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# Governor's Task Force on Mining and Minerals

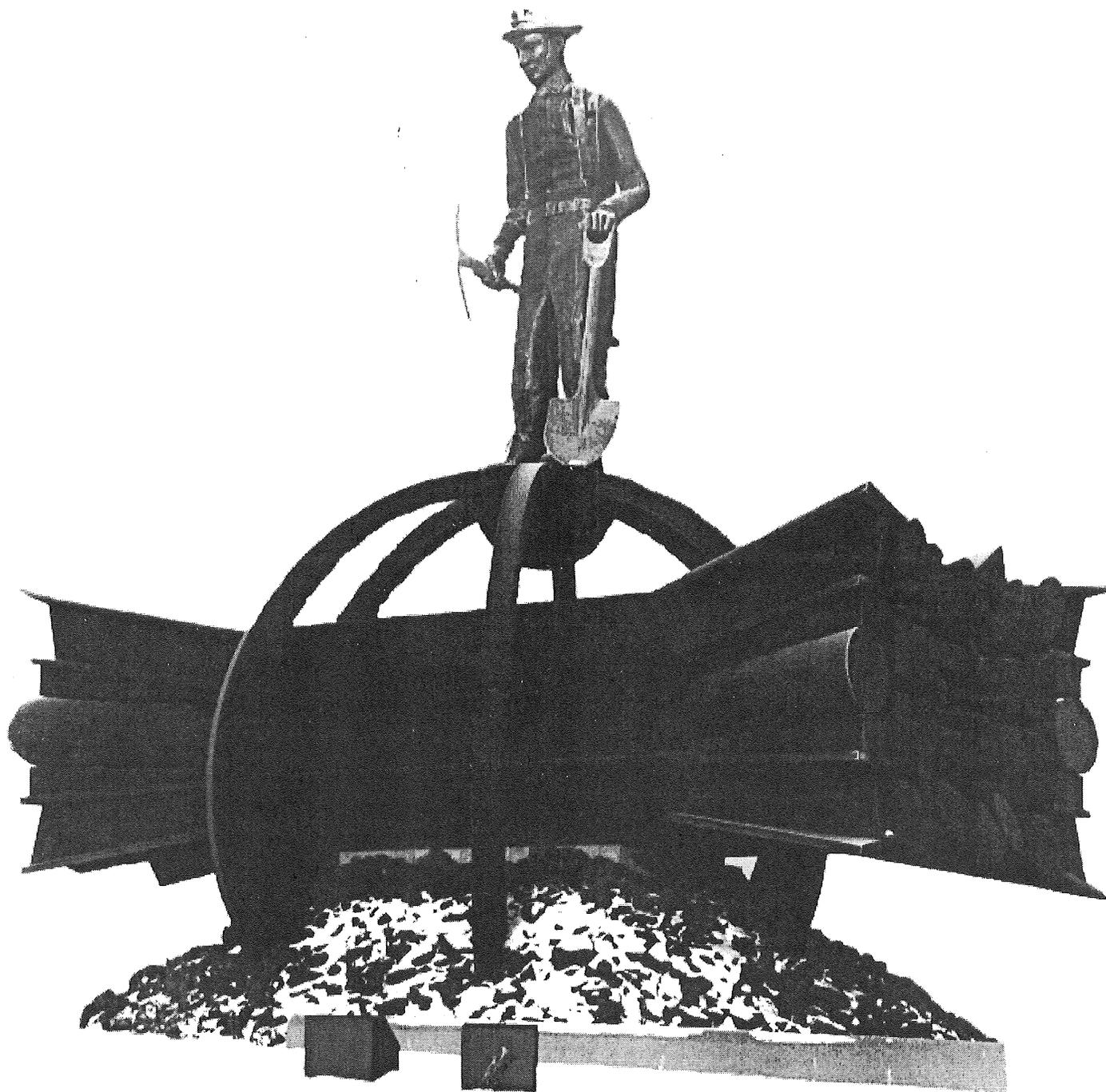
*February 1998  
Recommendations*

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ded to:  
or Arne Carlson  
rs of the Minnesota Legislature



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### *The Iron Man*

*The Iron Man, perched atop stylized steel products of various types, is a tribute to the workers of Minnesota's iron mines. Located in Chisholm, Minnesota, this 85 foot memorial is the third-largest, free-standing statue in the United States after The Statue of Liberty in New York City and the Gateway Arch in St. Louis, Missouri.*

### *Cover Photo*

*Minnesota's first iron ore mine at Soudan. This 1890 picture shows open pit operations and was taken before underground operations commenced. - From the collection of the Iron Range Research Center, Ironworld, Chisholm, Minnesota.*

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## MEMBERS OF THE GOVERNOR'S TASK FORCE ON MINING AND MINERALS

Dr. Bill Brice  
Director, Minerals Division  
Department of Natural Resources  
612-296-4807

