Chippewa County
Land Conservation and Forest Management
"Stewardship for Sustainability"
(715) 726-7920
www.co.chippewa.wi.us
711 North Bridge Street
Chippewa Falls, WI 54729-1876

February 4, 2015

Leon Boland & Katherine Stahl
N7607 1010th Street
Elk Mound, WI 54739

Decision on Review – Northern Sands, LLC

Dear Mr. Leon Boland & Mrs. Katherine Stahl:

Pursuant to ch. 60.09 Wis. Stats. please find attached the Chippewa County Department of Land Conservation & Forest Management's (LCFM) "Decision on Review" of your request for a review of determination.

It is your right to appeal of this decision. State Administrative Code NR 135.30(1) provides the legal authority for you to appeal if you so choose. NR 135.30(1) reads as follows:

> **"NR 135.30 Review of permit decision.**
> **(1)** COUNTY OR MUNICIPAL PERMIT DECISION. Notwithstanding ss. 68.001, 68.03(8) and (9), 68.06 and 68.10 (1) (b), Stats., any person who meets the requirements of s. 227.42 (1), Stats., may obtain a contested case hearing under s. 68.11, Stats., on a county or municipal regulatory authority's decision to issue, deny or modify a nonmetallic mining reclamation permit."

Chapter 68.10 of Wisconsin State Statutes provides the timeframe and process that must be followed for an administrative appeal. Ch 68.10 Wis. Stats. reads as follows:

> **"68.10 Administrative appeal.**
> **(1)** FROM INITIAL DETERMINATION OR DECISION ON REVIEW.
> **(a)** If the person aggrieved did not have a hearing substantially in compliance with s. 68.11 when the initial determination was made, the person may appeal under this section from the decision on review and shall follow the procedures set forth in ss. 68.08 and 68.09.
> **(b)** If the person aggrieved had a hearing substantially in compliance with s. 68.11 when the initial determination was made, the person may elect to follow the procedures provided in ss. 68.08 and 68.09, but is not entitled to appeal under this section unless granted by the municipal authority. The person may, however, seek review under s. 68.13.
> **(2)** TIMEWITHINWHICH APPEAL MAY BE TAKEN UNDER THIS SECTION. Appeal from a decision on review under s. 68.09 shall be taken within 30 days of notice of such decision.
> **(3)** HOW APPEAL MAY BE TAKEN. An appeal under this section may be taken by filing with or mailing to the office or person designated in the municipal authority's decision on review, written notice of appeal."

If you choose to appeal this “Decision on Review” you must file or mail a written notice of appeal to the Chippewa County Department of Land Conservation & Forest Management within 30 days (on or before March 7, 2016).

Sincerely,

Seth E. Ebel, P.E.
Project Engineer

c: Paul Van Eijl, Northern Sands
Paul Ayres, Red Flint Group
Dan Masterpole, County Conservationist
Todd Pauls, Asst. Corp Counsel

CHIPPEWA COUNTY'S RESPONSE TO REQUEST FOR REVIEW OF PERMIT DECISION TO ISSUE A NON-METALLIC MINE RECLAMATION PERMIT, WITH CONDITIONS, TO NORTHERN SANDS, LLC FOR THE ALBERTVILLE VALLEY MINE (PERMIT #2015-01)

Background

Chippewa County, acting through the Department of Land Conservation & Forest Management, is the designated regulatory authority responsible for administering a County non-metallic mining program and reclamation ordinance, adopted under the authority of WI Administrative Code NR 135.32.

On November 18, 2015, the Department of Land Conservation & Forest Management issued a non-metallic mine reclamation permit with conditions to Northern Sands, LLC for the Albertville Valle Mine (Permit #2015-01).

On December 21, 2015, the Department of Land Conservation & Forest Management received a request for review of the permit decision to issue the reclamation permit, filed by Leon Boland and Katherine Stahl under the authority of NR 135.30.

That request included a request for an extension of the time for administrative review, to allow the aggrieved persons the opportunity to provide additional evidence in support of their filing. In response to that request, the Department of Land Conservation & Forest Management, and Leon Boland and Katherine Stahl agreed that written evidence and argument would be submitted no later than January 20, 2016, and that the Department of Land Conservation & Forest Management would provide a decision on review no later than February 4, 2016.

On January 20, 2016, the Department of Land Conservation & Forest Management received the supporting written evidence and argument transmitted by email. That document is provided as Exhibit I.

The Department of Land Conservation & Forest Management has reviewed the material submitted in support of the request for a review of the determination, as filed under NR 135.30, and has prepared a response. Several documents supporting this response are provided as the following exhibits:

Exhibit I - Aggrieved Persons email
Exhibit II - Permit Addendum
Exhibit III - Metals Information
Exhibit IV - Mine Phase Location Map

This response is as follows:

1. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that the reclamation permit does not provide adequate protection of groundwater quality.

The request for review provides a statement regarding the adequacy of permit conditions 7.c. & 7.f. The statement reads:

> **"**7 c. and 7f. Although the permit defines how often per year the monitoring wells are to be tested, the permit does not define how long during the life of the mine operation and the reclamation the monitoring well network will be tested for the full list outlined in 7.c. Section 7.f. does indicate the constituents referenced in 8.c. (i.e. chemicals used as part of mining or wash plant operations that may affect the materials to be used in reclamation) will be measured until final reclamation is certified by the Department. There is no such indication of length of measurement for the other tests. The reclamation plan narrative indicates full testing will occur for two years and testing will be considered for reduction after that. This is not acceptable due to the extremely slow horizontal flow velocity of most aquifers.
>
> "Concerns threatening us: Leaching of contaminants will likely take a period of time to appear at monitoring wells. Filtration rates in the infiltration and wet ponds are unknown at this point. It is far too soon to know how quickly any contaminates may be evidenced in the ground water which serves us and our neighbors. Similarly, contaminate levels can vary from one place to the next. Full sampling needs to continue at all monitoring wells to deal with that variability**."**

COUNTY RESPONSE

NR 135.08(2) provides the standards for groundwater protections that must be met by the operator. NR 135.08(2) reads as follows:

> **"NR 135.08 Groundwater protection.**
> **(2)** GROUNDWATER QUALITY. Nonmetallic mining reclamation shall be conducted in a manner which does not cause groundwater quality standards in ch. NR 140 to be exceeded at a point of standards application."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County finds that a typographical error was made in the drafting of the permit that must be corrected.

The facts considered and rational for this finding are as follows:

A. A typographical error was made when drafting permit condition 7.f.

B. Permit condition 7.c. contains the constituents that are to be tested in groundwater.

C. Permit condition 8.c. does not reference groundwater testing. Permit condition 8.c. sets requirements for settling pond liners.

D. In permit condition 7.f., the reference to permit condition 8.c. should have been to permit condition 7.c.

To resolve this concern a change has been made to permit condition 7.f. to reference permit Condition 7.c. This change is documented as a permit addendum in Exhibit II.

2. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that the reclamation permit does not provide adequate protection of groundwater quality.

The request for review provides a statement regarding the adequacy of permit conditions 7.a. The statement reads:

> **"**7.a. "in the event that offsite monitoring shows that mining or reclamation activities at the mine site are proven to have caused degradation of ground water quality that exceeds standards. . .the Operator shall seek to mitigate these effects by altering mining and reclamation operations."
>
> Concerns threatening us:
> (1) Tunnel City and Wonewoc materials have been recognized as a "potential source of groundwater contaminants, including an extensive list of elements" according to researchers from University of Wisconsin-Extension. (See "Tracking Toxics in Tunnel City", Appendix A.) Additionally the researchers add "we really don't have a good idea whether these elements can make their way into the water. . . that's a subject for a subsequent study after we figure out what elements and minerals are present." If experts are unclear about what impacts the excavated formations within our area have on groundwater, what business do we have jeopardizing our groundwater before research indicates which toxic elements are located in the specific Albertville Valley Mine site and whether these elements will make their way into our water supply?
>
> (2) With the loss of the aquitards in the mining area, we will have lost a potential source of water contamination control as suggested in "Role of Aquitards in the Protection of Aquifers from Contamination" in 2004. (See full report, Appendix B.) Again we are impacting a potential geological protection for our ground water with no study of what the impacts are on water quality.
>
> (3) Once contamination of our ground water quality has occurred the damage is done and remediation is difficult, if not impossible. Why risk our ground water quality before we have adequate assurance the risk is negligible or non-existent? There are several operating sand mines at this point and suggested water quality research by competent researchers. Learn what we can from these existing mines and the proposed water quality studies before risking ground water contamination especially considering the current lack of economic gain from additional sand mines.**"**

COUNTY RESPONSE

NR 135.08(2) provides the standards for groundwater protections that must be met by the operator. NR 135.08(2) reads as follows:

> **"NR 135.08 Groundwater protection.**
> **(2)** GROUNDWATER QUALITY. Nonmetallic mining reclamation shall be conducted in a manner which does not cause groundwater quality standards in ch. NR 140 to be exceeded at a point of standards application."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County finds that the performance standards for groundwater protection under Sec. 30-83(b) of the Chippewa County Code of Ordinances and NR 135.08 (2) have been met.

The facts considered and rational for this finding are as follows:

A. The reclamation plan and permit have preventative testing requirements in place to identify potential sources of groundwater contamination in process water and in the waste materials to be used in reclamation. These preventative testing requirements are listed in permit conditions 8.b.(iii) and 10.a.(i); and in section 2.4 of the reclamation plan.

