Quality Sand Products, LLC
Quality Sand Products-LaSalle

National Pollutant Discharge Elimination System (NPDES) Permit

Responsiveness Summary

Regarding

June 17, 2014 Public Hearing

Illinois Environmental Protection Agency
Office of Community Relations
December 12, 2014

Quality Sand Products, LLC

Quality Sand Products-LaSalle

National Pollutant Discharge Elimination System (NPDES) Permit Responsiveness Summary

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Quality Sand Products, LLC.
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ILLINOIS EPA PERMIT DECISION

On December 12, 2014, the Illinois Environmental Protection Agency approved a new NPDES permit for Quality Sand Products, LLC.

PRE-HEARING PUBLIC OUTREACH

The notice of the NPDES permit public hearing was published in the *News Tribune* on May 1, 7, and 14, 2014.

The hearing notice was mailed or e-mailed to:

a) LaSalle county officials;
b) Municipal officials in LaSalle, Peru and North Utica as well as state and federal representatives;
c) Parties that either commented on the permit or requested a hearing when the permit was placed on public notice; and,
d) Parties that have requested to be notified of these hearings..

The hearing notice was posted on the Illinois EPA website:

http://www.epa.state.il.us/public-notices/2014/quality-sand/hearing-notice.pdf

Hearing notices were posted at the Illinois EPA headquarters in Springfield.

June 17, 2014 PUBLIC HEARING

Hearing Officer Dean Studer opened the hearing June 17, 2014, at 6:00 p.m. at the LaSalle Peru Township High School, 541 Chartres Street, LaSalle, Illinois.

Facility Presentation

Brad Brown, Engineer, Anderson Environmental Engineering

Illinois EPA Hearing Participants:

Stephanie Flowers, Assistant Counsel, Bureau of Water
Brian Koch, Standards Section, Bureau of Water
Darren Gove, Permit Section, Bureau of Water

Comments and questions were received from the audience.

Hearing Officer Dean Studer closed the hearing at 7:30 p.m. on June 17, 2104.

Illinois EPA personnel were available before, during and after the hearing to meet with elected officials, news media and concerned citizens.

Approximately 90 persons representing neighbors, local government, businesses, miners, elected officials, environmental groups, interested citizens, and Quality Sand, L.L.C., participated at and/or attended the hearing. A court reporter prepared a transcript of the public hearing which was posted on the Illinois EPA website at:

http://www.epa.state.il.us/public-notices/2014/quality-sand/hearing-transcript.pdf.

The hearing record remained open through July 8, 2014.

Background of Quality Sand Products, LLC.
Quality Sand Products-LaSalle

The Illinois EPA Bureau of Water has prepared a final new National Pollutant Discharge Elimination System (NPDES) permit for Quality Sand Products, L.L.C. for Quality Sand Products-LaSalle. The address of the discharger is Quality Sand Products, L.L.C., P.O. Box 207, Spring Valley, IL. 61362. The facility is in LaSalle County.

Application was made for one (1) new discharge which is located in LaSalle County, Illinois. The following information identifies the discharge point, receiving stream and stream classification:

Outfall – 001; **Receiving Stream** – Pecumsaugan Creek; **Latitude** - 41° 22 min 7.3 sec North; **Longitude** - 89° 1 min 34.0 sec West; **Stream Classification** – General Use; **Biological Stream Characterization** – Not Rated

The applicant is proposed a new surface sand mine and will be engaged in excavation, extraction and processing of industrial sand (SIC 1446). Wastewater is generated from pit dewatering, process water and stormwater runoff. Mine operations result in an average discharge of 1.25 MGD of groundwater seepage, process water and stormwater runoff from outfall 001 to Pecumsaugan Creek.

Responses to Comments, Questions and Concerns

Comments, Questions and Concerns in regular text
Illinois EPA responses in bold text

NPDES Permit

1. Members of C.O.R.E. ask Illinois EPA to consider alternatives to discharging into Pecumsaugan Creek, including full retention of waste water, connection to municipal groundwater treatment facilities, or discharge to a water body better suited to receive the discharge.