Mr. Carl D'Aquila, Vice Chair  
President, Mesabi Radial Tire Co. and  
Mesabi Powder Co.  
218-263-6865

Mr. Stan Daniels  
Rapid Response Coordinator, District 11  
United Steelworkers of America  
612-623-8003

Mr. Dave DeLeo  
President, EVTAC Mining  
218-744-7802

Mr. David Foster  
Director, District 11  
United Steelworkers of America  
612-623-8045

Mr. Bob Fragnito (RAMS Alternate)  
Mayor, City of Nashwauk  
218-885-1299

Ms. Ann Glumac  
President, Iron Mining Association of Minnesota  
218-722-7724

Ms. Jan Green  
Environmental Advocate  
218-525-5654

Mr. Jim Gustafson, Chair  
Commissioner  
Iron Range Resources & Rehabilitation Board  
218-744-7400

Ms. Suzanne Hanson (MPCA Alternate)  
Regional Manager, Duluth Office  
Minnesota Pollution Control Agency  
218-723-4665

Mr. Jim Hoolihan  
President, Industrial Lubricants Co.  
218-326-9455

Dr. Mike Lalich  
Director, Natural Resources Research Institute  
218-720-4294

Mr. Peder Larson  
Commissioner, Minnesota Pollution Control Agency  
612-296-7301

Mr. David Meineke  
President, Meriden Engineering  
218-262-6127, Ext. 135

Mr. Eric Norberg  
Vice President MPE of Strategic Accounts  
Minnesota Power  
218-723-3988

Mr. Frank Ongaro  
Executive Director  
Range Association of Municipalities and Schools  
218-258-3216

Ms. Liz Prebich  
Commissioner - District 6, St. Louis County  
218-749-7108

Mr. Bill Ulland  
Director, Minnesota Exploration Association  
218-727-5068

---

### *Iron Range Resources & Rehabilitation Board Staff:*

Brian Hiti, Manager, Mining & Natural Resources  
Development, Task Force Staff Coordinator  
218-744-7400

Laureen Hall, Administrative Assistant  
218-744-7400

Frank Settini, Consultant (Retired Mining Company  
Manager)  
218-225-2970

### *Department of Revenue Staff:*

Don Walsh, Manager, Minerals Tax Office  
218-744-7420

Tom Schmucker, Administrative Engineer, Minerals Tax  
Office  
218-744-7420

# 1998 TASK FORCE PRESENTATIONS

## September 19, 1997

*Overview of the North American Steel Industry* - Tom Sneeringer, Senior Vice President and General Counsel, American Iron & Steel Institute, Washington, D.C.

*Minnesota Tax Issues* - Jim Girard, Commissioner, Minnesota Department of Revenue

*Expectations for Minnesota's Iron Ore Industry* - Dr. Peter Kakela, Professor, Department of Resource Development, Michigan State University, East Lansing, Michigan

## October 22, 1997

*Input from Minnesota's Aggregate Industry* - Jonathan Wilmshurst, Vice President, CAMAS Inc.; Don Vry, Regional Manager, Meridian Aggregates Company; Mike Kamnikar, Aggregate Engineer, MN Department of Transportation; Cindy Buttleman, Minerals Regional Specialist, MN Department of Natural Resources, Minerals Division

*Update on Minnesota Minerals Research - Minerals Research Funding Trends:* Dr. Bill Brice, Director, DNR Minerals

*Update on Coleraine Minerals Research Laboratory Directorship and Endowed Chair for Minerals Research at Natural Resources Research Institute:* Dr. Mike Lalich, Director, NRRI

*Permanent University Fund Scholarships (Iron Range Scholarship Program) Funded from State Minerals Royalties* - Peter Zetterberg, Director, Office of Planning and Analysis, University of Minnesota

*Progress Report on Minnesota Copper-Nickel Research-* Blair Benner, Research Fellow, Coleraine Minerals Research Laboratory, NRRI

*Innovative Iron Ore Classification Technology* - John McGaa, President, 5R Research

*Progress Report on 97 Task Force Recommendations: Exploration Data Advisory Committee:* Bill Ulland, Director, Minnesota Exploration Association (MExA); *Taconite Mining Grants:* Dr. Bill Brice, Director, DNR Minerals; *IRRRB Drilling Incentive Grant Program and Mesabi Range Mapping Initiative:* Brian Hiti, Manager, Mining & Natural Resources Development, IRRRB

## November 21, 1997

*Report on 2<sup>nd</sup> World Iron Ore Conference 97 and the Point Lisas Industrial Estate, Republic of Trinidad & Tobago, West Indies* - Brian Hiti, Manager, Mining & Natural Resources Development, IRRRB

*Labor Issues for 1999 Negotiations* - David Foster, Director, District 11, United Steelworkers of America

## EXECUTIVE SUMMARY

### Mining Task Force Issues 1998 Recommendations

The Governor's Task Force on Mining and Minerals met three times during the fall of 1997 and now submits its recommendations to the governor and the legislature. Governor Arne Carlson created the Task Force in 1993 to make recommendations on state policy on mining and minerals issues, including taxation, royalties, regulations, economic and environmental issues, and research. It's comprised of representatives from the mining industry and businesses that rely on mining, state agencies, education and research institutions, local governments, environmental advocacy groups and the United Steelworkers of America (USWA). Chaired by IRRRB Commissioner Jim Gustafson, the Task Force has issued five reports since 1993, the last in January 1997. All types of mining typically are discussed, including iron ore and taconite, nonferrous minerals such as copper, nickel and gold, and industrial minerals such as sand, gravel and dimension stone.

