



Photo by Minnesota Geological Survey

# SILICA SAND AGENCY UPDATE

HEATHER ARENDS  
SILICA SAND PROGRAM MANAGER

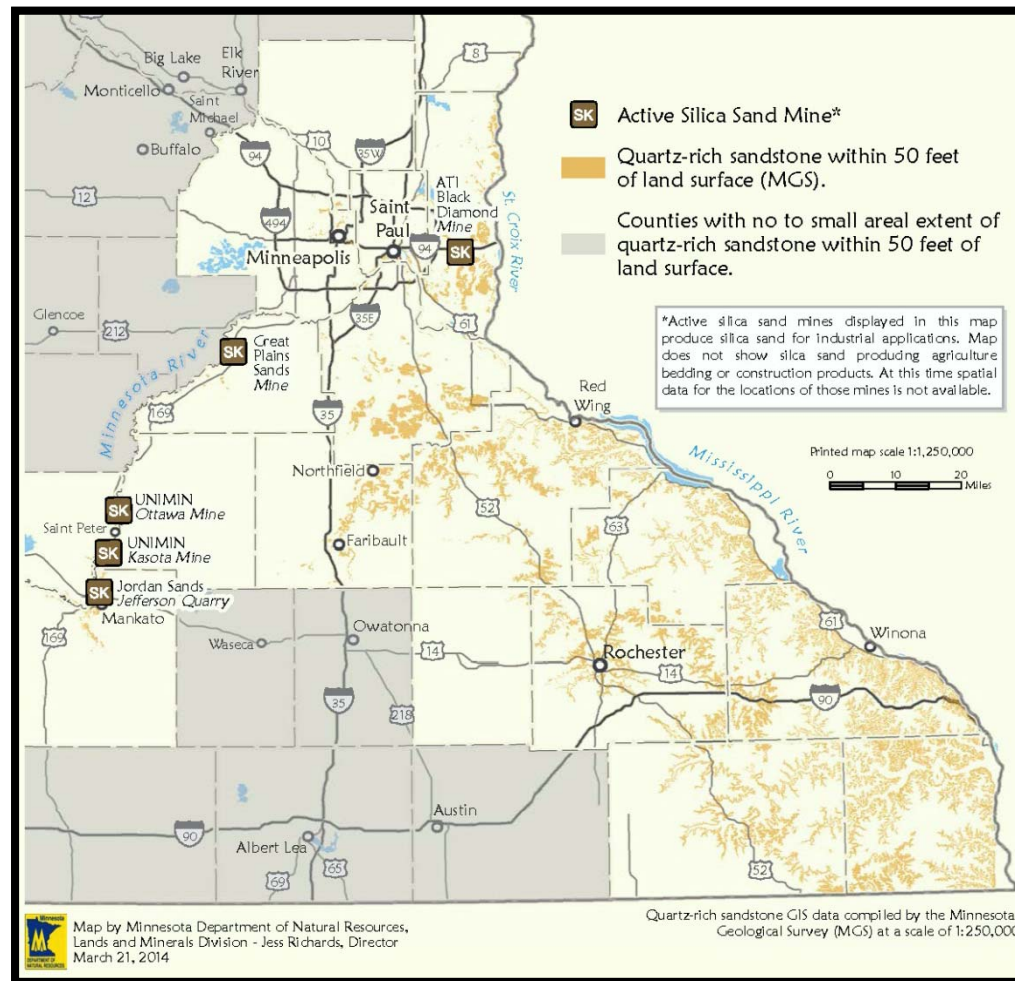
DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL QUALITY BOARD



AIPG – September 9<sup>th</sup>, 2014

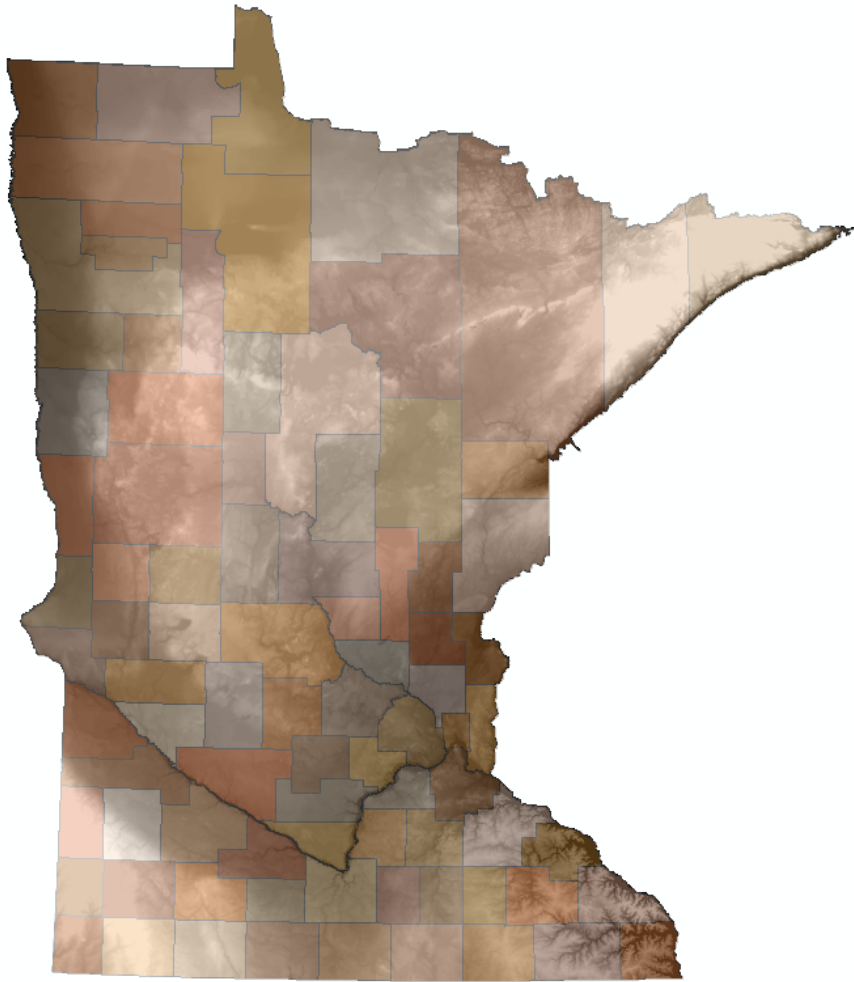
# Physical Landscape of Silica Sand

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# Regulatory Landscape

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- Permit to mine is a local process
- MN Statute 394.25  
“Forms of Local Control”
- Includes-  
“Reclamation of nonmetallic mining lands”

