

FRAC SAND ISSUE BRIEF
September 15, 2011

BACKGROUND

Frac sand is silica sand (silicon dioxide primarily quartz). Wisconsin frac sand is unique due to its size, uniform roundness and hardness. Frac sand is used in a process called hydraulic fracturing which involves pumping water, frac sand and chemicals into shale rock formations creating fractures and a permeable pathway for natural gas and oil to flow to the well head where it is collected for sale. Most of the natural gas shale rock wells are located in Texas, Oklahoma, Mississippi, Arkansas, New York, North Dakota and Pennsylvania. Wisconsin has no natural gas or oil wells.

Hydraulic fracturing has been around for over 60 years but recent developments in directional boring and other technologies in combination with hydraulic fracturing now allow for the extraction of natural gas and oil that was previously not reachable. Some of the natural gas wells using hydraulic fracturing reach more than a mile under the earth's surface.

Wisconsin's frac sand is predominantly found in West Central Wisconsin (Barron, Buffalo, Chippewa, Clark, Dunn, Eau Claire, Jackson, Lacrosse, Monroe, Pepin, Pierce, Rusk, St Croix, Trempealeau and Wood Counties). The sand was formed by three different rock formations-the Jordan, Wonnewoc and St. Peter formations, which were created about 500 million years ago. In addition to its physical qualities Wisconsin's frac sand is located near the surface where it is economical to mine.

Frac sand mining and processing activities include removal of the raw sand by hydraulic or mechanical means, crushing, washing, sizing, drying and transporting the sand to the sites where it is ultimately used. Depending upon the geological formations blasting may be used to make the sand more amenable to removal and crushing may be conducted to assist in the washing and sizing process. Some processing facilities also have a secondary operation which coats the frac sand with a resin in order to increase its crush strength.

Wisconsin has approximately 60 mining operations of various sizes involved in extraction of frac sand and approximately 25 processing facilities operating or under construction. These operations are primarily located in West Central Wisconsin but there are also facilities in Green Lake and Waupaca Counties. This does not include the smaller operations that are likely to be operating as well as the frac sand being removed and sold as a result of excavations associated with cranberry culture. A conservative estimate of frac sand mining capacity based on existing and under construction mines and processing plants would be in excess of 12 million tons per year. Currently there are also approximately 20 new mining operations being proposed and the impacted counties report considerable interest and many mine proposals are under consideration.

REGULATORY AUTHORITY:

The Wisconsin Department of Natural Resources (DNR) has potential regulatory responsibilities over mines and processing plants in the areas set forth below.

- **Air**

- *Permits.* Both mines and processing plants require air permits. The mines are likely to be covered under a General Operating Permit, a Registration Operating Permit or potentially the same individual specific air permit covering the processing facility they are supporting. The processing facilities are likely covered under a specific individual air permit.
- *Silica.* Exposure to free silica is a concern with the public.
- *Fugitive Dust.* The DNR is also in the process of sending information to mine operators regarding control of fugitive dust from the mining operations as this has been a continuing source of citizen complaints.

- **Water**

- *Stormwater Permits.* All mines require a Wisconsin Pollutant Discharge Elimination (WPDES) Stormwater Permit per NR 216.
- *High Capacity Wells.* If a well or wells with a combined capacity in excess of 70 gallons per minute are to be constructed a high capacity well permit issued by the DNR is required under NR 812.
- *Wetlands/ Surface Waters.* If the mine or processing site is located adjacent to wetlands or surface waters DNR water regulation and zoning requirements may come into play under Chapter 30 of the state statutes or NR 103 for wetlands.

- **Local Regulation**

- *Zoning.* Zoning is likely the most direct mechanism by which local governments may exert control over mining operations. Many of the mines have been sited, however, in towns that do not have zoning. Where zoning has been in effect, local governments have imposed regulations on issues such as hours of operation, truck routes, truck speeds, covering of truck beds, depth of the mine and potential liabilities for road repair.
- *Reclamation.* All mines will be required to comply with NR 135 which is the nonmetallic mining reclamation rule. That rule is administered directly by the counties with oversight from the DNR.

Eau Claire County Ordinance Fact Sheet

Frac Sand Mining

Ordinances That Apply

Title 18 Subtitle 1. Zoning Regulations
Title 18 Subtitle IV. Nonmetallic Mining Reclamation Code
Title 17 Chapter 17.05 Stormwater Management and Erosion Control

In addition a Highway Access Permit is required from the Highway Department.

Title 18 Subtitle 1. Zoning Regulations (apply to the zoned towns in Eau Claire County)

Chapter 18.28

Mining

Chapter 18.28 of the Zoning Regulations regulates nonmetallic mining.

18.28.10 A. states, "Nonmetallic mineral extraction operations are conditional uses, as regulated by Chapter 18.21 and may be permitted in all districts."