The Task Force reconvened in 1997 on September 19 with a day-long session that focused on the iron mining industry. Tom Sneeringer, Senior VP and General Counsel for the American Iron and Steel Institute came from Washington D.C. to deliver an overview of the North American steel industry. Michigan State University Professor Peter Kakela traveled from Lansing, Michigan to present an outlook on the Minnesota iron ore industry. Minnesota Revenue Commissioner Jim Girard discussed state tax issues. Discussion ensued regarding what the state of Minnesota can do to enhance the long-term viability of its taconite industry.

On October 22, the Task Force concentrated on nonferrous and industrial minerals, hearing a report on copper-nickel research and input from two industry-government committees,

one working to make Minnesota's exploration data more user-friendly, and another offering recommendations about the state's aggregate resources.

On November 21, the Task Force reached consensus on its 1998 recommendations. Following a presentation from USWA District 11 Director David Foster on 1999 contract negotiations, the Task Force discussed and approved the following recommendations:

### **Iron Ore and Taconite**

- *Electric Deregulation:* Public policy decision making for electric industry restructuring should involve all electrical energy consumers, including the iron mining industry, which requires affordable electricity to remain cost competitive, as well as residential consumers. Improved industry energy utilization and efficiency should continue to be promoted.
- *Taconite Workforce:* Education and training at various levels, including internships, should be provided for students interested in pursuing careers in the iron mining industry, and where possible, training programs should be shortened to provide needed workers more quickly and efficiently.
- *Taconite Taxes:* Because taconite taxes are important to the mining companies as well as local governments, a subcommittee of labor and mining company management is urged to reach consensus on a recommendation to the governor and legislature regarding taconite production taxes as soon as possible.

### **Copper, Nickel, Gold and Other Nonferrous Opportunities**

- *Exploration Data:* The state is encouraged to utilize the expertise from an industry-university-state agency work group to improve Minnesota's exploration data system,

thereby facilitating exploration efforts. \$250,000 in state funding is recommended in addition to the \$100,000 provided in 1997 to improve the state's exploration database.

### **Sand, Gravel and Other Industrial Minerals Opportunities**

- *Aggregate Resources:* The state should establish an Aggregate Resources Task Force to examine issues related to Minnesota's aggregate resources, including resource inventories, permitting standards and local governmental expertise for environmental review. This effort is designed to provide a statewide perspective for informed decision making and quality legislation.

### **Environmental, Land Use and Other Opportunities**

- *Topographic Mapping:* State agencies, local governments and the mining companies should work together to update topographic maps of mined lands to better support reclamation and land-use decision making.
- *Environmental Cooperative Research:* State funding for environmental cooperative research programs between the state and industry should be increased by \$55,000 in 1998.
- *Environmental Regulations:* Federal and state environmental regulations always should be based on scientific data and the impact of a pollutant on human health, with realistic measuring standards and control methods. Efforts to control problems in other areas of the country should not lead to more stringent controls for Minnesota businesses that have taken proactive steps to protect the environment.
- *Transportation:* The IRRRB commissioner should appoint and fund a blue-ribbon committee to study the impact of northern Minnesota transportation costs on the competitiveness of the iron mining and other area industries.

- *Minerals Research:* At a minimum, the state research effort should maintain a flow of ideas through laboratory and pilot scale research using the Iron Ore Cooperative Research, Environmental Cooperative Research, Mineral Diversification, Permanent University Fund and other research programs.

However, a re-evaluation of the state's mineral research programs should be undertaken to insure that a comprehensive strategy for program management is maintained, with industry input, so that research efforts remain coordinated and directed towards agreed-upon goals.

- *Taconite Research:* Additional state funding should be sought to match industry funds to demonstrate new technology at plant scale. A new taconite flow sheet should be developed, using ideas generated during the past decade.
- *Value-added Iron Research:* State funding should be used to encourage the development of value-added iron products from Minnesota iron ore and taconite, including low-silica and micro-or mini-pellets, heavy media, direct reduced iron (DRI) and pig iron.
- *Legislative Commission on Minnesota Resources:* A special effort should be made to cultivate partnerships with the LCMR on mineral research projects which promote the sustainable development of Minnesota's mineral resources and provide economic opportunities for its citizens. The LCMR is encouraged to support these and other efforts, including the development of land-use and Mesabi iron range hydrology data. This information should be made available to all stakeholders, including the mining industry as well as local governments, to assist in local zoning, long-range planning and the protection of mineral resources from encroachment by future development.