   An alternatives analysis with respect to the proposed activity was provided by the applicant as required by 35 Illinois Administrative Code 302.105. Irrigation of adjacent agricultural land was determined to be impractical based on the volume of water that would be required and the inconsistent need for this water which would be determined by local weather and crop conditions. Evaporation ponds (zero discharge) would be limited by space requirements and local climatological conditions. A local sewage treatment system is not readily available to the facility and, even if available, the large amounts of stormwater produced during storm events would require large stormwater retention basins and would hinder the facility's sewage treatment capability. In addition, increased flows to the sewage treatment facility would result in increased discharge from the sewage treatment facility. For details on the permit conditions, please read responses to question's #3, #7, and #14.

2. The permit should also include requirements to slow the flow of discharge to prevent disturbance of the creek bed and creek bed habitat.

   The facility's outfall pipe is located outside of the main stream channel and has been placed to discharge directly onto an area that has been stabilized using riprap. The riprap stabilization is expected to dissipate effluent energy and cause the flow to disperse prior to reaching the stream channel. This measure is expected to prevent erosion of the creek bed.

3. Has any quantification of the current total suspended solids been assessed or increases of TSS been conducted?

   The stream assessment conducted pursuant to antidegradation requirements indicates that the existing concentration of total suspended solids (TSS) in Pecumsaugan Creek at the proposed discharge location is 9.8 mg/l. There is no water quality standard for TSS therefore the permit's effluent limitation for TSS of 25 mg/L, based on best available technology (BAT) standards, is

applicable to this discharge. The stream is not listed as impaired for TSS on the 2014 Illinois Integrated Water Quality Report and Section 303(d) List. The increased loading of TSS will not adversely impact the receiving water provided NPDES permit limits are attained.

4. What is the percentage of the total discharge volume that is expected to be process water and groundwater seepage versus just storm water, of those 1.25 million gallons?

   The application indicates that the material processing operations will recycle processed water using a thickener tank and flocculants that will remove solids. Mine processing will result in approximately 108 gallons per minute (0.155 MGD) of waste water discharge to the settling ponds. The exact discharge quantity from outfall 001 will depend not only upon this process waste water discharge but also upon the quantity of stormwater runoff and groundwater seepage that enters the sedimentation ponds. These amounts will vary depending on local weather conditions. Additionally, infiltration and evaporation from the four large settling ponds may reduce the amount of water that is available for discharge from outfall 001. Discharge volume expected to be groundwater and stormwater can be estimated. Since 0.155 MGD of the proposed 1.25 MGD average discharge rate is process waste water, 1.095 MGD of the average discharge rate may result from groundwater and stormwater.

5. This has a lot of very important species, high IBI and QHEI scores. The state endangered and state-listed species are particular concerns for the residents in this area. Has there been any toxicity testing on the polymers and can you list the results?

   The flocculants proposed for use at this site are anionic acrylamide-based polymers manufactured by Clearwater Industries. These products were individually reviewed and were approved for usage based on the proposed application rate of 1.25 mg/L. The products have been tested for toxicity to aquatic life and have been found to be acutely non-toxic to fish and invertebrates at concentrations up to 100 mg/L. Product toxicity testing included common laboratory test organisms that are used nationwide to determine the relative toxicity of substances. Invertebrate (*Daphnia magna*) and algal species (*Scenedesmus subspicatus*) used in product toxicity testing are native to Illinois, and the fish species (*Danio rerio*) tested is a relative of the endangered weed shiner down to the family level of taxonomy (Family Cyprinidae). Given that the products are to be applied at non-toxic concentrations and would bind to suspended solids and settle out in the sedimentation pond, use of the products does not pose a risk to human health or aquatic life in the receiving water.

6. Does IEPA consult with IDNR as to the use of these flocculants?

Illinois EPA did not specifically consult with IDNR in regards to flocculant usage as Illinois EPA is directly responsible for determining the toxicity associated with flocculant usage. However, the Illinois EPA conveys any pertinent information that may be of use in the IDNR review of projects for potential impacts to natural areas or endangered species. In regards to the activities on-site, IDNR expressed concerns and provided recommendations regarding Indiana Bat habitat and minimization of sedimentation/siltation into Pecumsaugan Creek. Given that flocculant usage would aid in settling of suspended solids prior to discharge, use of flocculants prior to discharge would minimize the amount of sedimentation/siltation that would occur in Pecumsaugan Creek.

