February 4, 2025

Trenton Shutter

Project Engineer

Chippewa County, WI

Re: SSS plan: amending the existing NMRP dated 2/17/12 and 12/21/12

From: Patricia J. Popple

561 Summit Avenue, Chippewa Falls, WI 54729 715-723-6398 sunnyday5@charter.net

The proposed amendment to using mud pond fines in reclamation by replacing it with a plan for capping the mud ponds is insufficient to meet the safe water quality standards required in the state of Wisconsin.

To dewater the mud ponds is inadequate to protect the water that then flows into Trout Creek and then eventually into the Red Cedar drainage system in Dunn County which provides water to a large number of citizens, farm animals and other life-forms living in Dunn Country.

When heavy metals were found in the frac sand mining formations (due to the leaching out of metals from those formations particularly when they contained sulfides and were of the Tunnel City Formation), the DNR asked Chippewa County Land Conservation Officials to either install a 1 foot clay liner before the construction of the “mud pond” or a plastic liner. Clay did not seem to be a solution because of the lack of available sources so Bruce Brown came up with a 50/50 solution consisting of silt and clay. Obviously, that did not work, and the problem exists today. Isn’t it better to remove the 50/50 mix and take it to a landfill that is certified to handle soils filled with heavy metals as well as chemicals originally mixed with the silica in order to clean and process it and ready it for transport? What is being recommended here is an alternative that is NOT acceptable to the citizens impacted in Chippewa County; it is also not a satisfactory solution to the people who live in Dunn County. What is in those “mud ponds” is industrial sludge or waste containing heavy metals, toxins, and chemicals that should never come into contact with ground water or drinking water!!!

In a letter written by Roberta Walls in May of 2020 to Dan Masterpole as well as Ryan Leverson, plant manager of SSS, it was recommended that further work must be done

because of the existence of heavy metals in the monitoring wells that may have not been carefully placed as well as the practices used by SSS to dump the INDUSTRIAL WASTE or SLUDGE accumulated from the washing process into the so called “mud ponds”, it is inappropriate to demonstrate acceptable reclamation treatments without first removing the industrial waste. It seems obvious that the formation will continue to leach the waste products into the groundwater. When SSS was fully operational, there were many blasts made at that site and fissures were opened up to allow groundwater to flow carrying the heavy metals and other dangerous chemicals and toxins through those fissures with much of the ground water entering the Trout Creek Watershed which empties into the Red Cedar Basin.

It may appear on the surface that the recommendations of SSS, SEH, and the Chippewa Co. Land Conservation office might serve as a partial solution so the mine can be reclaimed. All observations would conclude that it is not.

Superior Silica Sands has a crude way of pulling the wool over the eyes of authorities as evidenced from some of their history with numerous comments, questionable practices, and promises to the public that all would be safe. I attended many of their meetings and witnessed their comments and practices which were not appropriate environmentally nor health wise. In the long haul, the plan is one that is attempting to get around what they must morally do for the safety and health of surrounding areas and all of life occupying the area. If the county does not make SSS remove the industrial sludge or waste products from those “mud ponds,” I am afraid there will be disastrous impacts in the future.

DO NOT ACCEPT THE PLAN AS OFFERED!!!!

Attached is a copy of the letter from the DNR in case you do not have it or have not read it. It is clear about the issues revolving around industrial sludge or industrial waste and the laws that apply in the state of Wisconsin. Since Tony Evers has announced even more recently his plans for clean water in this state, it is critical that Land Conservation Districts and Engineers follow the recommendations and the laws to keep our water safe in Wisconsin for all!!!!!!

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
3550 Mormon Coulee Rd
La Crosse, WI 54601

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-785-9000
FAX 608-785-9990
TTY Access via relay - 711

May 27, 2020

Dan Masterpole
Chippewa County Conservationist
711 N. Bridge Street
Chippewa Falls, WI 54729

Ryan Leverson, Plant Manager
Superior Silica Sands
1058 USH 8
Barron, WI 54812

Subject: DNR Data Review - Superior Silica Sands Information (Auburn)

Dan and Ryan,

As per the Wisconsin Department of Natural Resources' (DNR) request on January 21, 2020, Chippewa County and Superior Silica has provided data for review. On February 14, 2020, Chippewa County provided DNR information including plans and amendments, monitoring well testing and construction data, inspection reports, and other pertinent information about the Auburn facility. On March 25, 2020, Sharon Masek provided a map of monitoring well locations overlaid on a current aerial extent.

