

THE LAKE AGASSIZ ROCK HOUND

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What Is Frac Sand?

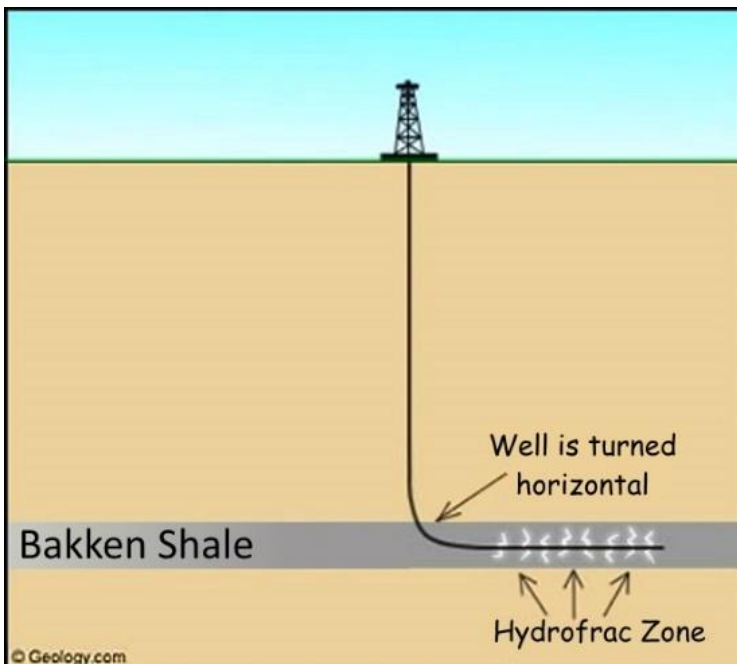
Redacted for edu. From original article by: Hobart M. King, Ph.D
full article can be read at: <https://geology.com/articles/frac-sand/>



Frac sand: Close-up view of frac sand (on the right) and a typical sand of similar grain size (on the left). Frac sand grains are more uniform, rounded and more the same size. It is quartz-tough, and resists compression up to several tons per square inch.

"Frac sand" is a high-purity quartz sand with very durable and very round grains. It is a crush-resistant material produced for use by the petroleum industry. Used in the **hydraulic fracturing process** (known as "fracking") it helps extract petroleum fluids, such as oil, natural gas or liquids from rock that lacks permeability (pore spaces.) Low permeability prevents product flow up and out. Most frac sand is a natural material made from high-purity sandstone. Another source is manufactured ceramic or aluminum beads.

The demand for frac sand has exploded in the past several years as thousands of oil and natural gas wells are being stimulated using the fracking process. (See the production chart.) A fracking job on one well can require a few thousand tons of sand. This surge has created a billion-dollar frac sand industry in a very short time, between 2005 and 2015.



Simplified diagram of an oil or gas well during "fracking". Horizontal pressure gets the flow of oil to come up the vertical shaft.

High pressure equipment pumps in the gelled water and frac sand mixture. This fracking process shatters open new seams in the rock. Billions of sand grains are carried deep into the splinters by this sudden rush of water. When the pressure is turned off, the frac sand keeps the fissures propped open and the oil flows out. Such materials are called "proppants". Only specific rock units qualify as sources.

Jordan Sandstone Formation is one, found in the far SE corner "footie" of MN, and parts of Iowa. Suitable sites for frac quartz grains have been through multiple geo-cycles of weathering, uprising and repeated erosion. That long history has naturally removed nearly all stray mineral grains other than quartz. The resulting grains are water-polished, round shapes.

Frac sand is not used straight from the ground, but requires processing. At a plant it is washed, drained and kiln-dried. The dry grains are then sized by screens for differing commercial situations.

Processing plants are expensive to build. Some are near their original sand mine, and others are centrally located and shared by multiple mines. The frac sand is delivered by truck or train to the oil fields.



Drone view of a frac-sand processing unit in Wisconsin.