7. We have had numerous issues within our area with regards to environmental impact studies or lack of them. To the best of my knowledge, I haven't seen an awful lot of information with regards to what the Illinois EPA will do about the displacement of certain environmental creatures due to 1 million 250 thousand gallons of water discharged every day. How much will the Illinois EPA do moving forward, presuming the permit is issued, in keeping track of just what is being dumped into the creek or the creek area and the impact that it is going to have over time with the continued dumping of who knows what. Does the Illinois EPA anticipate continuously monitoring what they do dump into the creek?

   The permit requires monthly monitoring of their discharge from outfall 001 including discharge flow rate, total suspended solids, pH, hardness, offensive conditions, iron, copper, nickel, and zinc. These parameters must meet the discharge limits of the permit. The permittee is required to submit monthly discharge monitoring reports to the Illinois EPA. In the event of an exceedance of any single permit limitation the permittee may be subject to compliance and enforcement actions by the Illinois EPA to address the alleged violations. Because of the permit conditions, the facility discharge is not expected to adversely impact aquatic life in the receiving stream.

8. If the applicant or permittee is responsible for monitoring will there be any parameters set and how often is their equipment checked?

   The facility is responsible for providing the Illinois EPA the results of monthly monitoring of their discharge from outfall 001. The parameters that are included in the permit's monitoring requirements are discharge flow rate, total suspended solids, pH, hardness, offensive conditions, iron, copper, nickel, and zinc. The test methodologies for these laboratory analyses must be those that USEPA has approved for each parameter. The results from these tests are sent to the Illinois EPA each month in discharge monitoring reports and are available to the public.

9. Our major concern is increased flooding from the 1.25 million gallons per day added to the creek. In order to avoid flooding along farm ground and the I & M Canal, can the Illinois EPA put a restriction on Quality Sand to limit water discharge on days when there has been significant rainfall?

   The facility has provided information that pertains to this issue and has provided an analysis that demonstrates that the facility's operations will not cause or contribute to flooding downstream. The stormwater analysis provided by the facility indicates that the presence of the proposed mine facility actually causes a reduction in peak flow to Pecumsaugan Creek during storm events as a result of storage capacity provided by the large settling ponds and excavated pits at the mine. Conversely, when the stream is in drought conditions the stream's aquatic habitat may benefit by having a small but constant source of water from the mine discharge.

10. When you speak of recycling and so forth in the sediment ponds, how much of that is recycled; or is that actually a utilization of 125- or 250,000 of fresh water each day?

    The process water is comprised of recycled process water and makeup water derived from groundwater wells. The recycled water is water treated by flocculants in the thickener tank such that they are suitable for reuse in material processing. Process waste water from the thickener is discharged to the sedimentation ponds. According to the application approximately 155,520 gallons of water from groundwater wells are required in a 24 hour period.

11. With the floods that we have periodically and with the dispensing of this million and quarter gallons of water during the flood season, what happens in that case? Is there any provision made to withhold that water until such a time that the flood or the water receded? Are there sufficient retaining basins drawn into the design of the plan? Is there a design storm event for the detention ponds? Would any outflow be allowed during a rain event or flood event?

    The facility's four interconnected sedimentation ponds are equipped with a single discharge structure consisting of the HDPE pipe outlet attached to the inlet structure that is a vertically oriented, open top, six foot diameter pipe. This pipe has a six inch diameter circular orifice with invert located eighteen inches below the six foot diameter pipes top rim level. When the pond's water level reaches the orifice opening the outfall will discharge water to Pecumsaugan Creek. The six inch diameter orifice will limit the discharge structure's inflow rate to approximately 1 cubic foot per second (CFS) while the pond's water level remains below the pipe's rim level. A 1 CFS flow from this facility is less than the stormwater runoff caused by a normal precipitation event from the pre-developed site. The holding capacity of the sedimentation ponds between the 6 inch diameter orifice and the top rim level is approximately 16 acre feet.

12. With the 42 mines and pits that we have in the area, has any consideration been given to a water reclamation facility?

    The alternatives analysis provided by the applicant considers several different strategies to treat process waste water from the mine facility. One of the alternatives is the discharge of the mine effluent to a wastewater treatment facility via the sewer, however no such treatment facility is available and, if available, the large amounts of stormwater produced during storm events would require large stormwater retention basins and would hinder the facility's sewage treatment capability. In addition, increased flows to the water reclamation facility would result in increased discharge from the sewage treatment plant. Other alternatives considered include irrigation of agricultural land and the use of evaporation ponds. These alternatives have been determined to be impractical. Therefore, the conclusion is that there are no practical alternatives to the use of sedimentation ponds for treatment of the mine's process wastewater.