# **RECOMMENDATIONS**

## **IRON ORE AND TACONITE OPPORTUNITIES**

### **Utility Related Issues**

Continued low cost and competitive electric energy supply has a significant impact on the cost-competitiveness of the iron mining industry. Public policy decision making for electric utility industry restructuring should recognize these industry concerns and involve the industry while recognizing the varied needs to address utility taxation issues, minimize impacts on residential consumers, etc. Efforts to encourage improved industry energy utilization and efficiency should continue to be promoted.

### **Education and Training**

Post-secondary training should provide students with the kinds of skills they will need to work in iron mining -- i.e. computer literacy, hydraulics, electronic controls, mining processes -- and where possible, those training programs should be shortened to provide needed workers more quickly and efficiently. Internships should be developed for students who could seek employment at all levels within the iron mines.

### **Production Taxes**

The Task Force recognizes the competitiveness of the taconite and steel industries and the significance of production taxes to all stakeholders, including mining companies, labor and local governments.

The Task Force also recognizes the vital importance of the stability and predictability of the production tax to all stakeholders.

The position of the Task Force is to encourage a subcommittee of labor and mining company management to provide a mutually agreed upon recommendation on taconite production taxes to the Task Force by February 1, 1998.

## **COPPER, NICKEL, GOLD AND OTHER NONFERROUS MINERALS OPPORTUNITIES**

### **Minnesota Minerals Exploration Data**

The Exploration Data Advisory Committee is composed of nine subject experts from the nonferrous exploration community, two geologic researchers from the state's University community and three representatives from mineral-related state agencies. The advisory body's purpose is to assist DNR in setting the overall framework, direction, and priorities for making exploration information accessible; to recommend a work plan and budget; and to monitor the process.

A two-day Joint Application Development session, sponsored by the Minnesota Exploration Association (MExA), IRRRB and DNR was held on August 19-20, 1997. This working session with Exploration Data Advisory Committee members served to develop an overall framework for accessing and navigating Minnesota's diffuse and wide-ranging exploration records. The session was facilitated by a team from Advanced Strategies, Inc., Atlanta, Georgia, which specializes in conducting structured data modeling sessions. The structured approach used by ASI typically is used to articulate a common perspective and consensus when framing a large, complex, or multi-stakeholder user-based information system. A report outlining the outcomes and framework developed during the session has been published and distributed.

The Minnesota's Minerals Coordinating Committee (MCC) data architecture team was activated in mid-November 1997 and is initially tasked to review existing exploration data architectures and begin construction of a more detailed version of the framework model. The Exploration Data Advisory group will be re-assembled in January 1998 to evaluate, re-direct, and further advise on the development of the detailed model, and to prioritize activities as the project moves forward. This architecture model will serve as the template for organizing existing public exploration data, and as a basis for integrating additional exploration data that may be acquired.

### **Recommendation**

To address exploration data issues, the Governor's Task Force recommends the following: Continue support by providing \$250,000 in FY 1999 to organize existing public exploration data into a user friendly form

- utilize expertise of members of the Exploration Data Advisory Committee and MCC data architecture team
- incorporate outcomes and frameworks developed during the Joint Application Development process
- utilize \$100,000 which MCC has set aside for initial startup cost of the project

## **SAND, GRAVEL AND OTHER INDUSTRIAL**

### **MINERALS OPPORTUNITIES**

#### **Minnesota Aggregates Resources**

Construction aggregates are one of the building blocks of modern society. Our standard of living depends on the availability of these materials for virtually all built structures and the infrastructure supporting our economy. In Minnesota, aggregate materials are mined in all 87

counties. Approximately 1,200 operators produce 45,000,000 tons of aggregate per year, which translates into a per capita consumption of about 10 tons per year. Consumers of construction aggregates statewide depend on the continued availability of relatively low-cost, quality aggregates produced in proximity to where they are used.

In recognition of the critical nature of these resources, legislation was enacted in 1984 to initiate county-level aggregate planning and protection. Despite this legislation, little has been accomplished in regard to either planning or resource protection.

### **Metropolitan Area**

In 1983, the Metropolitan Council published a projection of long-term construction aggregates demand and resource supply. In the years since the Metropolitan Council study, population growth and sprawl have surpassed projections, intensifying the concerns recognized over a decade ago. Increased consumption, competing land uses, zoning restrictions, more rigorous environmental review and tightened aggregate quality specifications have added to the concerns. Metropolitan producers indicate that there may be less than a 15-year resource supply that is currently permitted, and another 15 years of potential supply under industry ownership that is not proven or permitted.

### **Greater Minnesota**

These same issues also pose a threat to the availability of low-cost construction aggregates in many other areas of the state. Cook and Lake counties currently are dealing with resource scarcity on the North Shore; and population growth near regional centers such as Rochester, St. Cloud, Duluth, Mankato and Moorhead are driving increased demand for new aggregate pits and quarries, which in turn are competing with other land uses.