B. Permit condition 7.c requires sampling and testing of groundwater to determine if groundwater contaminants have reached groundwater and if the NR 140 groundwater standards have been exceeded.

C. Permit condition 7.a. requires that in the event that offsite monitoring shows that mining or reclamation activities at the mine site are proven to have caused a degradation of groundwater quality that exceeds the standards of Wisconsin Administrative Code NR 140 at a point of standards application, the Operator shall seek to mitigate these effects by altering mining and reclamation operations. Altering mining and reclamation operations may include but not be limited to ceasing operations and reclaiming the mine.

D. The requirement for waste material testing, and routine groundwater sampling using an onsite groundwater monitoring well network, provides groundwater protection through the early detection of potential groundwater contaminants.

E. Permit conditions 7.a., 7.c., 8.b.(iii) & 10.a.(i) are consistent with conditions for groundwater protection previously placed on other permitted industrial sand mines in Chippewa County.

3. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that the reclamation permit does not provide adequate protection of surface water quality.

The request for review provides a statement regarding the adequacy of permit conditions 5.c. The statement reads:

> **"**5.c. allows if storm water discharges are necessary they will be managed to minimize rate and flow and to avoid lengthy/continuous discharges.
>
> Concerns threatening us: There is no provision to test the water in the proposed infiltration and wet ponds for the presence of sulfides and heavy metals. It has been confirmed that storm water pond sampling done by DNR has shown high levels of metals and decreased pH at many sites . We see no assurance in the permit that such sampling of the infiltration and wet ponds will be done. Hence there is no information about what will be discharged and there is evidence from other sand mines that storm water can be contaminated. (See "Frac Sand Wash Pond Samples, Fall 2013" and Roberta A. Walls January 9, 2016 email, Appendix C.)
>
> References made by pro sand mine sources refer to UWEC Kent Syverson's declaration that frac sand mines produce no acid mine drainage. We have not been able to find research that corroborates his statement. Since sulphides have been found in some frac sand mine strata, there needs to be more research to substantiate the claim that there is no acid mine drainage.**"**

COUNTY RESPONSE

NR 135.07 provides the standards for surface water and wetlands protections that must be met by the operator. NR 135.07 reads as follows:

> **"NR 135.07 Surface water and wetlands protection.**
> Nonmetallic mining reclamation shall be conducted and completed in a manner that assures compliance with water quality standards for surface waters and wetlands contained in chs. NR 102 through 105. Before disturbing the surface of a nonmetallic mining site and removing topsoil, all necessary measures for diversion and drainage of runoff from the site to prevent pollution of waters of the state shall be installed in accordance with the reclamation plans approved pursuant to an applicable reclamation ordinance. Diverted or channelized runoff resulting from reclamation may not adversely affect neighboring properties."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County finds that additional testing of stormwater is required to meet the standards for surface water and wetland protection under Sec. 30-82 of the Chippewa County Code of Ordinances and NR 135.07.

The facts considered and rational for this finding are as follows:

A. The reclamation plan and reclamation permit does not contain requirements for stormwater testing.

B. Section 2.3 of the reclamation plan, Surface Water and Storm Water Management, indicates that stormwater will be discharged from the mine on a routine basis.

C. Test data collected by DNR as presented by the aggrieved persons in Exhibit III as evidence shows that concentrations of metals have been found in stormwater and process water ponds at other industrial sand mines that exceed Wisconsin and EPA surface water quality standards.

D. The mining operations where there is evidence of concentrations of metals in stormwater that exceed Wisconsin and EPA surface water quality standards are being conducted in the same sandstone formations as the Northern Sands, LLC – Albertville Valley Mine.

To resolve this concern permit conditions 5.o., 5.p. & 5.q. have been added to the reclamation permit that require stormwater testing. These permit conditions are documented as a permit addendum in Exhibit II.

4. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that the reclamation permit does not provide adequate protection of surface waters and wetlands.

The request for review provides a statement regarding the adequacy of permit condition 5.b. The statement reads:

> **"**5.b. requires sufficient capacity to store and infiltrate runoff for events smaller than a 100 year, 24 hour event.
>
> Concerns threatening us: This is inadequate as our area has recently experienced storms exceeding 100 year storm intensity. In fact a Chippewa County permitted sand mine which also was originally permitted for a 100 year, 24 hour event voluntarily expanded their storm water storage capacity to a 500 year event after that sand mine had a major storm water discharge into Running Valley and 18 Mile Creeks in 2014. Since Elk Creek and 18 Mile Creek stream networks are head watered in the Albertville Valley Sand Mine water shed and major rain events have happened within the recent past, conditions related to prevention of major discharges are not adequately made.
>
> Rainfall events within the immediate vicinity of the proposed mine on August 8, 2014, May 7, 2015 and July 6, 2015 all reportedly exceeded the 100 year, 24 hour storm level that Chippewa County LC and F Department cites as a minimum design criteria. The application proposal regarding storm water control structures prepared by a Professional Engineer uses this exact standard as its stormwater structures design basis. This is inappropriate: Professional Engineers are expected and required to seek out the worst case occurrences for their design bases—and then to apply a safety factor besides. The stormwater structures proposed in this application are likely to fail, then what? We cannot accept the possibility of this happening to Elk Creek or more occurrences to 18 Mile Creek.**"**

COUNTY RESPONSE

NR 135.07 provides the standards for surface water and wetlands protections that must be met by the operator. NR 135.07 reads as follows:

> **"NR 135.07 Surface water and wetlands protection.**
> Nonmetallic mining reclamation shall be conducted and completed in a manner that assures compliance with water quality standards for surface waters and wetlands contained in chs. NR 102 through 105. Before disturbing the surface of a nonmetallic mining site and removing topsoil, all necessary measures for diversion and drainage of runoff from the site to prevent pollution of waters of the state shall be installed in accordance with the reclamation plans approved pursuant to an applicable reclamation ordinance. Diverted or channelized runoff resulting from reclamation may not adversely affect neighboring properties."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County finds that the standards for surface water and wetland protection under Sec. 30-82 of the Chippewa County Code of Ordinances and NR 135.07 have been met.

The facts considered and rational for this finding are as follows:

A. The Wisconsin DNR general permit for stormwater discharges from nonmetallic mining operations does not require a design storm event be used for developing stormwater controls. The permit does require that mine operators install "to the maximum extent practicable" stormwater controls to prevent and control soil erosion and sediment movement.

B. State Administrative Code NR 151 requires that stormwater management controls be developed for the 1year-24 hour and 2 year-24 hour storm events.

C. Permit condition 5.b. requires that a stormwater management system be designed to treat and safely pass a 100 year-24 hour storm event.

D. The stormwater management system as planned and contained in the reclamation plan has been designed to treat and safely pass a 100 year-24 hour storm event and exceeds the design storm requirements State Administrative Code NR 151 & NR 216.

E. Permit Condition 5.b. is consistent with permit conditions previously placed on other permitted industrial sand mines in Chippewa County.

5. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that the reclamation permit does not provide adequate protection of groundwater.

The request for review provides a statement regarding the adequacy of permit conditions 5.g. & 5.h. The statement reads:

> **"**5.g. & 5h and Addendum 2.0. "Any sediment that reduces the infiltration or design capacity of the pond shall be removed." "Sediment removed from stormwater ponds shall be stockpiled, seeded and stabilized or used immediately in mine reclamation" "Sediment will be removed from these areas as necessary."
>
> Concerns threatening us: With no testing of the sediment, use in reclamation or stockpiles may pose a leaching threat to our groundwater. Also the presence of clays in the sediments may impact filtration of the reclaimed land where it is used. Using untested sediments in reclamation without regard to specific impacts on filtration rates and contamination leaching is taking a gamble with groundwater and surface water contamination. In its natural aquitard configuration glauconitic clay is a valuable asset. If it is disturbed or displaced it could be a menace. Do we know where it is safe to put the sediments?**"**

COUNTY RESPONSE

NR 135.08(2) provides the standards for groundwater protection that must be met by the operator. NR 135.08(2) reads as follows:

> **"NR 135.08 Groundwater protection.**
> **(2)** GROUNDWATER QUALITY. Nonmetallic mining reclamation shall be conducted in a manner which does not cause groundwater quality standards in ch. NR 140 to be exceeded at a point of standards application."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County finds that the standards for groundwater protection under Sec. 30-83(b) of the Chippewa County Code of Ordinances and NR 135.08(2) have been met.

The facts considered and rational for this finding are as follows:

A. The aggrieved persons have provided no evidence that sediment removed from stormwater ponds may pose a pollution leaching threat to groundwater.

B. The source of the sediment that will be deposited in the stormwater ponds at this mine will be from the Tunnel City and Wonewoc sandstone formations.

C. The reject materials generated from the processing of sandstone will be similar to the sediment that will be deposited in stormwater ponds at this mine.

D. The reclamation plan and permit have testing requirements to identify potential groundwater contaminants in process water and in the reject materials developed from the processing of sandstone, to be used in reclamation.

E. Permit conditions 8.b.(iii) & 10.a.(i), and Section 2.4 of the reclamation plan require the testing of reject materials.

F. Permit condition 7.c. requires sampling and testing of groundwater to determine if groundwater contaminants have reached groundwater and if NR 140 groundwater standards have been exceeded.