Chapter 18.28 establishes application requirements including:

- Site plan
- General operating requirements
- Insurance requirements
- Financial assurance requirements
- Transfer, amendment, renewal, cancellation and penalty provisions

Chapter 18.28.040 provides for inspections of mines under permit.

Chapter 18.28.050 also establishes penalties.

Chapter 18.21

Conditional Uses

Chapter 18.21 of the Zoning Regulations establishes standards for conditional uses.

The Chapter contains:

- Purpose statement
- Requirements for obtaining a conditional use permit
- Allows for a preliminary conference between staff and the applicant

- Contains application requirements
- Requires applications to be referred to the Committee on Planning and Development for a public hearing
- Establishes a time frame for decisions
- Allows the Committee to approve the application as presented, attach conditions for approval or deny the application
- Establishes standards for conditional use approval
- Describes when a permit will lapse, when it can be revoked and when it is considered discontinued.

Title 18 Subtitle IV. Nonmetallic Mining Reclamation Code

Chapters 18.91 through 18.97 of the Nonmetallic Mining Reclamation Code regulate the reclamation of nonmetallic mines in Eau Claire County. This ordinance cannot be used to approve or deny a mine itself but only regulate how the mine is reclaimed.

Chapter 18.91 Permits

Chapter 18.91 establishes:

- Effective date for the ordinance (June 1 2001) and requires reclamation permits for all mines established after the effective date
- Establishes permit requirements
- Provides exemptions for mines operated by a unit of government for non-commercial purposes.

Application requirements are listed including:

- General information
- Reclamation plan with specific requirements
- Reclamation measures and a certification that the operator will carry out the reclamation plan
- A section on site modification and transfer of permits.

Chapter 18.92 Reclamation Standards

Chapter 18.92 sets out standards for nonmetallic mine reclamation. There are separate sections for:

- General standards
- Surface water and wetland protection
- Groundwater protection; topsoil management; final grading and slopes
- Revegetation and site stabilization; assessing completion of successful reclamation; intermittent mining; and maintenance

Chapter 18.93 Public Notice and Right of Hearing

Chapter 18.93 requires the department to publish a Class 2 public notice of application within 30 days of receipt of a complete application for a nonmetallic mine reclamation permit and distribute the notice to neighbors, the municipality in which the mine is proposed to be located and the Eau Claire County Land Conservation Division.

If the mine site is zoned, and a public hearing is required for a zoning permit, the public hearing for the zoning permit may also serve as the public hearing for the nonmetallic mine reclamation permit.

If the mine site is not zoned an opportunity for a public hearing will be afforded to neighbors within 660 ft. of the property boundary on which the mine is proposed to be located. A neighbor(s) must request the public hearing within 30 days of the publishing of the public notice. The hearing is informational only and testimony is limited to the reclamation of the proposed nonmetallic mine site.

Chapter 18.94 Permit Decision and Appeal Process

Chapter 18.94 establishes a notice requirement to notify the town clerk in the town in which the operation is located. It also establishes a timetable in which a decision on a nonmetallic mine reclamation permit may be issued and a procedure for appealing permitting decisions.

Chapter 18.95 Fees

Chapter 18.95 establishes fees for application, annual extension, DNR, public notices and hearings.

Chapter 18.96 Financial Assurance

Chapter 18.96 establishes provisions for department approval of financial assurances that the mine will be reclaimed as planned.

It includes:

- Bond or alternate financial assurance instruments
- A process to re-evaluate financial assurances when conditions change
- Handling of financial assurances on multiple projects and multiple jurisdictions
- Release and cancellation of financial assurances
- Changing methods of financial insurances
- Bankruptcy notification.

Chapter 18.97 Administration and Enforcement

Chapter 18.97 provides for:

- Inspection of mine sites
- Annual reporting
- Enforcement
- Waiver of liability for the department in carrying out it's duties
- Penalties for failure of the operator to carry out its responsibilities.

Title 17 Chapter 17.05 Stormwater Management and Erosion Control

Chapter 17.05 generally regulates land disturbing activities or construction that may require permits for stormwater management or erosion control.

There are various sections of the ordinance relating to:

- Authority to administer the regulations
- Findings and purpose of the code
- Administration of the code
- Jurisdiction
- Definitions
- Applicability and exemptions
- The stormwater permit process and requirements
- Stormwater management plan requirements
- Technical standards and specifications
- Maintenance of best management practices
- Elicit discharges; enforcement; and validity of the code.

Of particular note is the section on applicability and exemptions (17.05.070). The applicant for a stormwater and/or erosion control permit may request an exemption from any or all provisions of the stormwater management and erosion control ordinance if the Land Conservation Division determines that another regulatory agency is enforcing erosion control and stormwater management provisions that are at least as restrictive as those contained in the ordinance. Application for an exemption must be made and the Land Conservation Division must conduct a review and make a determination on the exemption request.

Specifically exempt from **erosion control requirements only** are nonmetallic mining activities that are covered under the nonmetallic mining reclamation ordinance.