## **Statewide Factors**

Due to lack of comprehensive planning, obtaining permits for new gravel mining operations at green field sites has become virtually impossible in many places. In other areas, maintenance or expansion of permitted operations is becoming increasingly problematic because of nuisance complaints such as noise, operating hours, and truck traffic, as well as environmental concerns such as mining within the groundwater table and inconsistent reclamation and permitting standards.

Collectively, these factors have resulted in a projected shortfall in the availability of low-cost, quality construction aggregates in the near future. As resource availability and development issues become more restrictive and costs rise, issues related to aggregate resources are increasingly becoming more and more acrimonious and difficult to resolve.

## **Recommendations**

To address construction aggregates issues, the Governor's Task Force recommends the following:

Establish an Aggregate Resources Task Force to examine construction aggregates issues:

- examine issues relating to the state's aggregate resources including: Aggregate Planning and Protection, Minn. Stat. 84.94; Aggregate Material Tax, Minn. Stat. 298.75; resource inventories; statewide permitting standards; and the level of technical expertise needed by Responsible Governmental Units (RGUs) to adequately review environmental documents
- provide a statewide perspective in discussions to encourage informed, inclusive, and equitable solutions
- improve quality of legislation related to aggregate issues

- provide an official forum to frame discussions and debate issues
- build industry-wide recommendations prior to legislative activity
- increase level of participation for improved quality of output

## **ENVIRONMENTAL, LAND USE AND OTHER OPPORTUNITIES**

### **Mesabi Iron Range Topographic Mapping**

#### **Background**

The Governor's Task Force on Mining and Minerals asked IRRRB to convene private, local, state and federal stakeholders to explore opportunities for updating elevation and related map information along northeastern Minnesota's Mesabi iron range, which comprises a 100-mile mineral resource rich corridor (iron ore, taconite, copper-nickel and other minerals) that stretches from Babbitt to Grand Rapids.

IRRRB and DNR Minerals hosted a meeting which gathered potential mapping stakeholders to review the currency and status of existing private and public base maps, and to discuss wants, needs, and opportunities afforded by newer digital mapping technologies.

A sizeable portion of the Mesabi iron range has already been mapped digitally at a higher resolution than is available on public maps. The potential exists to conduct a project that integrates existing industry and government project coverages and fills the gap between these coverages, so that high resolution, up-to-date mapping information is available to the broadest possible base of private industry, community and public users. Earlier mapping projects (including the original 1949 topographic mapping of the Mesabi iron range and the more recent Mesabi Range Map Set mapping project) have demonstrated the utility of up-to-date mapping atlases.

Additional benefits to be accrued from more precise and accurate digital data include the flexibility to reuse the data for new analyses, and the ability to make custom maps at multiple scales. Informal interest for improved maps has been expressed by a number of private, local, county, state and federal groups whose work encompasses the water, resources and land use of the Mesabi iron range.

Minnesota's Minerals Coordinating Committee has provisionally targeted approximately \$100,000 toward the development of a cooperative mapping project, provided that cooperative funding and other technical specifications can be developed and agreed upon.

### **Recommendation**

To address mapping and information needs, the Governor's Task Force recommends the following:

- Update maps detailing the topography of mined lands to better support reclamation and land-use decision making

### **Environmental Cooperative Research**

Established in 1993, the Environmental Cooperative Research Program is focused on providing for the long-term stewardship of state mineral lands and the restoration of mined lands for post-mining uses.

Current research includes projects such as developing cost-effective reclamation of sand and gravel pits and quarries, and taconite coarse tailings using soils produced from sewage sludge, prediction and mitigation of acid mine drainage, utilization of Duluth harbor dredge spoils as a soil amendment, prairie restoration and a preliminary study on Mesabi iron range hydrology.

## Research Needs

As an ethic of environmental awareness and land stewardship has become integral to many community and industry philosophies, many groups are looking for funding partnerships as a means to address their environmental problems. The Environmental Cooperative Research Program is one vehicle to address such concerns. Increasing program funding would provide additional research opportunities for communities and industries with environmental issues that continue to be unresolved.

One urgent need is for proper water and land-use planning for the future utilization of water-filled pits on the Mesabi iron range. The management of water resources is currently problematic due to continued expansion and interconnection of taconite mines. These mines will become large pit lakes in the future and represent an opportunity for expanded recreational use and a future water supply if water levels can be controlled. But to realize this potential, detailed, long-term hydrological studies need to be continued to understand the complex hydrological system that will exist after mining ceases.

Another example of a future research partnership is to test the use of biosolids -- now land filled or incinerated -- to enhance the growth of vegetation on mined lands. These industrial and municipal biosolid wastes could be used for the restoration of sand and gravel pits or other mined lands to native prairie, wetlands, or upland habitat and result in savings on traditional costs of fertilizer as well as landfill and incineration costs. But the use of biosolids for reclamation has not occurred despite the fact that producers of biosolids are having difficulties in disposing of the materials.