G. Permit condition 7.a. requires that in the event that offsite monitoring shows that mining or reclamation activities at the mine site are proven to have caused a degradation of groundwater quality that exceeds the standards of Wisconsin Administrative Code NR 140 at a point of standards application, the Operator shall seek to mitigate these effects by altering mining and reclamation operations. Altering mining and reclamation operations may include but not be limited to ceasing operations and reclaiming the mine.

H. The requirement for waste material testing, and routine groundwater sampling using an onsite groundwater monitoring well network, provides groundwater protection through the early detection of potential groundwater contaminants.

I. Permit conditions 7.a., 7.c. & 5.h. are consistent with conditions placed on previously permitted industrial sand mines in Chippewa County.

6. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that the reclamation permit does not provide adequate protection of surface waters and wetlands.

The request for review provides a statement regarding the adequacy of permit conditions 4.b.(i). The statement reads:

> **"**4 (b) (i) Assessment of naturally occurring seeps, springs, wetlands and surface water shall be conducted for each phase of the mine site prior to beginning any mining activities in that phase.
>
> Concerns threatening us:
> (1) Hydrology does not work on a specific mine phase basis. This assessment should look at the connectivity of all the water flow for the entire mine site and adjacent areas, not on a phase by phase basis. Ecological impacts from loss of wetlands and loss of ecosystems around seeps and springs need to be considered for the value they offer to protection of surface and ground waters and unique ecosystems that rely on slow, cold water movement. To assume these can be alternately mitigated is to assume we have more knowledge about their impacts than we presently do or can be derived from a phase by phase plan. (See David Zaber, Ph.d. letter Appendix D)
>
> (2) Removal of an aquitard on a portion of a ridge, when the remaining portion of the ridge is owned by someone not leasing to Northern Sands leaves the owners of the unmined ridge portion with the possibility of a reduction of water flow onto their properties. (See Gotkowitz letter Appendix E as an example). Mitigation is offered in the permit as an alternative for potential impacts to seeps, springs, wetlands and surface waters. This is an unacceptable loss of water flow and special ecosystems for lands that are not included in the leases. There is no mitigation on our property or neighbors' properties that will make up for hydrology changes that we have not requested.**"**

COUNTY RESPONSE

NR 135.07 provides the standards for surface water and wetlands protections that must be met by the operator. NR 135.07 reads as follows:

> **"NR 135.07 Surface water and wetlands protection.**
> Nonmetallic mining reclamation shall be conducted and completed in a manner that assures compliance with water quality standards for surface waters and wetlands contained in chs. NR 102 through 105. Before disturbing the surface of a nonmetallic mining site and removing topsoil, all necessary measures for diversion and drainage of runoff from the site to prevent pollution of waters of the state shall be installed in accordance with the reclamation plans approved pursuant to an applicable reclamation ordinance. Diverted or channelized runoff resulting from reclamation may not adversely affect neighboring properties."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County finds that the standards for surface water and wetland protection under Sec. 30-82 of the Chippewa County Code of Ordinances and NR 135.07 have been met.

The facts considered and rational for this finding are as follows:

A. The reclamation plan proposes that mining be conducted over time in three separate and distinct phases.

B. Each distinct phase of the mine is located on sandstone deposits that are separated in the landscape both spatially and topographically, as illustrated in Exhibit IV titled "Mine Phase Location Map".

C. Permit condition 4.a. requires an inventory be conducted to define the location of seeps, springs, wetlands, and surface waters located on and around the entire mine prior to any mining.

D. This inventory is intended to provide the basis for a hydrologic analysis that must be considered under Permit condition 4.b. before beginning a new mine phase.

E. Permit condition 4.b. requires that "A site specific hydrologic analysis shall be conducted by a Professional Hydrologist or Professional Geologist to evaluate and assess the potential for mining operations and reclamation activities to affect naturally occurring seeps, springs, wetlands, and surface waters as documented through the hydrologic inventory required under condition 4.a."

F. Permit condition 4.b.(ii) requires the operator to "specify mitigation measures that can used to reduce any potential impacts to seeps, springs, wetlands, and surface waters."

7. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that allowing off-site materials could lead to significant changes in the scope of the mining operation.

The request for review provides a statement regarding the adequacy of permit conditions 10.a.(i). The statement reads:

> "10 a.(i) Reject materials generated from offsite processing facilities may be returned to the mine site and used in reclamation.
>
> Concerns threatening us: The reclamation application clearly states on page 5 that on-site processing will include a wet wash plant feeding a natural gas dry plant for material sizing. Although open to interpretation, the permit granted by Chippewa County offers offsite processing of materials in 10 a.(i). This would permit significant changes in the scope of the mining operation and liberalize where the operator can transport the product for finishing. Permitting off site processing in the reclamation plan has major implications for mine operations (such as trucking) and for the neighbors to the mine."

COUNTY RESPONSE

NR 135.24(1) & (2) provides the requirements for regulators and mine operators when changing conditions lead to a mine being out of compliance. NR 135.24(1) & (2) read as follows:

> **"NR 135.24 Permit modification.**
> **(1)** BY THE REGULATORY AUTHORITY. If a regulatory authority finds that, because of changing conditions, the nonmetallic mining site no longer is in compliance with this chapter or the applicable reclamation ordinance, it shall issue an order modifying the permit in accordance with s. NR 135.43. This modifying order may require the operator to amend or submit new application information, reclamation plan, proof of financial assurance or other information needed to ensure compliance with this chapter or the applicable reclamation ordinance.
>
> **(2)** BY THE OPERATOR. If an operator desires to modify a nonmetallic mining reclamation permit or reclamation plan, the operator shall submit an application to modify the permit or plan to the regulatory authority. The application shall be subject to the requirements of this subchapter. The regulatory authority that issued the permit shall take action on the application to modify it in accordance with the standards and procedures contained in this subchapter."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County finds that permit condition 10.a(i), Sec. 30-131 of the Chippewa County Code of Ordinances and NR135.24 adequately addresses the concerns listed in this complaint that fall under the authority of NR 135.

The facts considered and rational for this finding are as follows:

A. Permit condition 10.a.(i) allows for the import and use~~s~~ of reject materials generated from offsite processing facilities in mine reclamation.

B, Sec. 30-77 of the Chippewa County Code of Ordinances requires annual reporting of the volumes of reject materials generated from off-site processing facilities hauled to the mine for use in reclamation.

C. Permit conditions 11c.c. & 11.d. require, as part of an annual Reclamation Report & Activities Plan, that the operator submit information about the volume of reject materials that have been used in reclamation and a topographic map showing the proposed contour of next year's reclamation.

D. If the mine operator desires to haul a volume of reject material from off-site processing facilities to the mine that would affect the operator's ability to reclaim the mine the County has the authority to direct the mine operator, under NR 135.42(1), to modify their reclamation plan and permit in order to account for these changes. The permit modification process would include the opportunity for public hearing on the revised reclamation plan.

E. Permit condition 10.a.(i) is consistent with conditions previously placed on other permitted industrial sand mines in Chippewa County.

F. The concerns expressed by the aggrieved persons about "trucking" or traffic are outside the scope of the authority of the County's Nonmetallic Mining Reclamation Ordinance and State Administrative Code NR 135.

8. AGGRIEVED PERSONS CONCERN

A request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(a), on the basis that the reclamation permit does not provide adequate protection of groundwater.

The request for review provides a statement regarding the adequacy of permit condition 10.a.(ii). The statement reads:

> "10. a. (ii) Material tests will be conducted: 1) prior to disposition of any off-site material 2) ongoing basis at least twice per year 3) at the time of any changes to the properties or chemistry of the waste products associated with new sources of waste materials or new processing additives, including flocculants.
>
> Concerns threatening us: Again, what is meant by off site material is open for interpretation. Based on this there is no assurance all reject materials (including those produced from within the mine) will be tested when used in reclamation. This could impact our ground water quality and any surface run off quality."

COUNTY RESPONSE

NR 135.08(2) provides the standards for surface water and wetlands protections that must be met by the operator. NR 135.08(2) reads as follows:

> **"NR 135.08 Groundwater protection.**
> **(2)** GROUNDWATER QUALITY. Nonmetallic mining reclamation shall be conducted in a manner which does not cause groundwater quality standards in ch. NR 140 to be exceeded at a point of standards application."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance.

Based upon this review and evaluation, the County has made a finding that the standards for groundwater protection under Sec. 30-83(b) of the Chippewa County Code of Ordinances and NR 135.08(2) have been met.

The facts considered and rational for this finding are as follows:

A. The reclamation permit has materials testing requirements in place to identify potential sources of contamination in the reject materials generated from offsite processing facilities that may be imported to the mine and used in reclamation. The testing of reject materials generated from offsite processing facilities is required under permit conditions 10.a.(i).

B. The reclamation plan requires materials testing to identify potential sources of contamination in the reject materials generated from the processing of sandstone at the mine to be used in reclamation. The testing of reject materials generated at the mine is

required under Section 2.4 of the reclamation plan.

C. Section 2.4 of the reclamation plan states, "Non-marketable materials that have been wet-treated in the processing operations will be tested annually for acrylamide, pH, total Kjedahl nitrogen, phosphorus, potassium, chloride, fluoride, sulfate, aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, selenium, Page 22 Northern Sands, LLC January 2015 - Reclamation Plan silver, sodium, strontium, thallium, titanium, vanadium, and zinc. Test results will be included in the annual report."