# Permitting For Nonmetallic Mining in MN

- **Local Permitting Authority**

- Counties, townships or municipalities **have the primary authority** of regulating nonmetallic mine lands- like sand and gravel and crushed stone. Local permits may address issues such as: hours of operation, noise, traffic, dust, blasting, and reclamation (*MN Statute 394.25*). Most “permit to mine” are issued in the form of a Conditional Use Permit (CUP) or Interim Use Permit (IUP).

- **Number of permits and State/Federal involvement depend on scope of project**



Gravel Pit

## State and Federal Permits

In general, state agencies have no regulatory role in administering or reviewing local permits.

### Federal Permits

- **Army Corp:** Section 404 Permit, Section 10 Permit
- **US Fish and Wildlife:** Section 7 Endangered Species Act

### State Permits

- **DNR:** Water Appropriation, Work in Public Waters, Burning, Endangered Species
- **BWSR:** Wetlands
- **PCA:** Nonmetallic Mining General Water Permit (NPDES/SDS), Air Emissions, Fuels, Tanks
- **Mn/DOT:** Access/Driveway Permit





# 2011 - Growing Public Concerns with Silica Sand Mining

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- ❑ Respirable Crystalline Silica and Dust Control Measures
- ❑ Flocculants
- ❑ Setbacks
- ❑ Trout Streams – Karst
- ❑ Mining in the Water Table
- ❑ Bans
- ❑ Mining Clusters
- ❑ Financial Assurance
- ❑ Reclamation
- ❑ *Change in Land Use*



*Settling Ponds*



An empty lot now sits where stockpiles of sand — once dubbed "Mt. Frac" — used to be a year ago near the Winona County Justice Center in Winona, Minn. **(Click image to see transition)** (Before photo: AP Photo/Andrew Link, Winona Daily News. After photo: Alex Kolyer for MPR)

[LINK TO THIS PHOTO](#)





An empty lot now sits where stockpiles of sand — once dubbed "Mt. Frac" — used to be a year ago near the Winona County Justice Center in Winona, Minn. **(Click image to see transition)** (Before photo: AP Photo/Andrew Link, Winona Daily News. After photo: Alex Kolyer for MPR)

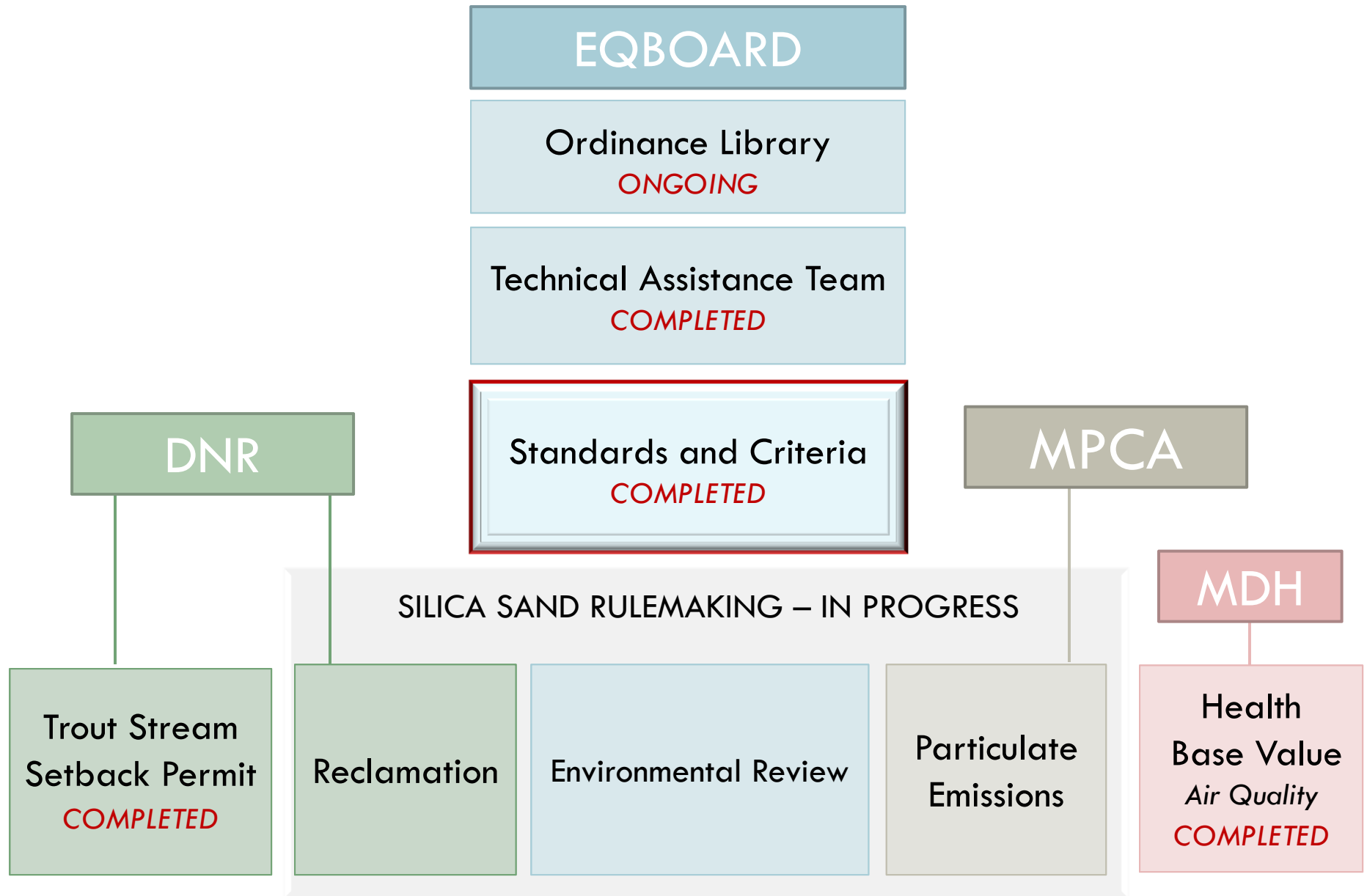
[LINK TO THIS PHOTO](#)