Please Come to the LARC

March 2019 Meeting

Wednesday March 6th at 7:00 pm
Stevens Hall Room 134, NDSU

Program:

Videos on screen of interest
Variety topic options (DVDs) or
You Tube choice-hunts Rock Hounding

Guests are always welcome!

Lake Agassiz Rock Club

President: Frank Svezia
Vice President: Nina Flippance
Treasurer: Terry Mallick
Secretary: Chris Patenaude
Youth Group/Pebble Pups: Nina Flippance
Program planning ideas/volunteers welcome

What is our Purpose?

To create an interest and promote a knowledge of all phases of geology or earth sciences in an informal setting.

Where and When Do We Meet?

The Geology Lab, Room 136, on the lower level of Stevens Hall, NDSU, Fargo. Time: 7:00 p.m.

[From N. University Dr. turn West on 12th Ave N. Turn North on Bolley Dr. Drive just past Centennial Boulevard. See **Stevens Hall** on west side of Bolley, 2nd hall from the corner. To park, go into next driveway ahead, on the left. Drive west, then left again behind a laboratory building to Stevens Hall back-lot.]

How Much Are the Dues?

Single person—\$20.00; Family—\$30.00; College (any school) students and youth (if not a family member)—\$10.00 per year. Send dues to Terry Mallick, Treasurer; 416 3rd Avenue S., Moorhead, MN 56560. Or contact him during regular meetings.

What Happens at Meetings?

Our youth group The Pebble Pups attend their own separate group meeting, while the adults cover business. The kids join us for the main Program; a silent auction of collectable minerals; and “lunch”.

What are some of our Club Activities?

Field trips are taken to areas ND, SD, and MN. We fundraise at the R.R.V. Fair. LARC sponsors a scholarship to an outstanding Geology student at NDSU each year. Personal Info lessons can be arranged at pre-meeting times. Lots of Show & Tell meeting nights!

What are Our Club Affiliations?

We are affiliated with the American Federation of Mineralogical Societies. (**AFMS**) We are in the subsector Midwest Federation of the Mineralogical and Geological Societies. (**MWF**)

How Do We Keep in Touch?

Facebook _____ Website _____

The *Lake Agassiz Rock Hound* is our monthly bulletin e-mailed 7 days before meetings. Paper copy free to active members **without** computer access. \$15 dollar subscription/ yr for hardcopy to members who need one in addition to e-addy. **Send news tips and articles** to the editor: Chris Patenaude P.O.Box 434, Perley, MN 56574 or email LakeAgzRC70@yahoo.com. Rock Hound articles may be reprinted if full credit is given, unless otherwise noted.

LARC is an all-inclusive, diverse group. We welcome and respect every person in regard to age, gender, culture, language, social class or disability. Discrimination or ill will towards another will not be tolerated. We are here to support any who love the hobby.

Last Meeting Minutes

LARC regular meeting for February 6th was blown off the calendar by a snowstorm/blizzard!

A few hardy loyalists straggled to the room; Frank S. and his two grandsons, and three NDSU Geo-Club students with a modest box of specimens for exhibition. Frank had some dandy photos on his phone of the latest Gem and Mineral Show in Tuscon, AZ. Those must have been “bobby-dazzlers” as the British say.

The NDSU Geo-Club does want to put on a nice presentation, it might be pulled off by March, but more probably April meeting.

Terry M, our Treasurer has a few neat DVD's in his briefcase that would interest the Club for March entertainment. This editor will also be cruising the endless You Tube offerings for quality “hunts” for neat rocks in unique places. Now that we have an NDSU password, we can interact with the Internet for just about anything that would tickle our “adventure-bone”. [I believe that piece of anatomy is attached to the sternum somewhere near the thoracic adrenal glands.]

If there are any members with a “talk in your pocket” feel free to speak up and volunteer to share your own experience, any time of year. We can use the room equipment for audio-visual anything, just about. And everyone has something nobody else has done or seen; we'd all like to hear about it!