D. The reclamation plan and permit address the potential for groundwater contamination by requiring testing under permit condition 7.c. to determine if contaminants are leaching into the groundwater.

E. Permit condition 7.a. requires that in the event that offsite monitoring shows that mining or reclamation activities at the mine site are proven to have caused a degradation of groundwater quality that exceeds the standards of Wisconsin Administrative Code NR 140 at a point of standards application, the Operator shall seek to mitigate these effects by altering mining and reclamation operations. Altering mining and reclamation operations may include but not be limited to ceasing operations and reclaiming the mine.

F. The requirement for waste material testing, and routine groundwater sampling using an onsite groundwater monitoring well network, provides groundwater protection through the early detection of potential groundwater contaminants.

G. Permit conditions 7.a., 7.c., & 10.a.(i) are consistent with conditions previously placed on other permitted industrial sand mines in Chippewa County.

9. AGGRIEVED PERSONS CONCERN

The request for review of the decision to grant a non-metallic mining reclamation permit has been filed under NR 135.22(1)(c), on the basis that the applicant has shown a pattern of serious violations of environmental law related to non-metallic mining reclamation.

The request for review provides a general statement supporting a denial under NR 135.22. The statement reads:

> "135.22 (1) An application to issue a nonmetallic mining reclamation permit shall be denied. . ." (c) The applicant, or its agent, principal or predecessor has, during the course of nonmetallic mining in Wisconsin within 10 years of the permit application. . . .shown a pattern of serious violations of this chapter or of federal, state or local environmental laws related to non metallic mining reclamation.
>
> Northern Sands as represented by Paul van Eijl has been found in violation of the DNR borehole abandonment rules and his case has been referred to the Wisconsin Department of Justice, Brad Motl attorney (phone 608-267-0505). WDNR confirmed that Northern Sands did not appropriately abandon the exploratory boreholes dug for the Albertville Valley Sand Mine. (See Attachment Northern Sands NOV.) Despite the abandonment procedure being well explained in NR 141.25 (2) and its being an inexpensive process to complete, Paul van Eijl did not fill in most of the Northern Sands 28 or more boreholes and publicly stated several times that he had appropriately abandoned the boreholes. This inappropriate abandonment relates directly to reclamation as filling open holes to the ground water, irrespective of how small they are, is part of appropriate reclamation of the land.
>
> Concerns threatening us: Since Paul van Eijl was remiss on what is an easy, simple process to protect our water quality, how can he be trusted to complete far more complex and expensive excavation and reclamation procedures that might more significantly affect our water quality? How can he be trusted in the many self-monitoring procedures listed in the reclamation permit application and the conditional permit granted to him? We have been told that Red Flint is considered trustworthy. However, the permit is not granted to Red Flint, it is granted to Northern Sands with Paul van Eijl's signature. Northern Sands could make arrangements with another site manager to operate the mine therefore we have no assurance that Red Flint will be involved in the entire life of this mine and its reclamation. At a minimum, this permit should be made conditional to DOJ's determination of Northern Sands/Paul van Eijl's culpability. Even better would be to deny the permit entirely to someone who has been found by WDNR to ignore state administrative rules and to endanger our area ground waters."

COUNTY RESPONSE

NR 135.22(1)(c)1. & 2. provide the circumstances that must be met to support a finding by the regulatory authority to deny the non-metallic mining reclamation permit.
NR 135.22(1)(c)1. & 2. read as follows:

"**NR 135.22 Denial of application for reclamation permit.**

(1) An application to issue a nonmetallic mining reclamation permit shall be denied, within the time frame for permit issuance specified in s. NR 135.21, if the regulatory authority finds any of the following:

(c)

1. The applicant, or its agent, principal or predecessor has, during the course of nonmetallic mining in Wisconsin within 10 years of the permit application or modification request being considered shown a pattern of serious violations of this chapter or of federal, state or local environmental laws related to nonmetallic mining reclamation.

2. The following may be considered in making this determination of a pattern of serious violations:

a. Results of judicial or administrative proceedings involving the operator or its agent, principal or predecessor.

b. Suspensions or revocations of nonmetallic mining reclamation permits pursuant to this chapter.

c. Forfeitures of financial assurance."

The County has reviewed the permit application, the reclamation plan, the public hearing record, and the permit conditions issued under Permit #2015-01, and has evaluated this information to determine if it meets the requirements of NR 135 and the Chippewa County Non-Metallic Mining Reclamation Ordinance. Based upon this review and evaluation, the County finds that the standards for permit denial under Sec. 30-106 of the Chippewa County Code of Ordinances and NR 135.22(1)(c)1. & 2. have not been met.

The facts considered and rational for this finding are as follows:

A. The aggrieved persons have provided evidence that there was a Notice of Violation (NOV) issued to Northern Sands, LLC alleging violations of State Admin. Code 812 that may have occurred through improper borehole abandonment.

B. This case has been referred to the Department of Justice by DNR, however this case has not been resolved.

C. The aggrieved persons have not presented evidence of other violations.

D. Chippewa County does not have sufficient evidence to determine that there has been a pattern of serious violations of this chapter or of federal, state or local environmental laws related to nonmetallic mining reclamation that justifies the denial of a permit.

Exhibit I

Seth Ebel

From: Katherine Stahl <stahland@centurytel.net>
Sent: Wednesday, January 20, 2016 3:21 PM
To: Dan Masterpole; Seth Ebel
Subject: Albertville Valley Sand Mine Review of Determination
Attachments: Northern Sands NOV_0001.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Review of Determination Request for the Albertville Valley Sand Mine Permit

We have requested a review of the reclamation permit granted to Northern Sands LLC for the proposed Albertville Valley Sand Mine. We believe the permit threatens our ground water quality, our area wetlands, seeps and springs, and we question the trustworthiness of the permitee to accomplish what is promised in the application plan and required in the permit. While we prefer a complete denial of the permit, as a minimum the following concerns should be addressed in the conditions.

Permit # 7. Water Quality:

7 c. and 7f. Although the permit defines how often per year the monitoring wells are to be tested, the permit does not define how long during the life of the mine operation and the reclamation the monitoring well network will be tested for the full list outlined in 7.c. Section 7.f. does indicate the constituents referenced in 8.c. (i.e. chemicals used as part of mining or wash plant operations that may affect the materials to be used in reclamation) will be measured until final reclamation is certified by the Department. There is no such indication of length of measurement for the other tests. The reclamation plan narrative indicates full testing will occur for two years and testing will be considered for reduction after that. This is not acceptable due to the extremely slow horizontal flow velocity of most aquifers.

Concerns threatening us: Leaching of contaminants will likely take a period of time to appear at monitoring wells. Filtration rates in the infiltration and wet ponds are unknown at this point. It is far too soon to know how quickly any contaminates may be evidenced in the ground water which serves us and our neighbors. Similarly, contaminate levels can vary from one place to the next. Full sampling needs to continue at all monitoring wells to deal with that variability.

7.a. "in the event that offsite monitoring shows that mining or reclamation activities at the mine site are proven to have caused degradation of ground water quality that exceeds standards. . .the Operator shall seek to mitigate these effects by altering mining and reclamation operations."

Concerns threatening us:

(1) Tunnel City and Wonewoc materials have been recognized as a "potential source of groundwater contaminants, including an extensive list of elements" according to researchers from University of Wisconsin-Extension. (See "Tracking Toxics in Tunnel City", Appendix A.) Additionally the researchers add "we really don't have a good idea whether these elements can make their way into the water. . . that's a subject for a subsequent study after we figure out what elements and minerals are present." If experts are unclear about what impacts the excavated formations within our area have on groundwater, what business do we have jeopardizing our groundwater before research indicates which toxic elements are located in the specific Albertville Valley Mine site and whether these elements will make their way into our water supply?

(2) With the loss of the aquitards in the mining area, we will have lost a potential source of water contamination control as suggested in "Role of Aquitards in the Protection of Aquifers from Contamination" in 2004. (See full report, Appendix B.) Again we are impacting a potential geological protection for our ground water with no study of what the impacts are on water quality.

(3) Once contamination of our ground water quality has occurred the damage is done and remediation is difficult, if not impossible. Why risk our ground water quality before we have adequate assurance the risk is negligible or non-existent? There are several operating sand mines at this point and suggested water quality research by competent researchers. Learn what we can from these existing mines and the proposed water quality studies before risking ground water contamination especially considering the current lack of economic gain from additional sand mines.

Permit # 5. Stormwater Management:

5.c. allows if storm water discharges are necessary they will be managed to minimize rate and flow and to avoid lengthy/continuous discharges.

Concerns threatening us: There is no provision to test the water in the proposed infiltration and wet ponds for the presence of sulfides and heavy metals. It has been confirmed that storm water pond sampling done by DNR has shown high levels of metals and decreased pH at many sites . We see no assurance in the permit that such sampling of the infiltration and wet ponds will be done. Hence there is no information about what will be discharged and there is evidence from other sand mines that storm water can be contaminated. (See "Frac Sand Wash Pond Samples, Fall 2013" and Roberta A. Walls January 9, 2016 email, Appendix C.)

References made by pro sand mine sources refer to UWEC Kent Syverson's declaration that frac sand mines produce no acid mine drainage. We have not been able to find research that corroborates his statement. Since sulphides have been found in some frac sand mine strata, there needs to be more research to substantiate the claim that there is no acid mine drainage.