MN-DNR 2013





MN LEGISLATURE PASSED AND GOVERNOR DAYTON SIGNED SEVERAL LAWS IN SPRING 2013



# Definitions [116C.99] EQB

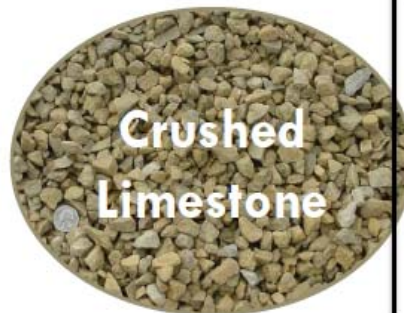
10

- "Mining" means excavating silica sand by any process, including digging, excavating, drilling, blasting, tunneling, dredging, stripping, or by shaft.
- "Processing" means washing, cleaning, screening, crushing, filtering, sorting, processing, stockpiling, and storing silica sand, either at the mining site or at any other site.
- "Silica sand" means well-rounded, sand-sized grains of quartz (silicon dioxide), with very little impurities in terms of other minerals. **Specifically, the silica sand for the purposes of this section is commercially valuable for use in the hydraulic fracturing of shale to obtain oil and natural gas.** Silica sand does not include common rock, stone, aggregate, gravel, sand with a low quartz level, or silica compounds recovered as a by-product of metallic mining.
- "Silica sand project" means the excavation and mining and processing of silica sand; the washing, cleaning, screening, crushing, filtering, drying, sorting, stockpiling, and storing of silica sand, either at the mining site or at any other site; the hauling and transporting of silica sand; or a facility for transporting silica sand to destinations by rail, barge, truck, or other means of transportation.

# Commodities of Earthen Material

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## Construction Products “Aggregate”



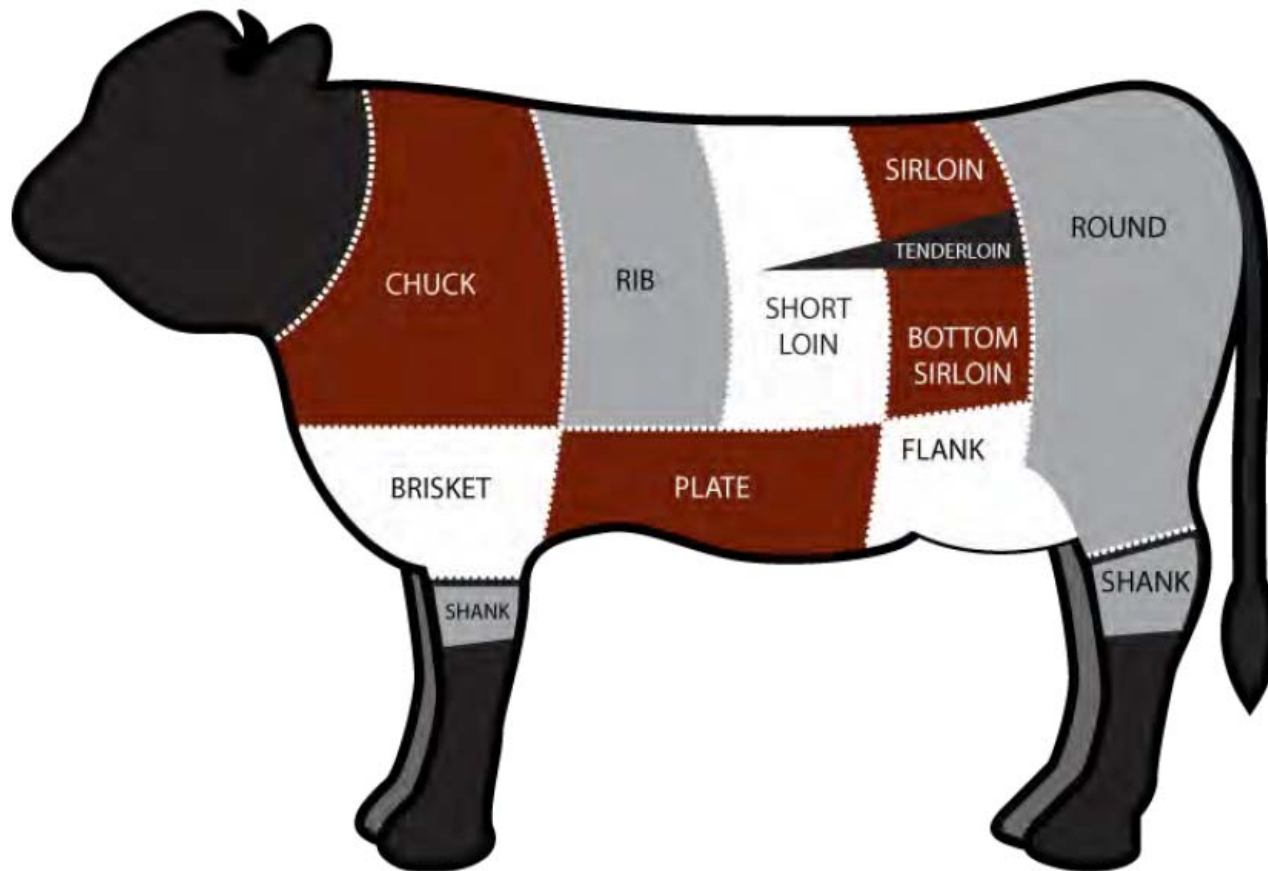
## Industrial Products





# How does a cow compare to a mine site?

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# EQB – Toolkit (Standards and Criteria)