### **Current Funding**

Base-level funding for Environmental Cooperative Research currently is \$90,000 for the 1998-99 Biennial Budget. Additional funding of \$55,000 in FY 1999 would enable a two-fold expansion of the scope of environmental research for that year. Under an expanded program, it is anticipated that future research partnerships will include the full range of current partners: non-profits, local governments, state and federal agencies and industry.

### **Recommendation**

To address issues of environmental research related to mining, the Governor's Task Force recommends the following:

Increase environmental cooperative research funding by \$55,000 in FY 1999:

- expand the scope of environmental research with various non-state partners
- make \$38,500 available only as matched by \$1 of non-state money for each \$1 of state money. Monies will be available until expended or September 30, 1999, whichever date is earlier.

### **Environmental Regulations**

Federal and state environmental regulations always should be based on demonstrated, scientific data -- including the impact of a pollutant on the environment or human health, the existing means of measuring a given pollutant and the existing method of controlling a given pollutant. Efforts to control environmental problems in areas of the country other than northern Minnesota should not lead to more stringent controls for Minnesota businesses that have taken proactive steps to protect the environment.

State agencies should conduct a cost/benefit analysis before adopting regulations to ensure that the benefit of implementing a regulation is greater than the cost of implementation.

Proposals to tax carbon emissions should be opposed because of a lack of demonstrated improvement to the environment and because of the significant increase in costs to iron mining.

Financial assurance requirements for mineland reclamation should be reviewed to ensure that they don't have an onerous impact on the industry.

## **Transportation**

The Commissioner of the IRRRB should appoint and fund a Blue Ribbon Committee to study the transportation industry in northern Minnesota and its impact on the competitiveness of the iron mining and other area industries. The Commissioner should include representatives of the transportation industry, transportation-dependent industries and affected unions. The Transportation Committee should review the existing transportation systems serving northern Minnesota and any gaps that may exist, compare the transportation costs in northern Minnesota with other areas of the state, and make recommendations on ways to improve the transportation systems' effects on the competitiveness of area industries.

## **Minerals Research in Minnesota**

State supported minerals research currently is being managed through a variety of programs which were initiated at different times for different purposes. Coordination among programs has been very good for the most part, because the participants have shared a common vision of needs and strategies. Some changes are expected over the next few years as a restructuring of minerals research administration soon will occur due to personnel retirements. This may be a good time to re-evaluate the management of minerals research in Minnesota to determine whether the current systems are likely to meet future needs.

## **Background**

Over the last decade a variety of programs have been initiated to cover a wide range of minerals research opportunities. These programs include:

- Legislative Special Appropriations for the Natural Resources Research Institute (NRRI) and the Minnesota Geological Survey (MGS)
- Allocation of a portion of the Permanent University Fund for minerals research through NRRI
- Iron Ore Cooperative Research administered by the Minerals Division of the Department of Natural Resources (DNR) and allocated by the Iron Ore Cooperative Research Committee
- Mineral Diversification funds administered by DNR and allocated by the Minerals Coordinating Committee, which consists of DNR (chair), NRRI, MGS, MPCA, and the Department of Civil Engineering (CME) at the Minneapolis campus of the University of Minnesota
- Environmental Cooperative Research administered by DNR
- Funding for NRRI through Minnesota Technology, Inc. (MTI)
- Funding for project-specific items from the Iron Range Resources and Rehabilitation Board (IRRRB).

In addition, appropriations have been made for specific purposes from the General Fund and the Legislative Commission on Minnesota Resources (LCMR). Private companies have contributed to the cooperative research programs and to specific projects in a variety of areas. All told, the current level of funding is about \$1.7 million per year, an amount which is about 50 percent of what was available in FY 88-89.

In the past, the research opportunities have been divided into three categories:

- Ferrous Research - Iron Ore, Taconite, and Value-added
- Nonferrous Research - Geology, Mapping and Process Technology
- Industrial Minerals - Resource Inventories, Mapping and Process Technology

Division along these lines is useful, as it minimizes overlap for the private sector participants. Each private organization can speak to its own interests, leaving the state and the university the task of allocating funds among program areas.

### **Future Programs**

Much has changed during the last 10 years, so recalibration of existing programs may be appropriate. The Minerals Coordinating Committee must create a new 10-year plan for the legislature to replace the one submitted in January 1988. That plan will consider all sources of public funding for minerals research. Also, research during the last 10 years has created a list of projects which should be tried at a commercial scale and the legislature has funded a mining grant program designed to encourage full-scale testing of new technology. It may be time to evaluate what has been accomplished and what needs to be done so that the research managers can set a course for the next few biennia. At a minimum, the state's research effort should:

- **Maintain a flow of ideas through laboratory and pilot scale research using the Iron Ore Cooperative Research, Environmental Cooperative Research, Mineral Diversification, Permanent University Fund and other research programs.**

Diversity is needed in this area in order to capture ideas from many sources and allow a variety of approaches. Company input is particularly important to maintain the vigor of the programs. Costs for individual research projects are usually below \$100,000.