5.b. requires sufficient capacity to store and infiltrate runoff for events smaller than a 100 year, 24 hour event.

Concerns threatening us: This is inadequate as our area has recently experienced storms exceeding 100 year storm intensity. In fact a Chippewa County permitted sand mine which also was originally permitted for a 100 year, 24 hour event voluntarily expanded their storm water storage capacity to a 500 year event after that sand mine had a major storm water discharge into Running Valley and 18 Mile Creeks in 2014. Since Elk Creek and 18 Mile Creek stream networks are head watered in the Albertville Valley Sand Mine water shed and major rain events have happened within the recent past, conditions related to prevention of major discharges are not adequately made.

Rainfall events within the immediate vicinity of the proposed mine on August 8, 2014, May 7, 2015 and July 6, 2015 all reportedly exceeded the 100 year, 24 hour storm level that Chippewa County LC and F Department cites as a minimum design criteria. The application proposal regarding storm water control structures prepared by a Professional Engineer uses this exact standard as its stormwater structures design basis. This is inappropriate: Professional Engineers are expected and required to seek out the worst case occurrences for their design bases—and then to apply a safety factor besides. The stormwater structures proposed in this application are likely to fail, then what? We cannot accept the possibility of this happening to Elk Creek or more occurrences to 18 Mile Creek.

5.g. & 5h and Addendum 2.0. "Any sediment that reduces the infiltration or design capacity of the pond shall be removed." "Sediment removed from stormwater ponds shall be stockpiled, seeded and stabilized or used immediately in mine reclamation" "Sediment will be removed from these areas as necessary."

Concerns threatening us: With no testing of the sediment, use in reclamation or stockpiles may pose a leaching threat to our groundwater. Also the presence of clays in the sediments may impact filtration of the reclaimed

land where it is used. Using untested sediments in reclamation without regard to specific impacts on filtration rates and contamination leaching is taking a gamble with groundwater and surface water contamination. In its natural aquitard configuration glauconitic clay is a valuable asset. If it is disturbed or displaced it could be a menace. Do we know where it is safe to put the sediments?

Permit # 4. Stream, Stream Corridor & Wetland Protection:

4 (b) (i) Assessment of naturally occurring seeps, springs, wetlands and surface water shall be conducted for each phase of the mine site prior to beginning any mining activities in that phase.

Concerns threatening us:

(1) Hydrology does not work on a specific mine phase basis. This assessment should look at the connectivity of all the water flow for the entire mine site and adjacent areas, not on a phase by phase basis. Ecological impacts from loss of wetlands and loss of ecosystems around seeps and springs need to be considered for the value they offer to protection of surface and ground waters and unique ecosystems that rely on slow, cold water movement. To assume these can be alternately mitigated is to assume we have more knowledge about their impacts than we presently do or can be derived from a phase by phase plan. (See David Zaber, Ph.d. letter Appendix D)

(2) Removal of an aquitard on a portion of a ridge, when the remaining portion of the ridge is owned by someone not leasing to Northern Sands leaves the owners of the unmined ridge portion with the possibility of a reduction of water flow onto their properties. (See Gotkowitz letter Appendix E as an example). Mitigation is offered in the permit as an alternative for potential impacts to seeps, springs, wetlands and surface waters. This is an unacceptable loss of water flow and special ecosystems for lands that are not included in the leases. There is no mitigation on our property or neighbors' properties that will make up for hydrology changes that we have not requested.

Permit #10 Solid Waste & Spills:

10 a.(i) Reject materials generated from offsite processing facilities may be returned to the mine site and used in reclamation.

Concerns threatening us: The reclamation application clearly states on page 5 that on-site processing will include a wet wash plant feeding a natural gas dry plant for material sizing. Although open to interpretation, the permit granted by Chippewa County offers offsite processing of materials in 10 a.(i). This would permit significant changes in the scope of the mining operation and liberalize where the operator can transport the product for finishing. Permitting off site processing in the reclamation plan has major implications for mine operations (such as trucking) and for the neighbors to the mine.

10. a. (ii) Material tests will be conducted: 1) prior to disposition of any off-site material 2) ongoing basis at least twice per year 3) at the time of any changes to the properties or chemistry of the waste products associated with new sources of waste materials or new processing additives, including flocculants.

Concerns threatening us: Again, what is meant by off site material is open for interpretation. Based on this there is no assurance all reject materials (including those produced from within the mine) will be tested when used in reclamation. This could impact our ground water quality and any surface run off quality.

Permit granted to Northern Sands and signed by Paul van Eijl:

135.22 (1) An application to issue a nonmetallic mining reclamation permit shall be denied. . ." (c) The applicant, or its agent, principal or predecessor has, during the course of nonmetallic mining in Wisconsin within 10 years of the permit application. . . .shown a pattern of serious violations of this chapter or of federal, state or local environmental laws related to non metallic mining reclamation.

Northern Sands as represented by Paul van Eijl has been found in violation of the DNR borehole abandonment rules and his case has been referred to the Wisconsin Department of Justice, Brad Motl attorney (phone 608-267-0505). WDNR confirmed that Northern Sands did not appropriately abandon the exploratory boreholes dug for the Albertville Valley Sand Mine. (See Attachment Northern Sands NOV.) Despite the abandonment procedure being well explained in NR 141.25 (2) and its being an inexpensive process to complete, Paul van Eijl did not fill in most of the Northern Sands 28 or more boreholes and publicly stated several times that he had appropriately abandoned the boreholes. This inappropriate abandonment relates directly to reclamation as filling open holes to the ground water, irrespective of how small they are, is part of appropriate reclamation of the land.

Concerns threatening us: Since Paul van Eijl was remiss on what is an easy, simple process to protect our water quality, how can he be trusted to complete far more complex and expensive excavation and reclamation procedures that might more significantly affect our water quality? How can he be trusted in the many self-monitoring procedures listed in the reclamation permit application and the conditional permit granted to him? We have been told that Red Flint is considered trustworthy. However, the permit is not granted to Red Flint, it is granted to Northern Sands with Paul van Eijl's signature. Northern Sands could make arrangements with another site manager to operate the mine therefore we have no assurance that Red Flint will be involved in the entire life of this mine and its reclamation. At a minimum, this permit should be made conditional to DOJ's determination of Northern Sands/Paul van Eijl's culpability. Even better would be to deny the permit entirely to someone who has been found by WDNR to ignore state administrative rules and to endanger our area ground waters.

Thank you for the review of our concerns.

Respectfully submitted,

Leon Boland

Katherine Stahl

Appendix A: "Tracking Toxics in Tunnel City", by Aaron R. Conklin, July 27, 2015, http://www.wri.wisc.edu/pressroom/Details.aspx?PostID=1209

Appendix B: "Role of Aquitards in the Protection of Aquifers from Contamination: A 'State of the Science' Report, Prepared by J.A. Cherry, B.L. Parker, K. R. Bradbury, T.T. Eaton, MG. Gotkowitz, and D. J. Hart, 2004, https://clu-in.org/download/contaminantfocus/dnapl/Chemistry_and_Behavior/Aquitard_State_of_Science_Reportfor_AWWARF_draft_of1-3-05.pdf

Appendix C: "Frac Sand Wash Pond Samples, Fall 2013" Ruth M. King and Bradley Johnson, Wisconsin Department of Natural Resources, http://midwestadvocates.org/assets/resources/Frac%20Sand%20Mining/2014-9-12_storm_water_sampling_results_page_1_FINAL.pdf

From: Walls, Roberta A - DNR
Sent: Tuesday, January 19, 2016 1:16 PM
To: Katherine Stahl
Cc: Devlin, James R - DNR ; King, Ruth M - DNR
Subject: RE: frac sand wash pond samples

Hi Kathy,

The sampling you referred to, done in 2013, was a random site selection to take a peek at what if any concerns we would like to look into further with the processing of sand at industrial sand mines.

The samples collected were a single "grab" in 21 basins over 8 counties and were largely process water- though a few had combined Stormwater and process water together.

This preliminary data alone is not enough to determine contaminant levels, however has provided the Department with some background to determining what further studies could be done and how they might be carried out.

This data is not on our website, however I would be happy to answer any specific questions you may have. Let me know when and how best to reach you.

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Roberta Walls
Industrial Sand Sector Specialist
Wisconsin Department of Natural Resources
3550 Mormon Coulee Rd

La Crosse, WI 54601
Phone: 608-785-9272
Roberta.Walls@Wisconsin.gov

dnr.wi.gov

From: Katherine Stahl [mailto:stahland@centurytel.net]
Sent: Tuesday, January 19, 2016 1:00 PM
Cc: Walls, Roberta A - DNR; Devlin, James R - DNR
Subject: Re: frac sand wash pond samples

Hello Roberta and Jim,

As you can see below Ruth King has suggested I contact you with my questions about sand mine storm water or other sand mine pond sampling. Would you have any further information about the queries posed to Ms. King?

Best regards,

Katherine Stahl

From: King, Ruth M - DNR

Sent: Tuesday, January 19, 2016 12:56 PM

To: Katherine Stahl

Cc: Walls, Roberta A - DNR ; Devlin, James R - DNR

Subject: RE: frac sand wash pond samples

Hi Katherine;

I no longer work with the frac mines, that was just a temporary thing for me. You could contact either Jim Devlin or Roberta Walls for that information – I know we did summarize it –

Thanks and have a great day!