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- “Tools to Assist Local Governments in Planning for and Regulating Silica Sand Projects”
- Involved staff from multiple agencies:  
  
MPCA, EQB, DNR, Mn/DOT,  
MDH, and MDA
- [www.eqb.state.mn.us](http://www.eqb.state.mn.us)



**Environmental  
Quality Board**

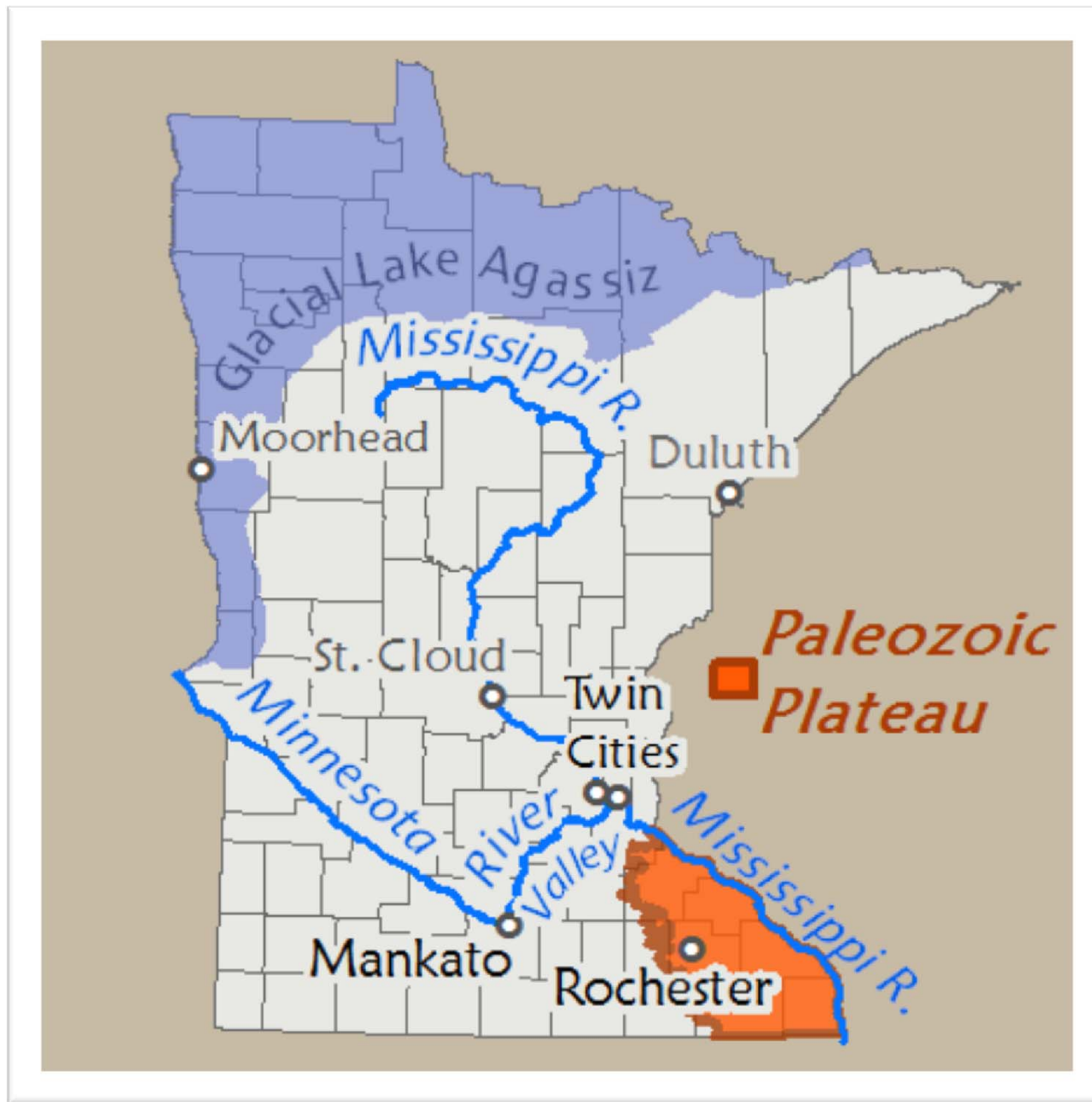
*Tools to Assist Local Governments  
in  
Planning for and Regulating  
Silica Sand Projects*

*approved  
March 19, 2014*

# EQB Toolkit (Standards and Criteria)

**Standards and criteria.** (a) By *October 1, 2013*, the Environmental Quality Board, *in consultation with local units of government*, shall develop model standards and criteria for mining, processing, and transporting silica sand. These standards and criteria may be used by local units of government in developing local ordinances. The standards and criteria shall be *different for different geographic areas of the state*. The unique karst conditions and landforms of southeastern Minnesota shall be considered unique when compared with the flat scoured river terraces and uniform hydrology of the Minnesota Valley. The standards and criteria developed shall reflect those differences in varying regions of the state. The standards and criteria must include:







# Overview of document

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- ❑ Organized by 5 topics
- ❑ Toolbox approach was adopted (201 pages)
- ❑ It is one piece of a bigger puzzle
- ❑ Voluntary - Local governments are not required to adopt any element of this document
- ❑ *Document is not a substitute for legal advice*



# Sections within the document

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- Air – MPCA
- Water – MPCA (*DNR, MDH*)
  - *Quantity*
  - *Quality*
- Transportation – MNDOT
- Operations – DNR (*MPCA, MDH, and MNDOT*)
- Consideration for Setbacks and Buffers – DNR and MDA



# EQBoard Finalizes Report (March 19, 2014)

18

## A Potential Measurement of Success-

“Environmentalist quickly derided the optional standards as too soft, and mining interest faulted them as overreaching.”