- **Expand the program under which successful research projects can be tested at a plant scale.**

NRRI and DNR have identified eleven technologies which should be tested at a plant scale. It is believed that a new program which would share the risk of commercial demonstration would accelerate the adoption of these new ideas. Costs for tests at this scale range from \$200,000 to \$10,000,000. At the present time \$650,000 is available, which is enough to fund one or at most two projects.

- **Evaluate a new taconite flowsheet using ideas generated during the last decade.**

The newest plant on the Mesabi iron range is twenty years old and the oldest is forty. A new taconite flowsheet would incorporate many innovations, e.g. column flotation, high pressure roll crushers, ported kilns, etc. At this point in time, researchers do not have a good fix on the costs or productivity of such a plant. The endowed chair position at NRRI will begin to work in this area with limited resources. If the initial work looks promising, a larger project should be started to provide several alternative flowsheets together with material balances, energy requirements and capital costs. These flowsheets would be the models toward which the plants could evolve during the next 15 years.

- **Encourage innovative value-added products based on Minnesota's iron ore and taconite**

At the present time, direct reduced iron (DRI) is a hot topic and much effort and funding is being allocated to the possibility of DRI development. Other products like pig iron, heavy media, low-silica and micro- or mini-pellets, etc. should receive some consideration. It may also be possible to take what is currently known about DRI

technology and use it to develop a process specific to Minnesota's ores and energy situation.

### **Program Evaluation**

Some program evaluation is now underway and more has been proposed.

- The Minnesota Exploration Association held a one-day meeting in July 1996 to discuss the state's research program for nonferrous minerals. One of the outcomes of this effort was an expansion of the effort on data publication. It is expected that this will lead to easier access to minerals exploration data stored in state repositories.
- The Iron Ore Cooperative Research Committee has evaluated that program and several changes were made to the project selection methodology. It is expected that these will lead to development and maintenance of more expertise in computation fluid dynamic modeling and concentrator modeling. This is a shift away from the smaller, quick hitting projects that have been the staple of that program over the last 10 years. The committee hopes that permanent funding can be found for the programs which are being initiated.
- The Minerals Coordinating Committee will create a new 10-year plan which will be submitted to the legislature during the 1998 session.
- The Research Priorities Committee which was established by the Taconite Enhancement Committee will meet to discuss the program which will be funded by the Permanent University Fund monies during the next year or so.

### **Evaluation of Minerals Research Efforts**

A re-evaluation of the state's minerals research programs should be undertaken. An overall strategy for program management project review is needed so that these efforts are coordinated and are directed towards agreed-upon goals.

This re-evaluation should be conducted by representatives from research organizations, the affected industries and other parties, appointed by the Commissioner of IRRRB.

The group will meet and report back to the Task Force in time to make recommendations to the 1999 Legislature.

### **Legislative Commission on Minnesota Resources (LCMR)**

The Legislative Commission on Minnesota Resources funds a variety of projects across a broad horizon of interests. A special effort should be made to cultivate partnerships with the LCMR on mineral related research projects which promote the sustainable development of Minnesota's mineral resources and provide economic opportunities for its citizens.

The LCMR is encouraged to support a project or projects which will be proposed by a local government organization such as the Range Association of Municipalities and Schools to develop comprehensive data on minerals and other natural resources, land-use information and Mesabi iron range hydrology. This information would be made available to all stakeholders, including the iron mining industry as well as local governments, and will assist in local zoning, long-range planning and the protection of mineral resources from encroachment by future development.

## MINNESOTA TACONITE INDUSTRY INFORMATION

Company	Production (million tons) <sup>1</sup>		Number of Employees <sup>2</sup>	Ownership <sup>3</sup>	Plant Manager	Union President
	1997 Final	1998 Estimated				
<b>USX - Minnesota Ore Operations, Minntac</b> <i>Mountain Iron</i>	13.7	12.5	1,750	USX Corporation (100%)	Jim Swearingen General Manager	Ron Hautala Local 1938
<b>Hibbing Taconite Company</b> <i>Hibbing</i>	7.5	7.4	880	Bethlehem Steel Co. (70.3%) Cliffs Mining Co. (15%) Steel Co. of Canada, Ltd. (14.7%) (Stelco)	Larry Dykers General Manager	John Rebrovich Local 2705
<b>LTV Steel Mining Company</b> <i>Hoyt Lakes</i>	7.2	7.0	1,450	LTV Steel (100%)	Jack Tuomi General Manager	Barry Trach Local 4108
<b>National Steel Pellet Company</b> <i>Keewatin</i>	5.1	4.5	492	National Steel Corp. (100%) which is owned by Nippon Kokan KK (67.6%) Publicly Held (32.4%)	Emil Draskovich General Manager	Rudy Aho Local 2660
<b>EVTAC Mining</b> <i>Eveleth/Forbes</i>	5.0	4.4	667	Rouge Steel Company (45%) Virginia Horn Taconite (A-K Steel) (40%) Ontario Eveleth Company (Stelco) (15%)	David DeLeo President	Sam Ricker Local 6860
<b>Northshore Mining Company</b> <i>Silver Bay/Babbitt</i>	4.0	4.0	514	Cliffs Mining Company (100%)	Bob Berglund General Manager	(Non-union)
<b>Inland Steel Mining Company</b> <i>Virginia</i>	2.4	2.2	373	Inland Steel Mining Company (100%)	Jonathan Holmes Manager	Joe Rosman Local 6115
<b>Total</b>	<b>44.9</b>	<b>42.0</b>	<b>6,126</b>			