Ruth

We are committed to service excellence.

Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Ruth M. King

Phone: 715-635-4142

Ruth.king@wisconsin.gov

Appendix D:

January 18, 2016

Mr. Dan Masterpole and Mr. Seth Ebel
Chippewa County Land Conservation and Forest Management
Room 011
711 N Bridge St.
Chippewa Falls, WI 54729

Re: Nonmetallic Mining Reclamation Permit, Northern Sands, LLC November 18, 2015.

Dear Mr. Masterpole and Mr. Ebel,

I am writing in response to the Nonmetallic Mining Reclamation Permit (Permit) issued for Northern Sands, LLC on November 18, 2015 under authority of Chippewa County Nonmetallic Mining Reclamation Ordinance and Wisconsin Administrative Code 135. I am a Resource Ecologist and Environmental Toxicologist with experience in environmental impact assessment, aquatic

ecology, and conservation biology. I reside in Madison, Wisconsin and have been active in conservation and resource management issues in Wisconsin and the upper Midwest for more than 20 years and I am familiar with the ecological systems in Chippewa County and surrounding areas. I have submitted comments previously on the Nonmetallic Mine Reclamation Plan and now provide these comments on the issued permit.

The Permit contains several important requirements for operation of the proposed sand mine. However, there are significant shortfalls in the Permit with respect to monitoring of freshwater seeps, springs, and surface waters and management of potential storm water discharges. My comments are limited to these aspects of the Permit.

Assessing potential impacts to aquatic systems requires accurate baseline information on surface and subsurface hydrology and existing biological conditions within various components of the system. Without sufficient baseline information, determining adverse changes in the system as a result of a proposed action is made more difficult if not impossible. Although the Permit does require assessment of wetlands, springs, and other surface water resources, these assessments are allowed to be phased in as mining progresses.

Allowing wetland delineations to be "performed over time (in stages)" ignores the potential for interconnections between groundwater, surface wetlands and surface water streams. Assessing the status of wetlands and groundwater resources within the boundary of the proposed sand mine must begin with the understanding that there is a high likelihood that surface and subsurface water sources are connected hydrologically. These relationships are key to understanding the direct, indirect and cumulative impacts[i[1] of the proposed mine and its operations. However, allowing for wetland delineations to be completed as mining proceeds ignores this connectivity. Depending upon hydrological conditions at the mine site, any significant ground-disturbing activities have the potential to affect other parts of the system prior to the time at which these systems are delineated.

Given the size and location of the proposed project, there are likely to be significant direct, indirect and cumulative impacts on the environment, including hydrological functions and structures, from each phase of the project. Moreover, these effects are likely to persist over time, including over time-spans of future mining phases. Separating hydrological assessments on the basis of project phases artificially compartmentalizes monitoring and evaluation in ways that ignore the possibility of cumulative effects as well as direct and indirect effects on subsequent project phases and the surrounding environment.

In addition to problems associated with a phased-in approach to ecological assessments, the Permit also includes language calling for mitigation measures to "reduce" any potential impacts to seeps, springs, wetlands and surface waters. However, no information is provided on potential mitigation measures or their likelihood of success in mitigating adverse impacts. The public and decision-makers should be provided information on potential mitigation measures as well as their potential efficacy prior to any ground-disturbing activities taking place. Phasing in mitigation measures also ignore the fact that effects from each phase of the project are very likely to affect the efficacy of mitigation measures over time. Thus, without a full accounting of potential mitigation measures for adverse effects, the public and decision-makers are left without the information necessary for proper decision-making.

Permit requirements for storm water management are also insufficient in that they include ambiguous language creating uncertainty for enforcement purposes. Specifically, requirements to "minimize the rate and volume of flow, and to avoid lengthy or continuous discharges of storm water to downstream resources" are included without any definition of terms. For example, no definition of the term "lengthy" is provided in the permit thus creating uncertainty as to if and when mitigation is required. The lack of specificity regarding the length of time storm water discharges are allowed opens up considerable uncertainty for the public.

In conclusion, while the Permit provides additional and necessary requirements for operation of the proposed mine, the allowance for phased-in monitoring and mitigation creates significant impediments to proper monitoring and enforcement (if necessary). At the same time, the Permit includes ambiguous language that will create confusion and loopholes for pollution. Consequently, the Permit should be modified to address these issues before any mining activity is allowed.

Thank you for the opportunity to provide further comments on the Permit for this project. Please feel free to contact me if needed.

Sincerely,

David J. Zaber, M.S., Ph.D.
Djzaber324@gmail.com
608-239-6258

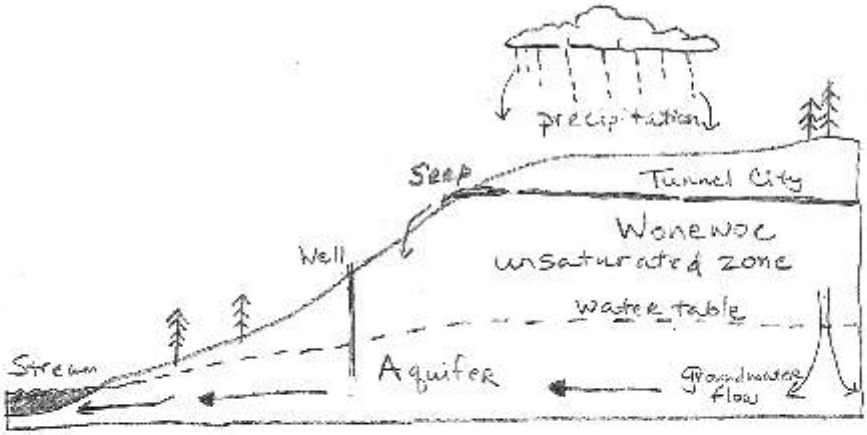
As you know, we are currently evaluating the effects of industrial sand mining on recharge to the water table. To date, our work suggests that recharge in an actively mined area could fluctuate while bedrock is exposed in that area, but stream baseflow would be somewhat buffered from that because streams typically gain recharged water over areas larger than an individual mine.

I hope this helps clarify the nature of the seep relative to the water table. Feel free to give me a call, 608 262-1580 if you have questions.

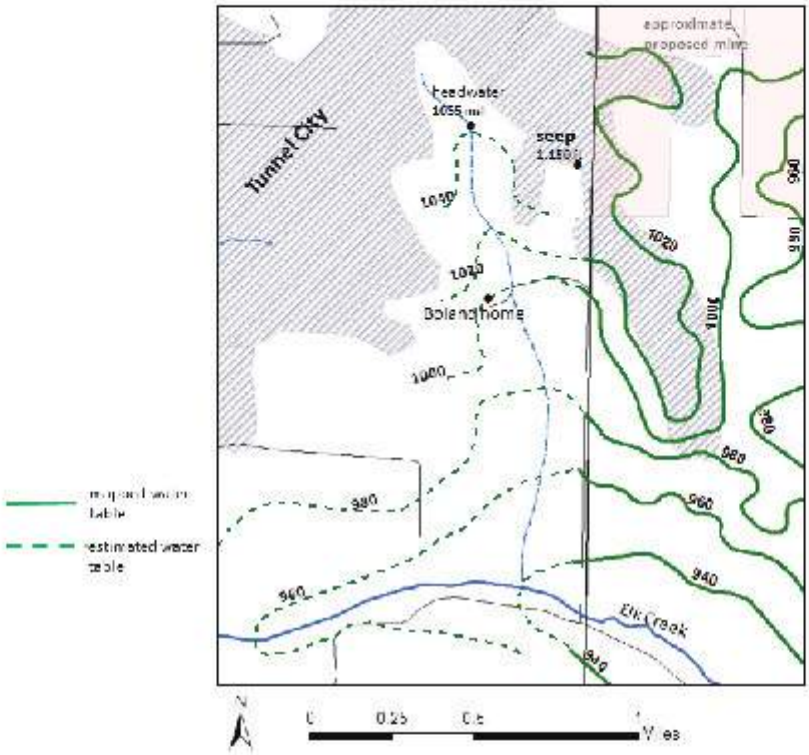
Sincerely,

Madeline Gotkowitz
Hydrogeologist

Cc: Dan Masterpole, Chippewa County



This sketch shows precipitation that infiltrates and creates a seep along the valley wall. The water from the seep re-infiltrates into the unsaturated zone, where it may recharge the water table or be used by plants. Clay-rich sediment within the Tunnel City Formation leads to the presence of seeps on the hillslopes. The stream is fed by groundwater. As the water table rises and falls seasonally, the headwaters of the stream will move, too. The headwater will be at higher or lower elevations, conincident with the water table. Wells are drilled into the saturated zone, or aquifer.



This sketch illustrates the estimated water table elevation near the Boland Home. The headwater of the stream reflects the water table elevation at that location. The seep is much higher in elevation, about 100 feet higher than the water table.

i[1] The Council on Environmental Quality's regulations (40 CFR 1500 – 1508) as amended define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7).

Appendix E:

UW Extension WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY

3817 Mineral Point Road
Madison, WI 53705-5100
Tel. 608/262.1705
Fax 608/262.8086
www.uwex.edu/wgnhs/

James M. Robertson
Director and State Geologist

Lee Boland
Elk Mound, Wisconsin

May 7, 2015

Dear Lee,

I enjoyed touring your property with you, and I appreciate the opportunity to see some of the geology and water features in the area. I was able to use the GPS locations of the seep and the headwater of the stream to develop a couple of diagrams that illustrate the nature of the seep in the uplands and its relation to the water table at lower elevation.