Kennedy, Tony. “Minnesota’s Environmental Quality Board offers model frac-sand regulations.” *The Minneapolis StarTribune*, 19 March 2014:  
<http://www.startribune.com> 7 April 2014.



# Silica Sand Technical Assistance Team

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## Silica Sand Technical Advisory Team

Administered by the Environmental Quality Board (EQB), the Silica Sand Technical Advisory Team (SSTAT) serves local governments that host facilities for silica sand mining, processing, and transloading.

### Services

The purpose of SSTAT is to provide cities, townships, and counties access to technical experts at state and federal agencies.

- ordinance development and zoning
- environmental review and permitting
- data collection plans and monitoring
- issues arising from silica sand mining and processing operations

### Team members

Team members are selected based on the the nature of the request for assistance, with expertise in silica sand mining, hydrology, air quality, land use, or other areas related to silica sand mining and processing. Members are drawn from many state government bodies, including the Department of Natural Resources, the Pollution Control Agency, the Board of Water and Soil Resources, the Department of Health, the Department of Transportation, the University of Minnesota, the Minnesota State Colleges and Universities, as well as federal agencies.

### Who can request help?

Staff and elected officials from cities, townships, or counties can request help or additional information.

# Ordinance Library

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Minnesota Environmental  
Quality Board

✉ Env.Review@state.mn.us

📞 651-757-2873

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## Library of Local Government Ordinances & Permits Regulating Silica Sand

### Navigation

- Environmental Review Program
- Silica Sand Projects
- -Silica Sand Library
- -Silica Sand Rulemaking
- -Silica Sand Technical Advisory Team
- -Silica Sand Rule Advisory Panel
- Water Program
- Climate Change Projects

### Email Notices

Sign up to receive Email Notices:

Submit

This is a library of local government ordinances and permits that have been approved for the regulation of silica sand projects. It is created for reference by local governments. The library includes two types of documents. Most are excerpts of larger zoning ordinances, sections of the zoning ordinances that do or could apply to mining, processing, or transporting of silica sand. The second type of document is permits, approvals, or denials of specific projects.

### Local ordinances

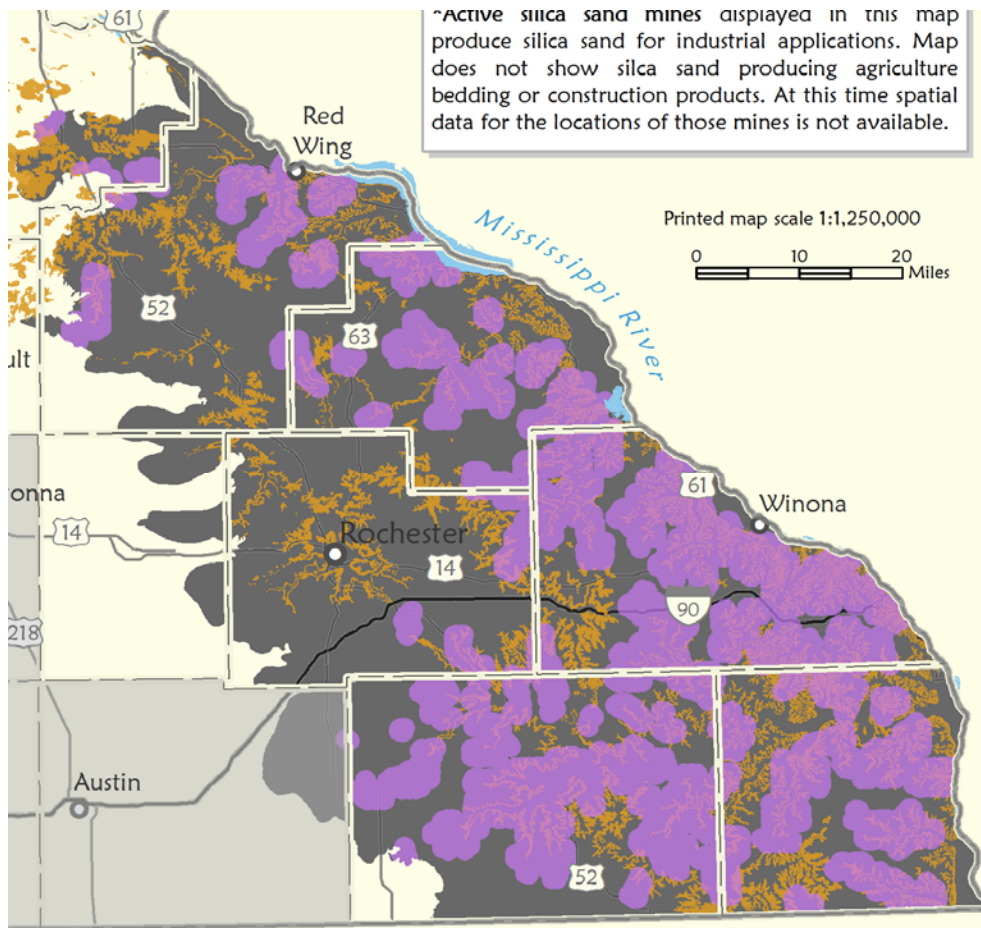
[Blue Earth County Zoning Ordinance Excerpts](#): 10-1-2013 version, October 1, 2013. (626.35K, .pdf)  
[Chisago County Mineral Extraction 02-1 Amend Sec. 7.27 of Zoning Ordinance](#): 10-1-2013 version, October 1, 2013. (63.26K, .pdf)  
[Fillmore County Road Impact Agreement](#): 5-10-2013 version, October 1, 2013. (204.24K, .pdf)  
[Goodhue County Interim Ordinance Silica Sand Moratorium Extension](#): 10-1-2013 version, October 1, 2013. (204.86K, .pdf)  
[Winona County Zoning Ordinance and Amendments Excerpts](#): 12-31-2013 version, December 31, 2013. (6.05 M, .pdf)  
[Scott County Zoning Ordinance Excerpts](#): 1-3-2014 version, January 3, 2014. (2.68 M, .pdf)  
[Florence Township Zoning Ordinance](#): 1-3-2014 version, January 3, 2014. (141.68K, .pdf)  
[Hay Creek Township Zoning Ordinance with amendment July 2013](#): 1-3-2014 version, January 3, 2014. (192.62K, .pdf)  
[City of Wabasha Zoning, Shoreland, Floodplain Excerpts](#): 1-13-2014 version, January 13, 2014. (4.23 M, .pdf)  
[City of Red Wing Ordinance Excerpts](#): 12-31-2013 version, December 31, 2013. (1.33 M, .pdf)  
[City of Winona Zoning Ordinance Excerpts](#): 12-31-2013 version, December 31, 2013. (557.37K, .pdf)  
[Fillmore County 2012 Zoning Ordinance Excerpts](#): 1-22-2014 version, January 22, 2014. (630.78K, .pdf)  
[City of Chisago City Zoning Ordinance Excerpts](#): 12-31-2013 version, December 31, 2013. (0.96 M, .pdf)  
[Goodhue County Zoning Ordinance Excerpts with update Dec 2013](#): 03-11-2014 version, March 11, 2014. (3.25 M, .pdf)  
[Le Sueur County Zoning Ordinance Excerpts](#): 10-01-2013 version, October 01, 2013. (6.07 M, .pdf)

