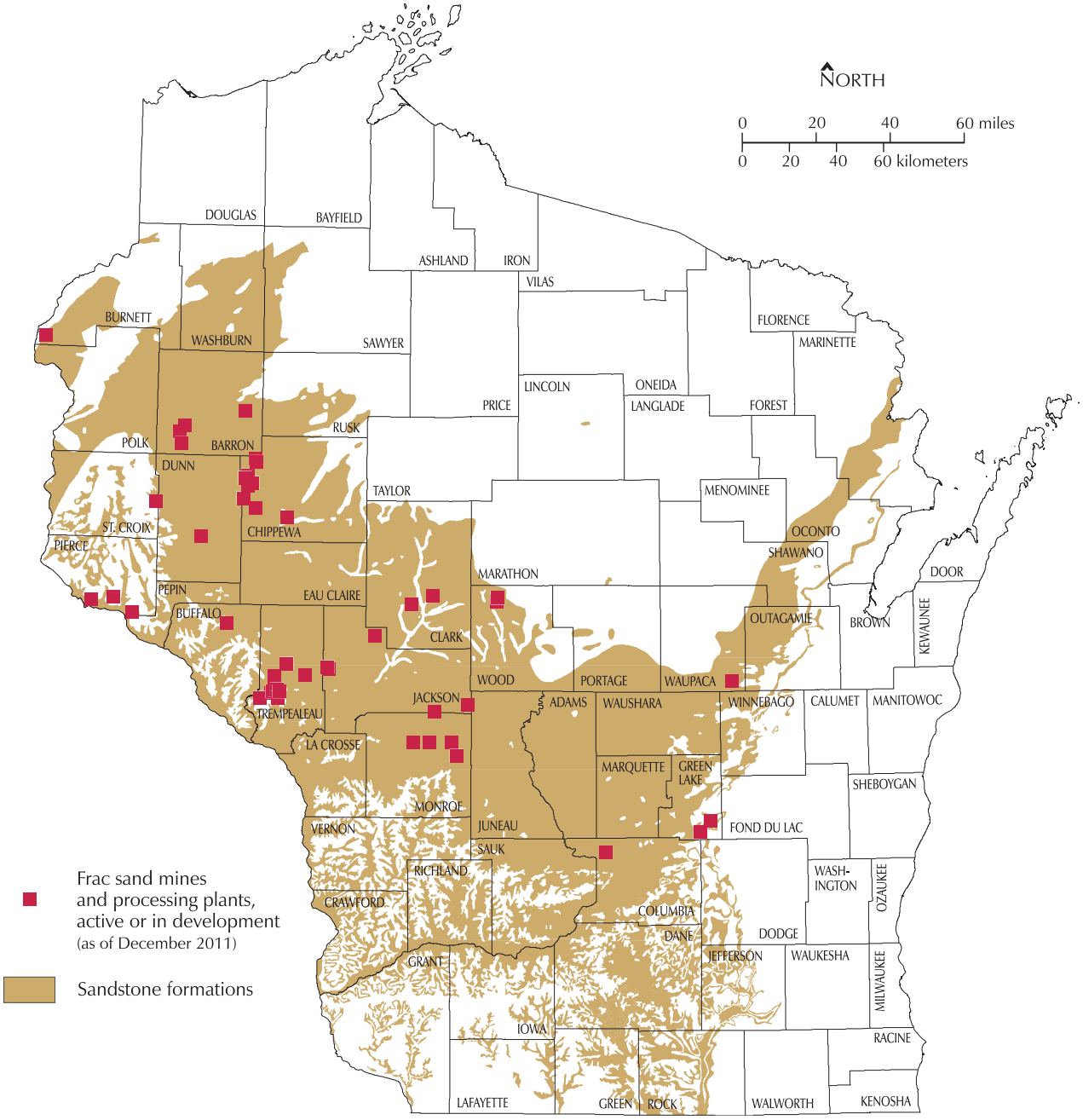
Frac sand in Wisconsin

Wisconsin Geological and Natural History Survey

Factsheet 05 | 2012



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Wisconsin has abundant resources of sand that have been mined for more than 100 years. Our sand is used for glass manufacture, foundry molds, even golf course traps. It has been mined for the petroleum industry for many years. Recent advances in extracting oil and gas using a process called "fracking" (short for hydraulic fracturing) have greatly increased the demand for Wisconsin's sand.

What is frac sand?

Frac sand is quartz sand of a specific grain size and shape that is suspended in fluid and injected into oil and gas wells under very high pressure. The fluid pressure opens and enlarges fractures as well as creates new ones. Sand grains are carried into these fractures and prop them open after the fluid is pumped out.

The type of sand used in this process must be nearly pure quartz, very well rounded, extremely hard, and of uniform size. Before shipment, frac sand is washed, sorted to ensure uniformity, and dried.

Wisconsin has some of the best frac sand in the country because several of our geologic formations meet these specifications and are found near the surface.

▲ **Frac sand:** *Wisconsin's silica sand is highly sought after for its purity, well-rounded grains, uniform size, and strength.*

Where is frac sand found?

Frac sand is currently being mined from sandstone formations in much of western and central Wisconsin. The same formations are less well exposed and generally more fine-grained in the eastern and southern parts of the state. Sand from younger glacial deposits as well as most beach and riverbank sand is too impure and too angular to be used as frac sand.

Where is fracking performed?

Fracking has been used by our domestic oil and gas industry for the past 75 years. Recently, the development of new horizontal drilling technology using hydraulic fracturing has made possible production of previously unrecoverable natural gas resources in the eastern, western, and southwestern United States.

In Wisconsin, a different kind of fracking is used to increase the productivity of water supply wells in relatively impermeable rocks, such as the granite in the central part of the state. In these cases, only pressurized water is injected into the well—no sand is added.

Permits and regulations

Concerns have been raised regarding environmental and nuisance problems as sand mines proliferate. Mine siting is regulated at the local zoning level. Mine reclamation plans, required by NR 135, must be in place before mining begins. The Department of Natural Resources provides technical assistance to local authorities for these plans. For a summary of regulations that apply to nonmetallic mining in Wisconsin, visit the DNR website at http://dnr.wi.gov/org/aw/wm/mining/nonmetallic/.

For more information, contact

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