The seep on the property is at the contact of the Tunnel City Formation with the underlying Wonewoc sandstone. The Tunnel City is a glauconitic sandstone. Glauconite is a clay mineral, and at locations where the Tunnel City contains appreciable amounts of glauconite, it can "hold up water". This occurs on your property, at an elevation of about 1,150 feet above sea level. We observed that the water from the seep, which likely varies in flow rate but was on the order of about a liter per minute that day, infiltrated the ground within about 20 feet or so of the seep. This indicates that the water re-enters the subsurface, where it is used by plants or percolates to the water table.

On the day I visited, April 22nd, the water table was at an elevation of about 1,055 feet, significantly below the elevation of the seep. I estimated this elevation based on the location of the headwater of the perennial stream on your property. This water table elevation is consistent with measurements made in water wells that are in our database. I've attached a sketch of the water table in the vicinity of your home, based on the stream elevation.

I've also attached a sketch that illustrates infiltrating water flowing out of a seep at high elevation and subsequently re-infiltrating to the subsurface. If the geologic material that leads to the seep formation (in this case, the Tunnel City) is excavated from the other side of the ridge (in Chippewa County), it may or may not reduce discharge at the seep on your property. Identifying the area of infiltration that feeds individual seeps (such as the one we visited) is beyond what we're able to accomplish our regional study.

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Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

WISCONSIN
DEPT. OF NATURAL RESOURCES

October 16, 2014

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Northern Sands, LLC
ATTN: Mr. Paul van Eijl
W579 Rocky Ridge Road
Fountain City, WI 54629

Casetrack No. 2014-WCEE-043
Chippewa County

Subject: Notice of Violation and Enforcement Conference Request for Alleged Drillhole-Related Violations

Dear Mr. van Eijl:

The Wisconsin Department of Natural Resources (Department) has reason to believe that Northern Sands, LLC is in violation of ch. NR 812, Wis. Adm. Code, "WELL CONSTRUCTION AND PUMP INSTALLATION".

The alleged violations were investigated and documented by Department staff during July 2014. Numerous unabandoned drillholes were documented in Howard Township, Chippewa County, Wisconsin.

Alleged violations include, but may not be limited to the following:

Failure to properly fill and seal drillholes per s. NR 812.26(7)2, Wis. Adm. Code. "Wells and drillholes completed in bedrock formations shall be completely filled and sealed from the bottom up with neat cement grout, concrete (sand–cement) grout, concrete or approved bentonite chips as provided in subd. 3..." Many drillers prefer to use bentonite chips to fill and seal wells and drillholes per s. NR 812.26(7)3, Wis. Adm. Code "Approved bentonite chips may be used to fill and seal both unconsolidated formation and bedrock wells and drillholes with the following restrictions: ...."

Failure to properly fill and seal drillholes per s. NR 812.22(7)(b) Wis. Adm. Code. "...Dry drillholes or unsuccessful wells drilled in conjunction with well construction and not immediately filled and sealed shall be reported on a well construction report. The water well driller, heat exchange driller, or well constructor shall ensure proper filling and sealing methods and materials are used, according to s. NR 812.26, for any drillhole constructed by the water well driller or well constructor that is not intended to provide water...."

- The Department investigation revealed that exploratory drilling may have occurred in November 2013 and June 2014. The locations of several drillholes are known, only two of which appear to have been properly abandoned.
- On October 14, 2014, the Department had an Enforcement Conference with Ahlgrimm Explosives Company, Inc.; you have already been sent a copy of the Enforcement Conference Summary for that meeting. At that meeting, it was noted that Ahlgrimm Explosive Company, Inc. was responsible for the actual drilling of 15 boreholes and that Northern Sands, LLC was responsible for the proper filling and sealing of those boreholes.

Failure to submit well abandonment reports, per s. NR 812.26(8), Wis. Adm. Code. "A well and drillhole filling and sealing report shall be filed with the department {no later than} [within] 30 days after the well or drillhole is filled and sealed. The filling and sealing report shall be filed by the person performing the

g and sealing work on forms specified by the department and shall include a complete, true and curate detailed description of the location of the well or drillhole that was filled and sealed, materials nd method of filling and sealing, construction and geologic features and Wisconsin Unique Well Number, if known. Water well drillers, heat exchange drillers, well constructors and pump installers shall report any unused wells or drillholes that are not filled and sealed for which they have knowledge to the department. Beginning July 1, 2016 filling and sealing reports shall be filed with the department electronically."

- Department well abandonment reports were never received for the above drillholes.
- As noted at the October 14, 2014 Enforcement Conference, Northern Sands, LLC was responsible for the proper filling and sealing of those boreholes. Mr. John Ahlgrimm agreed to notify you to provide the Department the required well filling and sealing reports for the above boreholes.

The Department has scheduled the following Enforcement Conference to discuss the matter in more detail:

Time: 10:30 AM
Date: November 5, 2014
Place: Department of Natural Resources Service Center
1300 West Clairemont Avenue
Eau Claire, Wisconsin

(Please report to the front customer service desk and ask for Bob Sloan.)

We request that representatives from Northern Sands, LLC attend the Enforcement Conference as it is an important opportunity to discuss the circumstances surrounding the alleged violations and to learn your perspective on this matter. Please note that in an effort to encourage a candid and productive conversation, attendance is limited to company officials, legal counsel and others with the technical expertise necessary to understand, evaluate and correct the violations. A Department handout "Environmental Enforcement Conference" is attached to help explain the purpose of this type of meeting.

Subsequent alleged violations, if any, since this Notice was issued will also be discussed.

Northern Sands, LLC may be held responsible for the above violations. The Department is currently assessing further enforcement action in this case, depending in part upon Northern Sand, LLC's cooperativeness and response to the above alleged violations. Escalated enforcement action that the Department may pursue includes:

- Citations may be issued for violation of specific borehole filling and sealing regulations.
- Violations of safe drinking water code-related requirements may result in revocation or suspension of a well driller's license, as authorized under s. 280.13(2), Wisconsin Statutes. Also be advised that violations of ch. NR 812, Wis. Adm. Code may be referred to the Wisconsin Department of Justice to obtain court ordered compliance and forfeitures ranging up to $5,000 per day, with each day of continued violation being a separate offense.

/ou have any questions concerning this Notice, the Department's stepped enforcement process or ou would like to reschedule the Enforcement Conference, please contact me at 715-839-2789.

If you have questions regarding the specific Department requirements referenced in this Notice, please contact Ms. Stacy J. Steinke, Department Private Water Supply Specialist at 715-225-2852.

Sincerely,

Robert L. Sloan
Environmental Enforcement Specialist

cc: Liesa Lehmann – DG/5
Tom Puchalski – DG/5
Stacy Steinke – Eau Claire
Jill Zalesny – Rhinelander
Conservation Warden Bryan Harrenstein
Ahlgrimm Explosives Company, Inc., ATTN: Mr. John Ahlgrimm, 1829 East Ravenwood Court, Appleton, WI 54913

Attached: "Environmental Enforcement Conference"

NONMETALLIC MINING RECLAMATION PERMIT ADDENDUM

This permit addendum is issued under the Chippewa County Nonmetallic Mining Reclamation Ordinance and Wisconsin Administrative Code NR135.

Operator: Northern Sands, LLC

Landowner: Kenneth & Sue Anderson, Ronald Anderson, John Bethmann & Nan Torgerson Bethmann, Robert & Lana Christoffel, Harvey & Audrey Dreger, Raymond Dreger, Beverly Geissler, Daniel Geissler, Alan & Judith Grossmeier, Lee & James Jensen, James & Rebecca Kiesow, Sherry Lemler, Daniel Rothbauer, Robert & Karla M Rasmussen Trust, Daniel Svee, Donald & Colleen Schwartz, Olav & Gail Svee Trust

Permit Number: 2015-01

Date: February 4, 2016

Permit Conditions 5.o., 5.p., & 5.q. shall be added to the Non-Metallic Mining Permit #2015-01, dated November 18, 2015 as follows:

5. Stormwater Management
   o. The Operator shall sample each stormwater pond once a year for two years to establish baseline information on the water chemistry in the stormwater ponds. This testing shall occur at the beginning of each mine phase. These samples shall be tested for the presence of pH, nitrates, chloride, aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium, titanium, vanadium, and zinc. The Operator shall provide a copy of these test results to the Department as part of the annual Reclamation Report & Activities Plan.

   p. The analytical test methods and procedures for stormwater testing under permit condition 5.o. shall comply with Wisconsin Administrative Code NR 219 or alternative test methods proposed by the Operator and agreed to by the Department.

   q. To monitor the water quality of the stormwater ponds during mining over time, the Operator shall develop a Stormwater Sampling and Testing Plan based on the information collected under permit condition 5.o.. The Stormwater Sampling and Testing Plan shall be implemented to monitor the water chemistry in the stormwater ponds and be applied to meet stormwater discharge requirements as they may apply under any state stormwater permits. The Stormwater Sampling and Testing Plan shall be submitted to the Department for review and approval on or before March 31, 2018 or by an alternative date as mutually agreed to by the Operator and the Department.