Minnesota Department of Natural Resources, 2014



# Trout Stream Setback Permit (103G.217)

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MN Legislature prohibited excavation or mining of silica sand:

- In the Paleozoic Plateau
- Within 1 mile of a designated trout stream
- **Without a permit from the DNR.**

# Approximate Acres overseen by Permit

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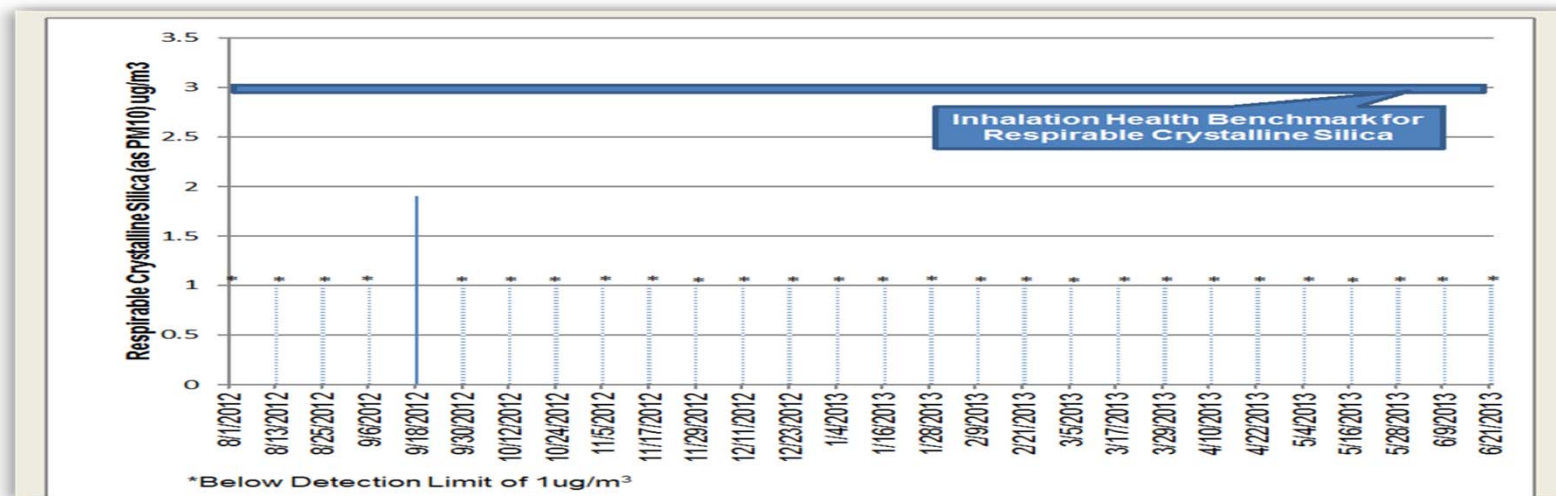
| County   | GIS acres of total Quartz-Rich Sandstone 50 feet from surface | GIS acres of total Quartz-Rich Sandstone 50 feet from surface that is in Paleozoic Plateau | GIS acres of total Quartz-Rich Sandstone in Paleozoic Plateau and Inside 1-mile buffer from Trout Streams and Class 2A Waters (DNR ADMIN) | GIS acres of total Quartz-Rich Sandstone in Paleozoic Plateau that are NOT Inside 1-mile buffer from Trout Streams and Class 2A Waters (NON-DNR ADMIN) | Percent of total quartz-rich sandstone potential in a county that is administered by DNR through the trout stream setback |
|----------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Dakota   | 36,006                                                        | 17,586                                                                                     | 2,091                                                                                                                                     | 15,495                                                                                                                                                 | 6%<br>(2091/36006)                                                                                                        |
| Dodge    | 567                                                           | 526                                                                                        | 0                                                                                                                                         | 526                                                                                                                                                    | 0%                                                                                                                        |
| Fillmore | 31,887                                                        | 31,887                                                                                     | 19,508                                                                                                                                    | 12,379                                                                                                                                                 | 61%                                                                                                                       |
| Goodhue  | 44,432                                                        | 41,755                                                                                     | 9,639                                                                                                                                     | 32,116                                                                                                                                                 | 22%                                                                                                                       |
| Houston  | 51,945                                                        | 51,945                                                                                     | 28,573                                                                                                                                    | 23,372                                                                                                                                                 | 55%                                                                                                                       |
| Olmsted  | 39,068                                                        | 39,067                                                                                     | 5,397                                                                                                                                     | 33,670                                                                                                                                                 | 14%                                                                                                                       |
| Rice     | 14,801                                                        | 72                                                                                         | 0                                                                                                                                         | 72                                                                                                                                                     | 0%                                                                                                                        |
| Wabasha  | 25,324                                                        | 25,324                                                                                     | 11,631                                                                                                                                    | 13,693                                                                                                                                                 | 46%                                                                                                                       |
| Winona   | 46,888                                                        | 46,888                                                                                     | 31,022                                                                                                                                    | 15,866                                                                                                                                                 | 66%                                                                                                                       |
| Total    | 290,918                                                       | 255,050                                                                                    | 107,861                                                                                                                                   | 147,189                                                                                                                                                |                                                                                                                           |