<sup>1</sup> Taxable tonnage as reported or estimated by the Minnesota Department of Revenue Minerals Tax Office. Taxable tonnage is calculated pursuant to Minnesota Statutes §298.24, which is the average tons produced during the current year and the previous two production years, adjusted for moisture and flux.

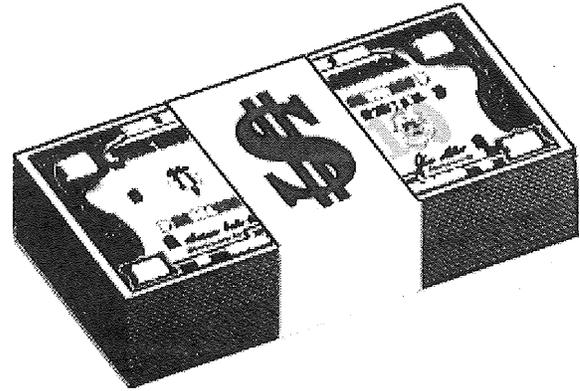
<sup>2</sup> December 1997

<sup>3</sup> The ownership percentages shown are the ultimate percentages controlled by parent steel and mining companies. In some instances, various partnerships and subsidiaries are listed on legal corporate documents. Cliffs Mining Company owns Northshore Mining Company, as well as 15% of Hibbing Taconite Company. Cliffs is the managing agent of LTV Steel Mining Company and Hibbing Taconite Company.

# ECONOMIC IMPACT OF MINNESOTA'S MINERALS INDUSTRIES

## *Iron Mining Industry Facts*

- 20,000 jobs, including 6,100 direct jobs in 7 northeastern Minnesota taconite plants
- \$1.4 billion impact on Minnesota's economy, including:
  - \$390 million in wages
  - \$925 million in purchases from companies in nearly 200 Minnesota communities
  - \$6.9 million in royalties
  - \$105 million in local and state taxes
  - Nearly 45 million taxable tons of taconite pellets per year



*Source: Iron Mining Association of Minnesota and the Minnesota Department of Revenue's Minerals Tax Office (1996 figures)*

## *Aggregates Industry Facts*

- 10,000 direct jobs
- \$155 million contribution to the state economy per year
- \$2 million aggregate tax
- 1,200 producers
- 5,000 pits
- 50 million tons of aggregates per year
- 10 tons per person per year aggregate usage

*Source: Ad-Hoc Aggregates Committee (1996 figures)*

## *Potential Impact of a Single, Medium-Sized Nonferrous Mining Development*

- 350 direct and indirect jobs
- \$160 million over 14 years to the local economy
- \$37 million in local and state taxes over the same period

*Source: 1992 Study by the School of Business and Economics of the University of Minnesota - Duluth*

*The IRRRB wishes to acknowledge the contribution of its partners in the production of this report:*

*EVTAC Mining  
Hibbing Taconite Company  
Inland Steel Mining Company  
LTV Steel Mining Company  
National Steel Pellet Company  
Northshore Mining Company  
USX - Minnesota Ore Operations  
United Steel Workers of America  
Iron Mining Association of Minnesota  
Department of Natural Resources - Minerals Division  
Minnesota Department of Revenue  
Minnesota Pollution Control Agency  
American Iron & Steel Institute  
Minnesota Exploration Association  
University of Minnesota  
Minnesota Geological Survey  
Natural Resources Research Institute  
Coleraine Minerals Research Laboratory  
Michigan State University  
CAMAS Inc.  
Meridian Aggregates Company  
Minnesota Department of Transportation  
Minerals Coordinating Committee  
Nonferrous Minerals Exploration Marketing Committee  
Minnesota Exploration Data Advisory Committee  
Ad-Hoc Aggregates Committee  
Range Association of Municipalities and Schools  
St. Louis County  
5R Research  
Minnesota Iron & Steel Company  
Minnesota Power  
Industrial Lubricants Company  
Meriden Engineering  
Mesabi Radial Tire Company  
Mesabi Powder Company  
Other participants that we forgot to mention*