Permit Condition 7.7f of Non-Metallic Mining Permit #2015-01, dated November 18,2015 shall be eliminated and replaced as follows:

7. Water Quality
   f. To monitor the groundwater quality during mining and reclamation operations and for the reclaimed post-mining land use the Operator shall conduct groundwater sampling and testing for the constituents listed in condition 7.c. of this permit annually for the life of the mine until final reclamation is certified by the Department.

As the Operator or authorized representative of the Operator, I hereby acknowledge that I have read, understand, and shall be bound by the above permit addendum.

Signature	Date
Printed Name - Operator	Title

Permit addendum approval by Department of Land Conservation & Forest Management

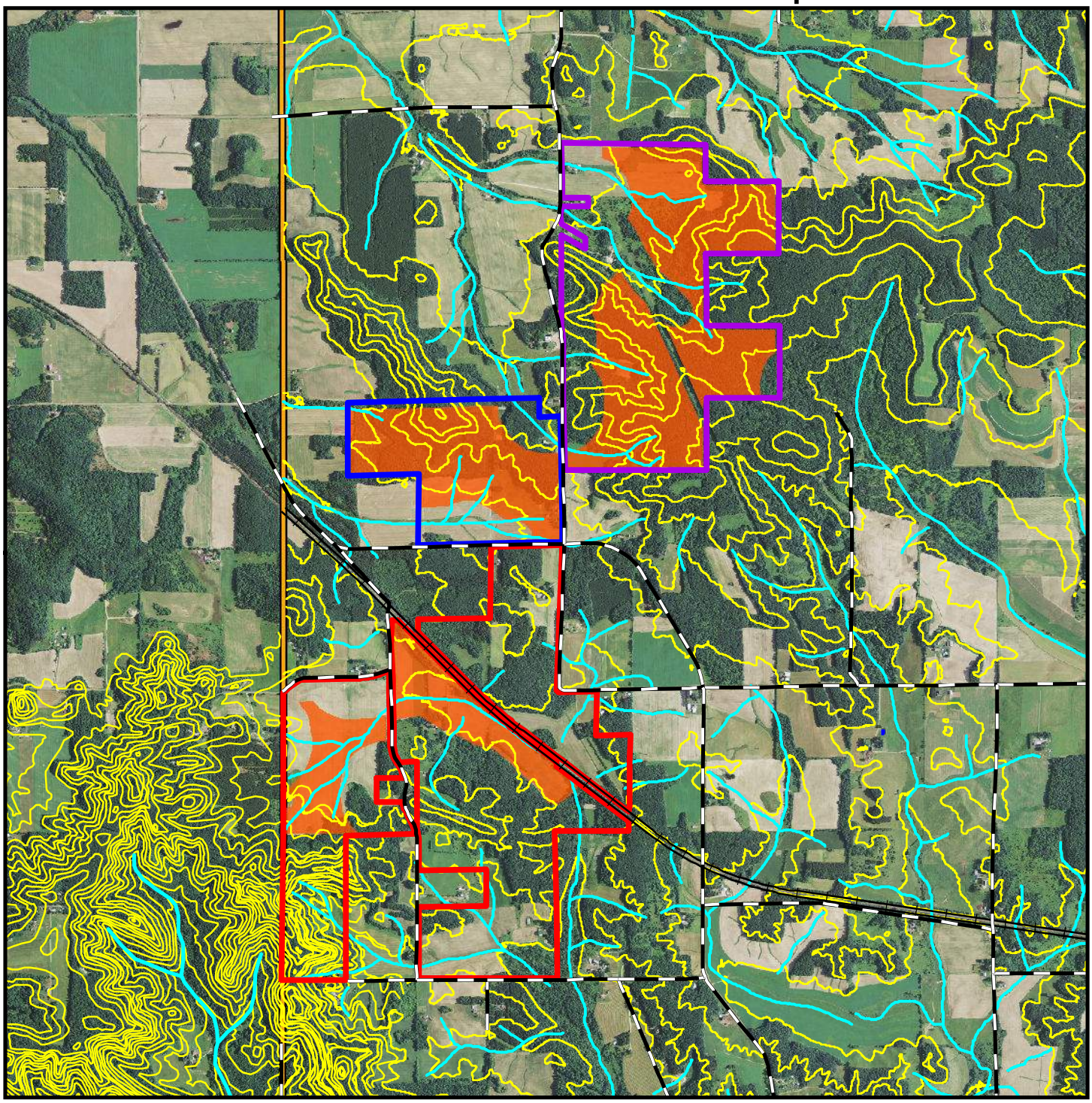
Signature	Date
Printed Name - Authorized Staff	Title

Frac Sand Wash Pond Samples, Fall 2013											
Ruth M. King and Bradley Johnson (Page 1 of 2)***											
	Units	Sample 1 - Facility A	Sample 2 - Facility A	Facility B	Facility C	Facility D	Facility E	Facility F	Facility G	Facility H	Facility I
Sample Location		back pond	front pond								
Date Sampled		10/2/2013	10/2/2013	10/9/2013	11/12/2013	11/12/2013					
Time Sampled		10:20 AM	10:30 AM	12:00 AM	10:20	13:20					
pH		8.8	8.1	7.4	6.35	6.98	8.4	8.1	6.3	7.9	8.1
Aluminum (total recoverable, TR)	ug/L	480	618	39600	7820	135	7740	1350	275	234	266
Antimony, TR	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, TR	ug/L	ND	ND	8.68	ND	ND	ND	ND	ND	ND	ND
Barium, TR	ug/L	26.8	57.3	235	91.9	6.73	217	17.3	91.4	52	44.4
Beryllium, TR	ug/L	ND	ND	4.18	ND	ND	0.61	ND	ND	ND	ND
Boron, TR*	ug/L	30.3	23.7	49.7	100	20.6	114	29.3	36.3	34.3	26.9
Cadmium, TR	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, TR**	mg/L	29.5	31.6	23	9.32	9.97	38.4	4.18	6.97	23.5	60.8
Chromium, TR****	ug/L	8.55	4.7	153	12.4	ND	14.9	3.11	ND	ND	1.23
Cobalt, TR*	ug/L	ND	8.54	34.2	5.71	ND	7.57	1.31	4.53	ND	ND
Copper, TR	ug/L	ND	20.2	1030	19.4	ND	18.4	ND	ND	ND	6.12
Iron, TR	mg/L	0.585	9.91	68.8	9.05	0.316	9.91	0.954	0.248	0.723	0.311
Lead, TR	ug/L	ND	8.82	59.1	3.46	ND	ND	ND	ND	ND	ND
Magnesium, TR**	mg/L	11.5	13.5	13.8	3.66	4.28	13.3	2.24	2.41	9.55	15.2
Manganese ICP TR	ug/L	70.2	1220	1050	385	21.6	350	15	325	249	83.1
Molybdenum TR*	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel ICP TR	ug/L	ND	8.12	64	15.2	3.73	17.5	3.39	8.5	ND	ND
Potassium TR**	mg/L	2.03	2.52	4.44	11.8	1.66	9.25	2.36	4.47	2.17	1.44
Selenium TR	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver TR	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	3.61	2.69
Sodium TR**	mg/L	5.26	5.02	6.04	7.4	10.9	52	2.84	6.03	22.1	12.8
Strontium TR**	ug/L	59.6	39.8	391	72.6	46.1	164	29.1	52.6	80	102
Thallium TR	ug/L	ND	ND	8.31	ND	ND	ND	ND	ND	ND	ND
Titanium TR**	ug/L	19	30.3	591	300	5.78	201	18.2	8.97	12.3	12.1
Vanadium TR*	ug/L	1.8	4.78	268	17.5	ND	22.4	3.16	ND	ND	2.52
Zinc TR	ug/L	ND	11.8	75.4	36.8	ND	18.2	6.1	17.7	ND	ND
TSS (mg/L)**											
CA & Mg Hardness CaCo3		121	134	114	38	42	151	20	27	98	214

Key
Value higher than WI ambient surface water quality standard
Value higher than EPA ambient national recommended water quality standard
Value higher than WI groundwater enforcement standard
ND = not detected

Important caveats
*There are no WI or EPA surface water quality standards for this pollutant
**There are no WI or EPA surface water quality standards for this pollutant, nor are there any WI groundwater quality standards for this pollutant
***This spreadsheet was compiled by Midwest Environmental Advocates based on storm water pond sampling by Ruth M. King and Bradley Johnson of the DNR. We obtained this information through a records request to the DNR. Midwest Environmental Advocates changed background and font color for some values to highlight those that are higher than ambient water quality standards. Midwest Environmental Advocates is solely responsible for any errors in transposing the data, in identifying values above water quality standards, or in summarizing surface water and groundwater quality standards.
****These results reflect that the samples were analyzed for total recoverable chromium. WI and EPA provide ambient water quality criteria for trivalent chromium (chromium +3), hexavalent chromium (chromium +6), and total recoverable chromium. Since it is unclear how the results of storm water pond sampling may compare to the ambient water quality criteria, the font color of the values has not been changed to reflect where they may be higher than ambient water quality criteria.

Mine Phase Location Map



Legend

- Roads
- Drainage Pattern
- PHASE 1
- 50 Foot Contours
- PHASE 2
- Areas Where Mining Will Occur
- PHASE 3

Photobase: 2013

N

0 0.5 1 Miles

Date: 2/1/2016

Chippewa County
Land Conservation and Forest Management