*Approximate calculations of area*

Minnesota Department of Natural Resources, 2014

- Created a Health Base Value for
  - Air quality for silica sand –  $3\mu\text{g}/\text{m}^3$
  - Acrylamide in groundwater – 0.2 ppb
  - Information sheet explaining risks

<http://www.health.state.mn.us/divs/eh/risk/guidance/gw/acrylainfo.pdf>



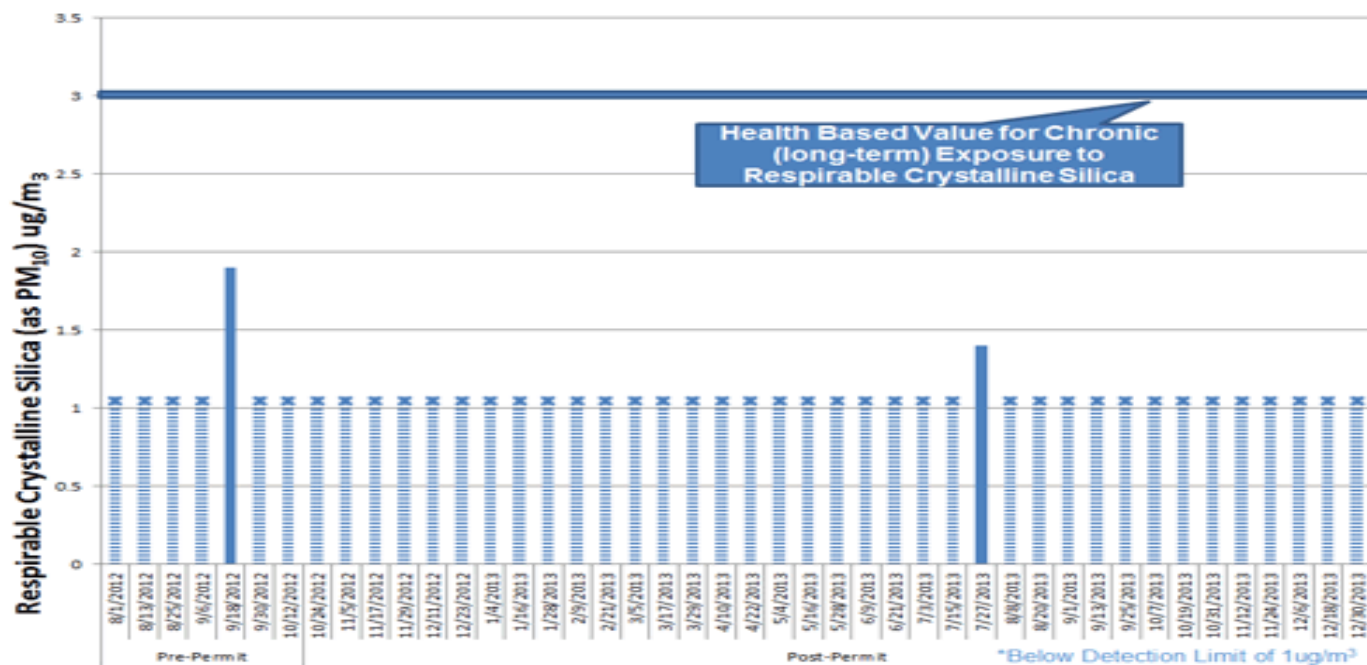




## MPCA Air Monitoring at Silica Sand Facilities and the City of Winona

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- Google: “MPCA silica sand air monitoring”
- Four sites – Shakopee Sands, Tiller North Branch Facility, Jordan Sands (coming soon), and City of Winona



Results from the  
Jordan Sand  
Mine

# 3 Agency Rulemaking

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- ❑ Silica Sand Rulemaking Advisory Panel (SSRAP)
  - ❑ 5 Reps from LGUs
  - ❑ 5 Reps from Industry
  - ❑ 5 Reps from Citizenry
- ❑ Started in January 2014
- ❑ Concludes in December 2014

Minnesota Pollution  
Control Agency



# Silica Sand Rulemaking Advisory Panel (SSRAP)

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- ❑ Meetings are open to the public
- ❑ Recorded on WebEx
- ❑ DNR reclamation topics – May and August



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## Silica Sand Rulemaking Advisory Panel

The Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Natural Resources (MDNR) have formed this joint advisory panel that will provide input to the agencies regarding regulation of silica sand operations in Minnesota. The Minnesota Environmental Quality Board will also participate in the advisory panel process to receive advice on rules related to silica sand environmental review.