13. If the mine is permitted to drain into Pecumsaugan Creek, how would that be handled?·Would the mine be "on the hook," so to speak?·Would they have to take steps to prevent that from happening? How might that be handled?

    The facility's permit allows them to discharge within limits to Pecumsaugan Creek. The permit requires the facility to conduct monthly monitoring of effluent from the outfall to demonstrate compliance with water quality standards and effluent limits. The permittee is responsible to meet the discharge limitations of the permit.

14. If a petroleum storage tank would become compromised on the mining site, would outflow pumping be immediately stopped until there was remediation regarding a compromised structure that held any petroleum material on the site, whether it was hydraulic fluid, diesel fluid, gasoline, so on and so forth?

    The application for NPDES permit includes a Spill Prevention Control and Countermeasure Plan that includes procedures to halt the mine discharge upon detection of a chemical spill that has reached the waters of the mine pit or sedimentation ponds. In addition Special Conditions #16 and #17 of the permit specifically address the prohibition against discharge or release of contaminants in stormwater, oil or hazardous substances such as hydraulic fluid, diesel fuel, and gasoline. The conditions require the permittee to clean up spills in dry containment areas.

15. Will fine silica particles be deposited in a flood event onto our property or, through the use of the canal, onto Clark's Run, which enters our property?

Fine silica particles will be present in the total suspended solids (TSS) in the discharge. The permit includes an effluent limitation of 25 milligrams per liter of total suspended solids (TSS) averaged over 30 days. It is expected that the TSS introduced into this stream by this facility will be incorporated into the existing bed sediments created from other sources or will continue as total suspended solids as it moves downstream. The Illinois EPA does not expect there to be measureable solids deposits in the stream caused by this discharge.

16. Does the Applicant have to disclose how much water they use during processing and when discharging? And do they have to report to anybody on a monthly or a yearly basis?

    There's no requirement for the facility to disclose amounts of source water they use in processing the mined materials. The NPDES permit does require the facility to conduct monthly monitoring of their discharge from outfall 001 and report the discharge flow rate to Illinois EPA in their discharge monitoring reports.

17. We request that the permit should have added to it the language that is standard in many NPDES permits requiring that effluent not contribute to violation of water quality standards.

    Special Condition #2 of the permit states, "No discharge from any mine related facility area under this permit shall, alone or in combination with other sources, cause a violation of any applicable water quality standard as set out in the Illinois Pollution Control Board Rules and regulations, Subtitle C: Water Pollution."

18. Is it possible to recommend Quality Sand, and other frack sand operations that use millions of gallons of water a day, have a waste water treatment facility on site? Many large industrial consumers of water in Illinois are mandated to treat their water in an onsite facility prior to discharging into our rivers, creeks, streams and lakes.

    The facility is proposing to operate the mine using sedimentation as the primary treatment of any process wastewater and stormwater generated on site. The Illinois EPA, consistent with the requirements of antidegradation rule, has determined that this treatment method is adequate to meet water quality standards and that anything more extensive including chemical treatment is not required.

19. C.O.R.E. requests reevaluation of the Illinois EPA conclusions regarding public benefit. As C.O.R.E. has noted previously, the draft permit does not adequately address the social and economic impacts of the proposed activity. The very brief analysis of these impacts merely asserts that "many additional local services and support businesses would benefit from the development of the mine both directly

and indirectly." C.O.R.E. requests information as to how the Illinois EPA reached this conclusion.

As required by the antidegradation standard, the facility provided the Illinois EPA with a summary of the social and economic benefits of the proposed activity. The Illinois EPA considered this information in conjunction with all other requirements of the antidegradation standard and determined that the information adequately addresses the social and economic impacts of the proposed activity in accordance with the antidegradation standard at 35 Ill. Adm. Code 302.105.

20. C.O.R.E. requests that the Illinois EPA consider the cumulative effect of this discharge on Pecumsaugan Creek and LaSalle County.