Warm invites to you all to come to the March meeting and kick off the Spring Season. Hey! Have you noticed? The Crows are coming back from migration. I've seen 5 already. They don't fool around. They are better early harbingers than Robins, mho! ☺

BRAD SMITH'S BENCH TIPS

STIFFENING EARRING POSTS

Soldering an earring post will always soften the wire a bit. The easiest way I've found to harden it is to grip it with pliers and twist it a couple half turns. This work hardens the wire and also tests your soldered joint.



Discover New Jewelry Skills with Brad's “How To Do It” Books
<https://Amazon.com/author/bradfordsmith>

AFMS Website Corrects LARC Oversight

This editor was cruising thru the AFMS website and began to look down the listings of any nearby affiliated Clubs we may not know about. To my amazement, WE, the Lake Agassiz Rock Club was not among the listed. We've been a part of AFMS/MWF for four decades. So I promptly explored the "CONTACT US" tab to fix it.

Finding the only link to ask questions was an anonymous link to "webmaster", no names given, I wrote in to them!

Lake Agassiz Rock Club has been a long standing, dues and insurance-paying member of the AFMS/MWF network and organization since 1970.

Yet I do not see our organization listed on the webpage under North Dakota members... only the Bismark one.

<http://www.lakeagassizrocks.com>

Check out our *Newsletter Archive* at the Home Page! 😊

Where did our mention on the AFMS website get placed?

Our club is registered in Fargo, ND.

We meet at NDSU in Fargo at the geology dept in Stevens Hall. We have membership drawn from both sides of the *Red River of the North* which marks the ND/MN border.

We have membership as far west as Jamestown, ND; as far south as Salem, SD, as far North& East as Twin Valley, MN.

I just happen to live in MN, but our Club has always been affiliated with AMFW/MWF via Fargo, ND.

Where are we listed on the network's pages?

Chris Patenaude,
Secretary/ Newsletter editor

Hooray! Someone answered:

Chris,

Thank you for the update. Your club is now listed with on the webpage:

<http://amfed.org/club.htm>

You asked some questions, so let me try and answer them for you. Your club was not listed until now, because you just told me about it. Your domain name for your website was created on 10-05-2017, and that was a little while after I did my last search for clubs that did not forward their website information to the AFMS website.

Thanks again for the update,
Martin Hart
AFMS Webmaster

The outcome is wonderful, but I had to think to myself... what, thirty years of correspondence and insurance receipts don't count as communication to HQ? We don't exist without a website? How many other Clubs, who are quite active, are not lucky enough to have a great webmaster as we have acquired? (Thank you Tony!)

Does anyone else have any ideas how we can start looking for any 'lost lambs', other viable, legit MWF clubs who might not know they aren't being represented, for lack of an internet footprint? These smaller groups might have knowledge of quest-able nooks and cranny's we don't know about. They might be much closer for field-trips than the eastern edges of MN (for L. Superiors) or the western reaches of ND (for Prairie or Fairburns). It would seem intriguing that we have cousins we don't even know about, yet, maybe as close as Lake Country, just not in the public spotlight of AFMS lists.

MWF March 2019Calendar

(Edited for time and proximity to Fargo; &/or included for popularity. See complete calendar at:)

<http://www.amfed.org/nw/Calendar/March.html>

9-10: WEST BEND, WI Kettle Moraine Geological Society Annual Show. Sat 10 am - 5 pm; Sun 10 am - 4 pm. Washington County Fair Park & Convention Center, 3000 Hwy PV, West Bend. Contact: John Rettler, (262) 345-5020; johnrettler@gmail.com; kmgrocks.com

9-10: MACOMB, IL Geodeland Earth Science Clubs Annual Show. Sat 10 am - 6 pm; Sun 10 am - 5 pm. Western Illinois University Student Union Ballroom, Murray St., Macomb. Contact: Deb Coursey, (309) 368-8451; courseyfarm@gmail.com www.geodeland.com