DNR greatly appreciates your patience while the review was underway. The circumstances of the pandemic had slowed down the progress. In addition, in the summary below, frequent blasting at the facility needed to be considered. Blasting records at the facility were obtained from Olson Explosives in Decorah, IA through assistance with Dave Vriezen at the Wisconsin Department of Safety and Professional Services (DSPS). The records obtained covered April of 2014 through October of 2018, a period coinciding with most groundwater data available.

Below is a brief summary of each program's review followed by blasting considerations and recommendations moving forward. The DNR's Waste & Materials Management Program has presented several different waste disposal options for the wastewater sludge material and the approvals necessary depending on the option chosen. How this fits with the reclamation plan will largely be determined by the final disposition of the ponds.

Stormwater Review of Pond Construction:

The initial plans from 2012 included six ponds with a one-foot clay liner to be constructed in six-inch compacted lifts.

References from a nearby industrial sand mine, Preferred Sands – Bloomer, showed that there was not ample clay on-site for liner construction. Preferred Sands hired Bruce Brown of the Wisconsin Geologic and Natural History Survey to study the use of an alternative liner. Their alternative proposal was to use on-site silt/clay in a 50/50 mix, 50% passing the #200 sieve. Chippewa County, after review of the study allowed the alternative liner design. Mr. Brown's assessment looked at the leak rates based on the alternative liner and found they should expect a 0.2-inch/hour leakage rate.

Superior Silica, like Preferred, lacked adequate quantities of clay for their pond construction and petitioned the County to use a similar alternative liner. Chippewa County concurred with the petition and allowed the use of the alternative construction at the Auburn site. Chippewa County required Superior Silica to install a monitoring well at the pond site. County Engineer Seth Ebel documented during a site inspection that ponds 4, 5, and 6 were constructed with the alternative liner.

Solid Waste Review of Pond Fines Management:

At the Request of Chippewa County, Cooper Engineering, sampled and tested in-situ waste fines sludge. These results were provided by Superior Silica to support the Cooper Engineering's report dated September 26, 2019. This information appears to establish a reasonable probability that disposal of the waste fines sludge in the mine would not meet the performance standard of s. NR 504.04(4)(d), Wis. Adm. Code, which requires no detrimental effect on groundwater quality.

The waste fines sludge within the settling basin do not appear to meet the requirements for an exemption under s. NR 500.08(2)(b), Wis. Adm. Code and would be considered an industrial wastewater sludge subject to regulation as a solid waste under s. 289.01(33), Wis. Stats.

Disposal options for the waste fines sludge at the Auburn site should consider the following:

1. The waste fines sludge may be disposed of at an active licensed landfill that is approved to accept this type of waste material.
2. A low hazard waste exemption may be requested if the generator can demonstrate the waste is low hazard and can be disposed of in a manner that will not cause environmental pollution; However, based on the sample results this may not be a viable option without significant engineering controls, which would not be consistent with a low hazard waste exemption.
3. If it is determined that the waste fines sludge has been abandoned or constitutes a discharge to the environment, we recommend further coordination with DNR's Remediation & Redevelopment Program.

Groundwater Review of monitoring well information:

There is needed clarity regarding groundwater flow direction and pollutant levels in wells. Additional clarity may be gained by resurveying the wells. Blasting records may help clarify groundwater flow, and a resurvey of monitoring well #6 may provide clarity regarding high levels of nitrates.

None of the groundwater monitoring wells have detected arsenic or other heavy metals above groundwater Enforcement Standards; However, some were near or above the Preventive Action Limits established in chapter NR 140, Wis. Admn. Code. Some of the monitoring wells contained nitrates above the Enforcement Standard and trended upward over time as mining progressed. Laboratory testing for several parameters showed detection limits that were above chapter NR 140, Wis. Admn. Code, Preventative Action Limits and may be due to suspended solids in the monitoring wells.

The groundwater data for the private wells are older and taken very early in the life of the mine. If something at the mine changed it would take a longer period to reach those wells. Re-sampling of the nearby private wells is recommended.

Depending on post-mining land use after reclamation, activities that cause lowering of pH (such as amending soils with manure) have a chance for arsenic mobilization by increased phosphorus levels. DNR recommends consultation with DNR's waste programs for spoils with high arsenic levels in reclamation.

Remediation and Redevelopment review for potential pathways to groundwater:

If the facility were to cease operation and sludge material were left in place with no other reclamation of the ponds planned, the DNR's Remediation and Redevelopment program likely could consider sludge in its present location to be a discharge of a hazardous substance and ultimately require investigation/remediation. If treatment/disposal of sludge material is necessary, characterization of the waste will be needed.

