

DANE COUNTY PLANNING & DEVELOPMENT

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MEMORANDUM

To: ZLR Committee

From: Daniel Everson, AZA

Cc: Roger Lane, ZA; Todd Violante, AICP, Director

Date: January 3, 2012

Re: Frac Sand Mining in Wisconsin and Potential in Dane County



Known as "frac sand," the stuff from Wisconsin is mixed with water and then pumped at very high pressure into oil and natural gas wells. The slurry of sand and water blasts apart the rock and then the strong, round sand grains hold open the fractures so the oil and natural gas can make their way to the surface, said Bruce Brown, senior geologist for non-metallic and industrial minerals at the U.S. Geological Survey in Madison.

Wisconsin frac sand is unique due to its size, uniform roundness and hardness.

Frac sand is used for an emerging practice known as hydraulic fracturing, in which sand is mixed with water and chemicals and injected at high pressure into rock deposits to extract natural gas and oil. Most of the natural gas shale rock wells are in Texas, Oklahoma, Mississippi, Arkansas, New York, North Dakota and Pennsylvania, so the sand harvested in Wisconsin is shipped to many of those locations via rail and truck.

Most of the mines have been sited in towns that do not have zoning restrictions, but where zoning is 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.

Any proposed frac sand mine site in Dane County would have to apply to the county for a conditional use permit to establish a nonmetallic mine operation and file a reclamation plan to show how the site would be restored. Also, the respective town in which the proposed site is located would review the conditional use permit. The Dane County Land and Water Resources Department would also review the reclamation plan with respect to erosion control and stormwater management.

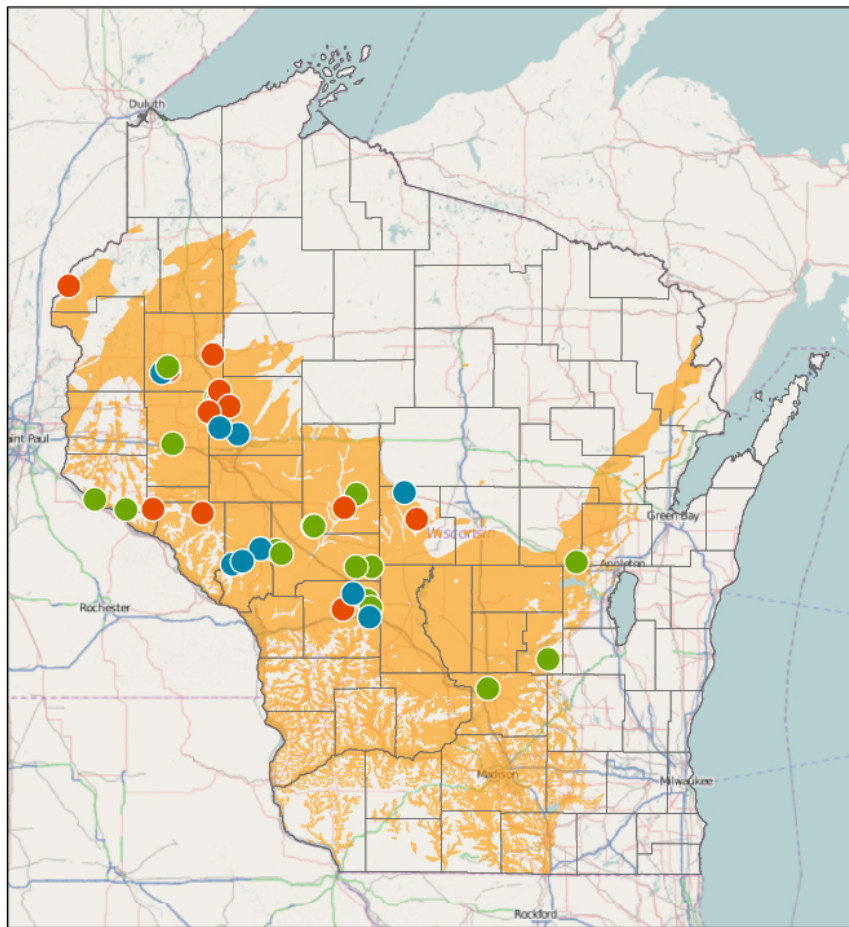
Link to a recent presentation by Bruce Brown, Senior Geologist, PhD., P.G.

http://www.wccadm.com/WCCASAND_1011.pdf

Facts:

- Frac sand has to be of a particular size.
- Two distinct types of sand used in the hydrofracking process.
 - The Ontario sand (located in Wisconsin) is white and spherical.
 - Sold in bulk by size. (common size is referred to as 20/40, measured in microns).

Frac sand: Wisconsin sites



- Active (16)
 - In development (11)
 - Proposed (14)
- Sandstone areas of possible interest to frac sand miners

Mine and processing plant sites compiled in July 2011 from interviews with county and company officials; company websites; and Department of Natural Resources permit records. Sandstone identified with assistance from the Wisconsin Geological Survey.

Map: Kate Golden, Wisconsin Center for Investigative Journalism. Research: Jason Smathers and Julie Strupp, WCIJ.