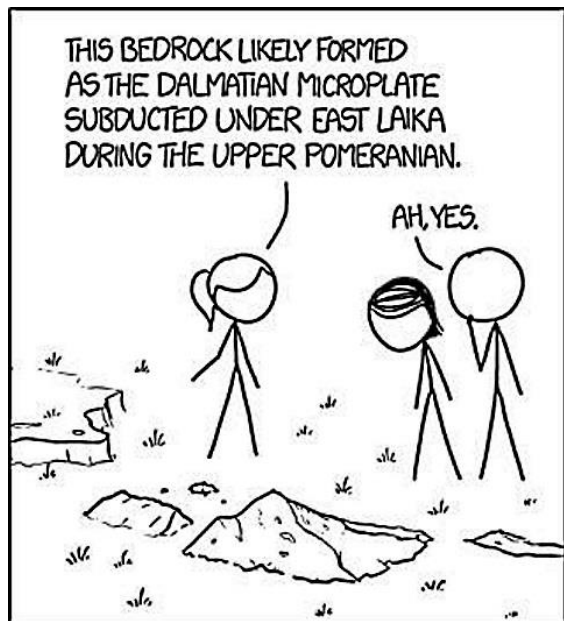
13-18: KANSAS CITY, MO Association of Earth Science Clubs of Greater Kansas City 59th Annual Show. Fri 10 am - 8 pm; Sat 10 am - 7 pm; Sun 10 am - 5 pm. 11730 NW Ambassador Dr., Kansas City. Contact: Bruce Stinemetz, (816) 795-5159; brucestinemetz@att.net

23-24: WHEATON, IL Earth Science Club of Northern Illinois Annual Show. Sat 10 am - 5 pm; Sun 10 am - 4 pm. DuPage County Fairgrounds, 2015 Manchester Rd., Wheaton. Contact: Dave Carlson, (847) 931-0856; fossil545@att.net www.esconi.org

23-24: CEDAR RAPIDS, IA Cedar Valley Rocks & Minerals Society 55th Annual Show and **AFMS/MWF 2019 Convention**. Sat 8:30 am - 6 pm; Sun 9:30 am - 4 pm. Hawkeye Downs Expo Center, 4400 6th St. SW, Cedar Rapids, IA. Contact: Marvin Houg, (319) 364-2868; m_houg@yahoo.com www.cedarvalleyrockclub.org

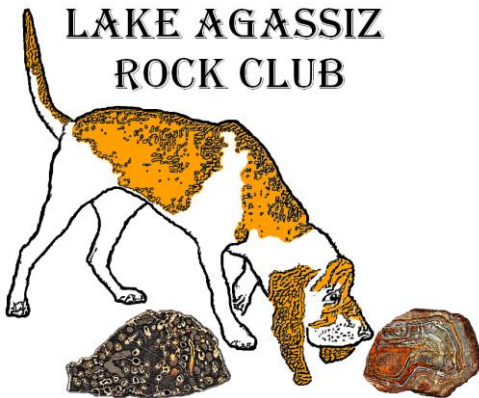
30-31: FORT DODGE, IA River Valley Rockhounds, Inc. Annual Show. Sat 9 am - 5 pm; Sun 11 am - 4 pm. Webster County Fairgrounds, 22770 Old Highway 159, Fort Dodge. Contact: Robert Wolf, (515) 955-2818; midnightwriter@frontiernet.net

30-31: CANTON, OH Stark County Gem & Mineral Club Annual Show. Sat 9 am - 5 pm; Sun 10 am - 5 pm. Stark County Fairgrounds, 305 Wertz Ave, Canton. Contact: Jeff Storz, (740) 630-7714; jstorz42@gmail.com



GEOLOGY TIP: THERE ARE SO MANY MICROPLATES AND AGES THAT NO ONE REMEMBERS THEM ALL, SO IN A PINCH YOU CAN BLUFF WITH DOG BREEDS.

Lake Agassiz Rock Hound
P.O. Box 434
Perley, MN 56574



Foodie Fun! ALL ROCKS!

Images found by Google search... there is this traveling exhibit called the Rock Food Table. Fantastically whimsical and enjoyable rock-hound exhibit where all the displays *looked* edible! Put together by the East Texas Gem and Mineral Society, one of our affiliated AFMS clubs. See the display and links to their huge website at http://www.etgms.com/rock_food_table.html