Regarding impacts to groundwater due to mining activities or process water ponds, there is insufficient evidence to confirm or deny if groundwater has been impacted. Depending upon observed groundwater flow direction within the mine facility, which appears to be unreliable, monitoring wells within the facility may not be in the most appropriate locations to determine if the groundwater has been impacted by mining operations.

Office of Mining Reclamation Plan Review and Status:

The reclamation plan states that the primary geologic unit is the Cambrian layer which comprises multiple formations. Data from the boring logs show the Tunnel City formation (situated in the middle of the Cambrian layer) was seen between 8 and 40 feet below the surface in borings B-3 and B-4 and confirmed in GP-4 and GP-5. This encompasses phases 3, 4, and 5. The Tunnel City formation has been known to contain concentrations of arsenic and heavy metals (Ref WGNHS Zambito study)

Groundwater used in the process washing of the mined sand was drawn from high capacity wells and pulls from the Mount Simon formation situated at the lowest? portion of the Cambrian layer. Seismic activity from blasting has been known to impact groundwater flow direction and can open pathways to deeper groundwater aquifers if intensity is sufficient. (reference MN geologic studies).

Mining phases and direction in the reclamation plan were proposed to move sequentially from phase I through phase V in numerical order with reclamation of the previous phase after the onset of the next phase. Aerial photography shows phases I through IV as open acreage in 2011, all 5 phases open in 2014, and phases I, II, and a portion of IV undergoing reclamation in 2017. Also, in 2017, it appears that the mining activities expanded beyond the original plan to the south of phases IV and V as amended in 2017. Blasting records showed mining activities moving generally East to West and then in a southerly fashion.

Blasting Considerations:

The geologic formation may have been tightly cemented as significant blasting with very large amounts of explosives was done at this site. Blasting records obtained from Dave Vriezen at DSPS has shown the following:

1. From April 2014 through October 2018, Olson Explosives conducted at least 166 blasts at the facility
2. In the same time frame, an average of 1.07M lbs./year explosives and detonation materials were used at the site.
3. Detonation materials are known to contain lead and explosive materials contain nitrates.
4. Groundwater monitoring wells #1, 4, and 6 are situated within the mine footprint and all show significant increases in nitrates in the same timeframe.

Recommendations Moving Forward:

DNR recommends that the types and amounts of explosive materials contained in each blast be considered as contributory to the contaminants found in the ponds and groundwater monitoring wells. (ref studies from D Johnson). Additionally, DNR recommends testing for VOC, PAH, and HEM (oil and grease) in the monitoring wells #1, #4, and #6. If not already included, aluminum and nickel is recommended to be tested for as well. Additional wells may be needed if additional parameters are found at elevated amounts.

It is unknown if the pond liners for the process basins located upgradient to monitoring wells #1, #4, and #6 are sufficient in preventing contaminants from discharging to groundwater from the washing of sand that was blasted and excavated at the site. Calculations of the alternate liner suggest discharge may occur at a rate above DNR's recommended leak rate for a sealed basin. A leak rate test of the ponds is recommended to determine if discharge to groundwater is occurring.

If groundwater flow has changed during mining operations and arsenic, heavy metals and nitrates from blasting were discharged to groundwater, the current monitoring wells may not be appropriately placed. It is recommended to assess groundwater flow direction and re-testing of all nearby private wells.

Following DNR review and summary, we are happy to meet with both of you to discuss the above points in further detail. We recognize the difficulty everyone faces due to the pandemic and the economic challenges before us. Due to the degree of contaminants discovered, the DNR feels it is in the best interest of the agency, the county, the facility, and nearby residents, to address this issue in a reasonable timeframe and manner. We look forward to working with you through this process and I thank you in advance for your time and cooperation. I will reach out to set up a time for DNR technical staff and leadership to meet with you.

If you have any questions, feel free to contact me at (608) 785-9272 or Roberta.Walls@Wisconsin.gov

Sincerely,

Roberta Walls
Non-Metallic Mining Coordinator
Wisconsin Department of Natural Resources

cc: Scott Waughtal, Superior Silica
Ben Callan, WDNR Section Chief – Integration Services
Jim Devlin, WDNR Stormwater
Dave Rozeboom, WDNR Remediation and Redevelopment Supervisor
Phil Fauble, WDNR Solid Waste
Dave Johnson, WDNR Groundwater
Andrew Simek, WDNR Legal Services