

Subject: HEAVY METAL AND OTHER CHEMICALS MAY BE A THREAT TO PEOPLE LIVING NEAR FRAC SAND MINES



*.....keeping watch on
the industry*

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This past week, I took quite a bit of time to write a presentation on heavy metals and other contaminants to deliver to the Town

of Howard Board members during the hearing held regarding the new proposed mine, processing plant and rail load-out system for Northern Sands of Wisconsin. The location is on the western side of Chippewa County. Immediately next door is the Town of Colfax. Many people will be affected by this operation because of the large number of residences located in this area because of its close proximity to Dunn Co.

Environmental impacts are possibilities due to the fact that waste and or contaminated storm water will enter the Red Cedar Watershed on the Red Cedar River including made lakes (Lake Menomin and Tainter Lake). Many efforts are being made in Dunn County to clean up algae blooms due to contaminants already in the watershed.

Many people from both counties attended the hearing and did

an excellent job of pleading their case both pro and con. Since presentations could last no longer than 5 minutes and this is a convoluted topic, I didn't have time to complete the presentation. However, there may be a use for it and it is good people know the issues should a frac sand mining operation come to your town! Happy reading about a serious topic!

Pat Popple

October 8, 2018

**To: Town of Howard Board Members and Residents
Re: Albertville Mine and related facilities
development**

We are so fortunate to have an abundance of water in Wisconsin. We are "water rich" so to speak, at least for now. However, concern is growing that we could lose both water quantity and quality if current practices do not protect both. Demand is increasing from many sources including personal, agricultural, and industrial. Any failure to apply the most robust science plus the Precautionary Principle threatens the abundance of clean and fresh water we need for life and health and raises legitimate concerns for citizens.

“The term “heavy metal” refers to any metal and metalloid element that has a relatively high density and is toxic or poisonous at low concentrations, and includes mercury (Hg), cadmium (Cd), arsenic (As), chromium (Cr), thallium (Tl), zinc (Zn), nickel (Ni), copper (Cu) and lead (Pb). Although “heavy metals” is a general term defined in the literature, it is widely documented and frequently applied to the widespread pollutants of soils and water bodies. These metals are found widely in the earth’s crust and are non-biodegradable in nature. They enter into the human body via air, water and food. A small number have an essential role in the metabolism of humans and animals in very trace amounts but their higher concentration may cause toxicity and health hazards.

The hazardous nature of heavy metals has been recognized because of their bioaccumulative nature in biotic systems. They can enter into the environment through mining activities, industrial discharge and from household applications, into nearby bodies of water.” (Royal Society of Chemistry)

While I don’t consider myself to be a scientist, I have taught science to upper grade children and worked with teachers on various components of science in the classrooms. For the past 10 years I have immersed myself in the controversial issues regarding frac sand mining, processing and transload. I am persuaded that this industry has been foisted upon this land and its people without adequate attention to available data, science, and long term consequences. Industrial sand mining on this scale is new to Wisconsin and we already are seeing evidence that negative impacts are greater than 'less than transparent' companies implied they would be. The industry has been accepted into our cities and country sides because propaganda is often more appealing and easier to understand than actual science.

There is no more important time than now to follow the Precautionary Principle which was developed at a Wingspread Conference in Wisconsin in 1998. It says: “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof. The process of applying the precautionary principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action.” [Wingspread Statement on the Precautionary Principle, Jan. 1998]

During meetings held in the City of Chippewa Falls during 2008-2009, a Town of Howard resident, after finding the remnants of heavy metal materials on a water filter, asked DNR, hired engineers, and the company whether or not there was a potential for heavy metals in non-metallic mining areas in this region and he and the audience were told “hands down” that there would be no problems associated with heavy metals in these operations in non-metallic mining areas. On June 23, 2014, I attended a meeting of DNR and WTA personnel. At that time, a DNR specialist, revealed surprising information he felt he had an obligation to share: DNR personnel had discovered sulfides in distinct formations (Tunnel City Formation [LaCrosse, Vernon, and Monroe Counties], Eau Claire Formation [Eau Claire, Jackson, and Northern Counties], St. Peter Formation [Southwestern and Northern Counties]), recorded pH changes in the water (from 7.3 to 5.3 in less than one month), and listed the chemical names of heavy metals discovered in water samples. WDNR data of heavy metal content in sand wash ponds adjacent to mines obtained by Midwest Environmental Advocates through the Freedom of Information Act demonstrated that the same issue was arising in areas around frac sand mining facilities. The changes in acidity or pH in the water combined with sulfides was allowing heavy metals at toxic levels to leach into water; included were arsenic, cadmium, aluminum, lead, manganese, copper and others. This water contamination problem is prevalent during mining and processing but also extends to reclamation processes that re-use all the waste sand that is carried back to the mine for fill. The cycle continues into, during, and after reclamation is completed. I called the staff member several times after hearing his presentation. He indicated that a large piece of sulfide

had been found.....it disappeared when the finder left his position and possibly became employed by a sand company. His greatest concern at the time was with the reoccurring oxidation and leaching that would occur after the waste from the processing plants was returned to the mine. When I asked Chippewa Co. personnel what could be done to prevent reoccurring leaching of heavy metals, it was suggested that the pits could be lined with plastic or with clay. Really? The metallic Flambeau Mine was a postage stamp of about 35 acres.....and the frac sand mines we were and are looking at currently are 100's to 1000's of acres in size. I know the engineer who lined the Flambeau Mine with plastic and the 24x7 effort he took to meticulously ensure that every seam was done well. It didn't take long before that pit leaked. All pits leak! Can you imagine lining a frac sand mine given the acreages needing to be reclaimed. Currently some of the mines can no longer be drained internally because of the abundance of clay that has built up. That condition no longer allows drainage internally and frac sand mining companies are asking permission to drain externally into local water bodies. To complicate matters even more, there are concerns about the addition of flocculants known as polyacrylamides that encourage the clumping of particles to remove impurities from the sand at the mine and processing plants. Polyacrylamides contain traces of acrylamide and can break down into acrylamide, a neurotoxin and known carcinogen that can enter groundwater or surface water from wastewater ponds at mining operations or from piles of processed sand ready to be transported. As waste water and contaminated storm water can no longer filtrate into the mine floor in some locations probably due to poor infiltration caused by heavy clays in the ponds, the contaminated storm water and waste water