The antidegradation assessment considered the cumulative effects of a new or expanded discharge of pollutants on the receiving stream at outfall 001. The stream has been characterized by the applicant's survey and determined to be of good quality. The extent of the increase in these substances from this discharge is limited by the permit limits, set at the water quality standards. The discharge must meet these limits. The conclusion of the antidegradation assessment review by Illinois EPA was that the increased loading of TSS and other parameters introduced or found naturally in the mined materials would not alter the existing nature of the aquatic life in the receiving stream. The Illinois EPA expects that the discharge of parameters at the levels allowed by the permit will not cause water quality violations in the waters of Pecumsaugan Creek.

Water Quality Standards Antidegradation Assessment

21. C.O.R.E. members ask the permit be modified to better protect the current use of the creek as crucial habitat to important species. C.O.R.E. members also recommend including a requirement for stream testing. Given the sensitivity of species like the Slippershell Mussel, and the mandate to preserve exiting aquatic communities, the permit should be revised to require water quality testing of the stream. Also, the permit should set and enforce a limitation for heat added to the creek in order to protect aquatic species, particularly mussels. A small temperature change can be lethal to fish. For instance, trout only get oxygen from cold water in the range of 45 to 55 degrees.· Trout size and quantity decline as water temperature increases. The creek, as a mussel habitat may also be negatively affected without proper precautions. C.O.R.E. recommends setting a limitation on temperature. Water that is collected in settling ponds may become very warm on hot summer days and many creek-dwelling species are very sensitive to even small changes in temperature. Additionally, the discharge of such large volumes of water could potentially result in bank erosion along the creek and disrupt wildlife spawning areas.

The permit requires that water quality standards be met in the effluent without mixing to assure that the effluent would not lead to in-stream water quality standards violations. Effluent would comprise only a minor fraction of the volume of flow within Pecumsaugan Creek, therefore in-stream monitoring for parameters, including temperature, would be primarily reflective of the water quality of Pecumsaugan Creek upstream of the discharge, rather than the combined water quality of the effluent and the receiving water. The facility discharge is not expected to increase the temperature of Pecumsaugan Creek. Sand processing would not introduce heat to the process water. Effluent from this facility would consist of sedimentation pond overflow that is largely driven by local rainfall. The temperature of this effluent would be comparable to that of Pecumsaugan Creek and other ponds in the area that overflow into Pecumsaugan Creek. The Illinois EPA has determined that in-stream water quality testing and permit limits for temperature are not necessary. Discharge from Outfall 001 would be received by an area that is armored with rip rap before reaching Pecumsaugan Creek. The rip rap area will dissipate energy from the discharge and will prevent bank erosion and disruption of spawning areas.

22. There is radium in water pumped from deep wells in the area. Based on the possibility that well water used at the facility may contain high levels of radium, C.O.R.E. recommends including a requirement to test the discharge for radium. There's quite a high level of contamination in this area where there is concerns by many of the cities that have to actually have processing done prior to the time that the water is used on a potable basis

    The facility collected water samples from the dewatering sump and the existing site well that served the farmhouse previously existing onsite. The results of these tests verified that groundwater from both wells complies with the surface water quality standard for radium 226 and 228. Given this information, the Illinois EPA determined that radium monitoring of Outfall 001 effluent is not warranted.

23. Mussels, clams, insects, and fish are all very sensitive to sedimentation. The permit should incorporate a requirement to reduce siltation not only from storm water runoff, but also from direct discharge.

    All process water and storm water runoff from the facility would be contained within sedimentation basins and discharged from Outfall 001. Flocculant usage and the detention of water within sedimentation basins would allow for the settling of solids prior to discharge. Implementation of TSS permit limits for Outfall 001 would serve to minimize loadings of sedimentation/siltation into Pecumsaugan Creek and allow for attainment of aquatic life use.

24. This is an area surrounded by current and former contaminated industrial sites. There are Superfund sites in the area. Many cities in the area have drinking water quality problems, including radium in the water. Wedron has a benzene contamination problem affecting private wells and something we don't want to see happen here.

    The withdrawal of groundwater for sand processing is not expected to lead to groundwater migration of radium or benzene from Superfund sites or other contaminated areas. Furthermore, surface water discharges due to sand processing activities are not expected to contaminate sediment and water within Pecumsaugan Creek.

