowling.

1990 Home

SUMMARY NOTICE, CONSOLIDATE, U.C.C.§1-201(15) ALL DOCUMENTS OF TITLE, §2-711(2)(b) 2-710(3) RESCIND IN

Public Notice

ATTORNEY GENERAL no. 115390700

All persons, entities, including Eagle Drugs Inc., Ballard Trucking & Storage, all defendants who (1) were record or beneficial owners of any and all Documents of Title, a.specifically (15) Shares of SAFE common stock, Corporation papers Anderson + Advocates Inc., Church of Justice Reform Inc., Rose of Sharon Ministries Inc., incorporated under the M.S. 317, laws of Minnesota, patterned after AA, with no pecuniary gain, or State or Federal money's , faith, good will.....as of April 21st, 1988 or thereafter or (2) who acquired during the period from April 21st, 1988 up to and including the present February 20th, 1990, ALL DOCUMENTS OF TITLE, which encompass (5) parcels of real-estate, a, Grave at Hillside, b. 1058 Summit Ave, HOMESTEAD, OFFICE, 2 paying guests, owner occupied over 15 years, c. 2194 Marshall, single residence, office, 1 to 5 paying guests, common kitchen etc. d. 448 Desnoyer Av. Duplex, (RICO pattern HUD Fraud, check Kiting, commerical state bank, 1st Bank Grand, Midwest Fed S&L receiver Midwest Saving, e. 325 N. Wilder (6) unit (RICO pattern of check kiting, since 1980, Minnesota Title, Cherokee State Bank, St. Anthony State Bank. Pr. Lesbian Judge Gearin, Sheriffs Writ Restitution. 4/21/88

PLEASE READ THIS SUMMARY NOTICE CAREFULLY, THIS NOTICE RELATES TO M.S. 211.08, Minn. Const. Art.VII sec. 1 to 5, Impeachment, removal from office, Art. X & XI, Taxaction, Appropriation, Finance, Rules of the Minn. House Art. VII, rule 7.1, against Ramsey County Attorney Tom Foley, conspiring with State Rep. Tom Ostoff, Clerk Joseph E. Gockowski, misfeasance, malfeasance, nonfeasance, influence peddling, JUDICIAL (Gearin 88) pecifics, falsifing Land Records, since 1976, re: US C. RAMSEY COUNTY SECOND COURT, FILE 495722 & 499129 (Gearin) 451899 & 463962 (Portaky) 458786 MINN. SUPREME COURT (Farley) C6-89-1280 (Popovich) 84-354 C6-89-1022 (Keith) C6-88-859 (Parker-Popovich) Cx-82-1292 (Simonett UNITED STATES DISTRICT COURT FILES 3-87-282 (ALSOP) 3-89-412 City-89-2245 Cty-87-161 89-378 76-178 titled Scarrella v. Midwest Fed. S&L, A. Ex. 3 St. Del Txs. State Deed Stamp, Doc. of Title no. 1968858, dtd. June, 22, 1977, Taxs pd B. 1978 Taxs paid, drawn from Home Fed S&L, Dheil Gustafsons bank, indicating embellzment as John Finley lawyer, realator, county commissioner, improper, false statements, records..... C. Ex. 4 Petitioners have over $25 thousand at Commerical State Bank, illegally witheld to reduce us to peonage, exploit a silver star marine. Foleys failure to prosecute, Durenbergers Senate, ELECTION or commerical state bank as Petitioner was candidate for US Senate FEC reg. no.C00234088 is improper abuse of public trust, Foley has held onto a $1,000.00 for over 1 year, Ex 6, now exthortian, embellzment are charged....

YOU ARE HEREBY NOTIFIED, pursuant to Federal R. Civ.P.56(c), State Rule 57, State Law 555, informia pauperius servic commencing Feb. 20th, 1990, any person, entity who fail to answer, object will waive rights, as "MELLON BANK" title, v. Conservatory, and "SAFE" Oren O. Robbins, are PRUDENT, IN FULL COMPLIANCE WITH STATE & FEDERAL LAWS.

THIS SUMMARY notice is not fully descriptive of litigation, you may inspect ALL files, in ALL courts, as the "BAD BEHAVIOR of Eagles Drugs, 'may' be cause of Drug Laundering as we refused $100,000.00 of Dirty Money....

/s/ James R. Anderson, Cabin at Buck Lake, HC3 Box 80-B, Hibbing MN 55746 1-218-835-3009

/s/ Mrs. Sharon Scarrella Anderson Homestead 1058 Summit, St. Paul, MN 55105

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Anderson's Minnesota Ministers of law

VOTE

ATTORNEY GENERAL

Sharon and Husband, Jim — Marine Vet, Silver Star. Hobbies are politics and bowling.

1990

A Lay Person's Guide To

ANTITRUST LAW

TAX-FORFEITED LAND SALES

CLASSIFICATION OF LAND

282.01 TAX-FORFEITED LANDS.

Subdivision 1: Classification; use; exchange. It is the general policy of this state to encourage the best use of tax-forfeited lands, recognizing that some lands in public ownership should be retained and managed for public benefits while other lands should be returned to private ownership. All parcels of land becoming the property of the state in trust under the provisions of any law now existing or hereafter enacted declaring the forfeiture of lands to the state for taxes, shall be classified by the county board of the county wherein such parcels lie as conservation or nonconservation. Such classifications shall be made with consideration, among other things, to the present use of adjacent lands, the productivity of the soil, the character of forest or other growth, accessi

February 16, 1990

Dear Sir or Madam:

The potential for the mining of gold, silver, copper, zinc, platinum and other non-ferrous metals represents important economic opportunities for Minnesota and to diversification of its rural economy. However, such mining operations raise questions about environmental impacts and the process by which environmental review and permitting will take place.

Under appropriations from the 1988 State Legislature and major funding from the Blandin Foundation as well as other foundations, companies and individuals, the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, Project Environment Foundation and representatives of the mining industry undertook a unique cooperative project to study issues related to environmental review and permitting of potential non-ferrous and precious metals mining projects.

The results of this project have been published in a three-volume report.

For your information, we enclose with this letter an Executive Summary of this Mining Simulation Project. If you desire any additional information, please get in touch with the contact people listed below.

Sincerely yours,

Minnesota Department of
Natural Resources

By Alan G. Thomas, Jr.

Joseph Alexander, Commissioner
(contact: Arlo Knoll
218-262-6767)

Project Environment
Foundation

Gayle Peterson,
Executive Director
(contact: Don Arnosti
612-379-3856)

Minnesota Pollution
Control Agency

Gerald D. L. Willett

Gerald Willett, Commissioner
(contact: William J. Lynott
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Ernest K. Lehmann
& Associates, Inc.

Ernest K. Lehmann, President
(612-338-5584)

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