have to be processed for external drainage. To do this, flocculants have to be added to remove the suspended solids so the drained waters are mostly clear. However, mining operators and the permitting agents do not know how much polyacrylamide is safe to add to groundwater and over time if it will impact drinking water standards.

The WDNR fully admits to the problems as noted in the *Wisconsin Department of Natural Resources Industrial Sand Mining in Wisconsin: Strategic Analysis for Public Review June, 2016*. In an article written by Rich Kremer from WPR in Oct. of 2016, when the DNR sampled water used by the frac sand operations in 2013 during washing, it didn't answer whether or not heavy metals were contaminating water supplies; however, they found aluminum concentrations 178 times higher than state standards along with lead and manganese levels 4 times higher than recommended. Sediment was in the water and there wasn't a way to determine if the metals were in the sediment or in the water itself.

After the Public Hearing on the Draft was held in 2016, the DNR mining expert indicated that the DNR was going to move ahead on a comprehensive groundwater study in 2017 so that for the next review of industrial sand mining water permits in 2021, they could release the results. One wonders how many people including the children and the elderly and entire families will be affected by heavy metals in their home and farm water supplies. Already people have come forward with personal stories about their situation and they have "water buffaloes" filled with potable water in their garages so they can live with fresh water in their homes. Yet that supply may not be enough for a family's needs completely.....and appliances may not function due to the huge volume of sand that has destroyed a washing machine or a

dishwasher. Health-wise some of the chemicals cause serious damages to the brain and nerve cells. I wrote to the mining representative within the past couple of months to ask her how the heavy metal study was progressing; she told me she would get back to me. She has not responded. It appears to me that 5 years is a long time to wait to find out if the best management practices being used by the companies and allowed by the WDNR are working particularly when health and environment are of concern.

The man-made breach that occurred on May 21, 2018, due to the fact that a bulldozer operator went into a 12' deep wastewater pond with his bulldozer and remained there until his rescuing associates could reach him, really provided testimony to the fact that there were heavy metals located at the Hi Crush site in the wastewater pond. 10 million gallons of heavy sludge from the wastewater pond were breached to allow for the rescue. The material that was spilled for the rescue contained elevated levels of arsenic, mercury, lead and other metals according to the LaCrosse Tribune article by Chris Hubbach in June, 2018. Tests showed that lead concentrations were 10 times the allowable levels in the water. Aluminum was 1000 times the limit. Other heavy metals having high levels of contamination included beryllium, cadmium, chromium, copper, magnesium, nickel, and other contaminants. The Trempealeau River was colored orange for days with sediment from the mine as it made its way down to the Mississippi River. The County had no jurisdiction over this mine because it is located in the cities of Independence and Whitehall due to annexation and both are unregulated. While I learned a lot at the 2014 meeting in Eau Claire sponsored by the DNR and the WTA about heavy metals, I often wondered if Chippewa County could potentially have a problem with sulfide rocks, low pH

in the water and leaching, and whether or not there might be a problem if we had the right formation. Chippewa County had water quantity meetings during the duration of water studies and I attended at least some of the meetings. At a meeting of engineers, managers and other stakeholders, one of the managers announced that their company in the Town of Howard had decided that the quality of the frac sand from the Tunnel City formation was of no value so while they were digging it up, they stored it for reclamation purposes in berms. After the company found that the finer sand from the Tunnel City formation was even better for doing a better frack, they dug it up again and were sending it off to their industry for hydraulic fracturing. I then realized one of the best formations for sulfides, the Tunnel City formation, was located right in the Town of Howard and that indeed, leaching could occur if the conditions were right and mining was occurring. What a revelation it was to me.....and the discussion at the meeting just went on without them realizing that I had that insight. During a later meeting I pressed the County and the people involved in the studies to take a good look at water “quality” as it was not on their agenda. Water quantity was the issue of greatest concern.

Protecting public health, safety and welfare is a duty of elected officials. The people in the Town of Howard and the Town of Colfax have deep concerns about the viability of this huge complex located in the Town of Howard and yet affecting many others crossing over county lines. It behooves the Town Board, and all its close associates to really stop and think about the future concerns this facility can and will create for everyone over the long haul. Once this thing starts, there is no coming back, and as evidenced by previous experiences with this company, experiences in near-

by operations, and the lack of science or concern for people and their young ones, it should be the Town Board's responsibility to provide excellent oversight and protect the land, the air, the people and their animals to the greatest degree possible. If possible, press for "science" until it can be proven there will be no danger to the residents of the Town of Howard and the Town of Colfax.

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Welcome to the Frac Sand Sentinel, a newsletter highlighting resource links, news media accounts, blog posts, correspondence, observations and opinions gathered regarding local actions on, and impacts of, the developing frac sand mining and processing industries.

The content of this newsletter is for informational purposes only. The editor of the Frac Sand Sentinel does not accept any responsibility or liability for the use or misuse of the content of this newsletter or reliance by any persons on the newsletters contents.

CHECK OUT THE WEBSITE: CCC-WIS.COM and for additional information, [click here](#) for panoramic views of frac sand mines, processing plants, and trans-load facilities.