### Advisory Panel resources

- [Members](#)
- [Rulemaking resources](#)

# Framework of the reclamation rule

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DNR has authority to write rules:

- ▣ MN Law 2013, Article 114, Chapter 4, Section 105b:

“The commissioner of natural resources shall adopt rules pertaining to the reclamation of silica sand mines.”

The authority to regulate still remains at local level.

Model is similar to EQB and environmental review.

# Framework of the reclamation rule

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- 4 Sections of Rule (subject to change)
  - Standards (will include blasting standards)
  - Reclamation Plan
  - Financial Assurance — PRELIMINARY DRAFT for Discussion Purposes with SSRAP
  - Administrative Procedures
- Language will borrow heavily from Wisconsin NR 135.





# Foundation of a rule – MN APA

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- ❑ A rule must not exceed statutory authority
- ❑ A rule must not conflict with the governing statute or applicable law
- ❑ A rule must have a reasonable relationship to statutory authority
- ❑ A rule must not be unconstitutional, arbitrary, or unreasonable.



# Statement of Need & Reasonableness

Minnesota Statutes, section 14.131, sets out eight factors for a regulatory analysis that must be included in the SONAR:

1. a description of the classes of persons who probably will be affected by the proposed rule...
2. probable costs to the agency and to any other agency of the implementation and enforcement...
3. less costly methods or less intrusive methods for achieving the purpose of the proposed rule...
4. a description of any alternative methods...
5. the probable costs of complying with the proposed rule...
6. the probable costs or consequences of not adopting the proposed rule...
7. an assessment of any differences between the proposed rule and existing federal regulations...
8. an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule...

# SONAR Language

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## □ SONAR – Statement of Need and Reasonableness

Sonar language must describe the classes of persons who will probably be affected by the proposed rules, including those who will bear the costs of the rules and those who will benefit from the rules.



# SONAR Language

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## **Section 14.127**

Requires an agency to determine if the cost of complying with proposed rules in the first year after the rules take effect will exceed \$25,000 for any small business or small city.



# SONAR Language

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## **Section 14.131 and 14.23**

Sonar language must estimate the probable costs of complying AND cost of not adopting the rules, including the portion of the total costs that will be borne by identifiable categories of affected parties – such as separate classes of governmental units, businesses, or individuals.

*Advisory panel can help make this estimate – which is helpful with the ALJ*



# Silica sand is used for cow bedding

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Photo Source: [http://blog.livestocknw.co.uk/dairy\\_lancashire/wp-content/uploads/2013/01/100\\_1440.jpg](http://blog.livestocknw.co.uk/dairy_lancashire/wp-content/uploads/2013/01/100_1440.jpg)

# In addition to the SSRAP

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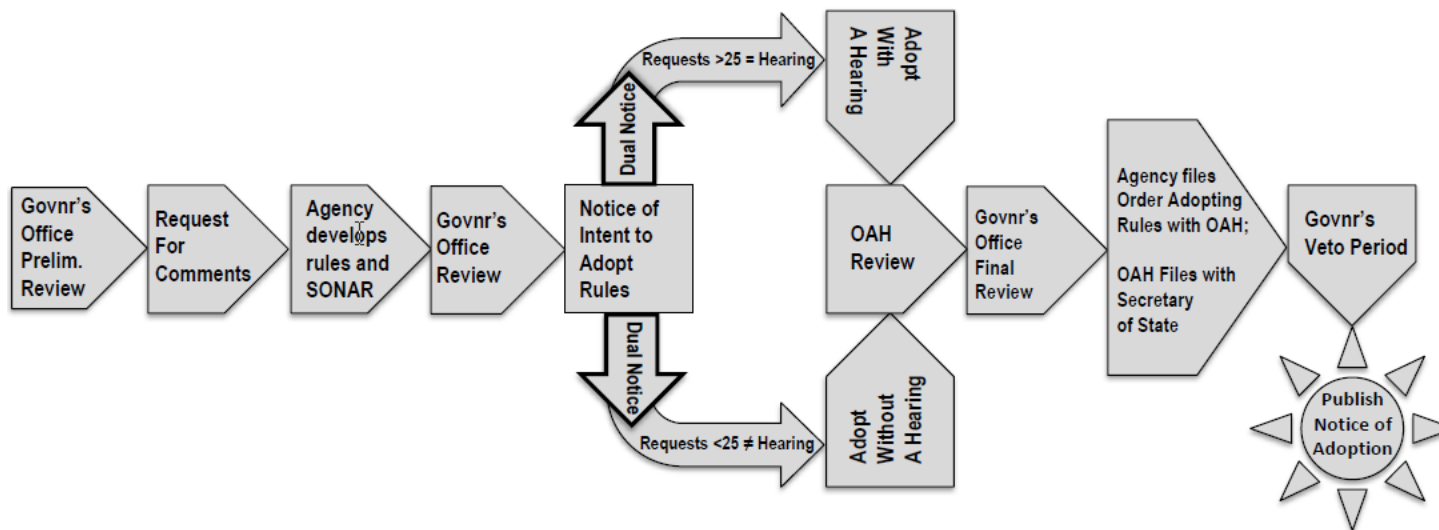
- EQB and DNR have been talking to LGUs for rulemaking – talked to 15 counties
- Outreach for Toolkit and SSTAT
- Start outreach for impacted/benefited users



# Estimated timeline for rulemaking

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- Panel is scheduled to meet until December
- Goal is to have draft rule language by January/February
- Public Comment



# Silica Sand Web Sites

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- State Web Site <http://silicasand.mn.gov/>



Minnesota Pollution  
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- DNR [www.dnr.state.mn.us/silicasand/index.html](http://www.dnr.state.mn.us/silicasand/index.html)
- EQB - [www.eqb.state.mn.us/](http://www.eqb.state.mn.us/)
  - Toolbox report
  - Library

# Thank You

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