25. A primary concern of mine is that the high volume of waste water produced from Quality Sand Products operations, an estimated 1.25 million gallons per day, will pollute Pecumsaugan Creek. I do not believe monthly outfall testing is adequate enough to safeguard our residents. It must be done on a daily or weekly basis, perhaps with the help of community involvement such as IVCC Chemistry Club.

    The frequency of monitoring for the proposed facility is appropriate due to the nature of discharge. The permit requires the applicant to take a 24 hour daily composite sample once a month or 3 grab samples 3 times a month and report the results in the monthly discharge monitoring reports. The discharge from this mine may occur on a daily or less frequent basis due to being subject to variations in stormwater and groundwater flows. In addition the permit requires that the samples be representative of the discharge from the facility considering factors such as frequency, duration and intensity of precipitation runoff and operational practices that affect discharge quality.

26. Additionally, this high volume discharge may adversely affect the state and federally endangered Indiana Bat that makes its home in the Blackball Caves, the largest bat hibernacula in Illinois. These bats are key to our well-being. Due to their voracious appetites, they save farmers millions of dollars in crop damage yearly and allow them to refrain from pesticide use. There must be stronger protection in place for these bats in the permit as I believe the current protections may fail to safeguard them.

    Discharges from the sedimentation pond would be required to meet surface water quality standards and would not adversely affect bat populations or bat prey that inhabit the Pecumsaugan Creek watershed.

27. Water quality may be negatively impacted by sediment resulting from discharges of waste water. Sediment can commonly contain the flocculant acrylamide which is a potential neurotoxin that can lead to paralysis, cancer and infertility. The discharge should be tested for acrylamide as well as the flocculant DADMAC, as these chemicals are being used in these operations.

Sediment associated with sand processing activities would undergo flocculation and subsequent settling in the sedimentation basins. Acrylamide contained in the selected flocculant would adhere to suspended sediments and be retained within the sedimentation basin. Sediment discharges from the facility are expected to be minimal given the method of treatment prior to discharge. Given that the selected flocculant would be applied at non-toxic concentrations to aquatic life and would not adversely impact human recreation of Pecumsaugan Creek, testing of effluent for acrylamide is not required. The facility is not proposing to use a DADMAC based flocculant, therefore effluent monitoring for this substance is not warranted.

28. We are concerned that there has not been a great enough assessment of the impact to the Pecumsaugan Creek. The antidegradation assessment only concerns the stormwater discharges, but the 1.25 million gallons a day also includes process water and groundwater seepage. Has there been any assessment of those discharges in the antidegradation?

    The antidegradation assessment factsheet clearly states the Illinois EPA's assessment of groundwater and process water contributions to the facility's discharge. It indicates that groundwater was analyzed for the same parameters that the stream assessment considered and found them to be well below surface water quality standards. The assessment also considered the process water including flocculant additives. The assessment concluded that the proposed discharge would not adversely impact Pecumsaugan Creek.

29. Can you describe the polymers used in flocculation and provide the brand name?

    The products proposed by the facility are acrylamide-based flocculants that are manufactured by Clearwater Industries. Please see responses 5, 27, and 32 for additional information regarding the usage of these products.

30. The concentration levels of flocculants that you'll be working with is 1.25 parts per million. The effluents that come out in terms of the silt are very fine grain. Is it a cocktail of these three that is used to remove suspended solids?

    The facility would only be authorized to use the flocculant products individually (i.e., not in combination with another), with a maximum application rate of 1.25 ppm.

31. At what juncture will you know what flocculant products the applicant will be going with, since testing hasn't been completed yet?

    The facility is not required to further notify the Illinois EPA of what flocculant product will be utilized, as they have been granted approval for the individual use of each product.

32. The toxicity levels of those products are enhanced with decreased pH level, more acidity. Is that to your understanding in your review of those documents?

The Material Safety Data Sheets for the products included results from toxicity tests conducted under standardized laboratory conditions which require pH to be maintained between 6.0 - 9.0 Standard Units. It is acknowledged that decreased pH levels, as well as increased pH levels, can increase or decrease the toxic effect of a substance on aquatic life. However, pH limits would be required in the NPDES permit and would not authorize discharges outside of the pH water quality standard range of 6.5 - 9.0 Standard Units. Providing pH limitations are attained, the relative toxicity of the flocculants should not be significantly modified. Please see Response 5 regarding the application of these products at non-toxic concentrations and the low environmental risk of these products.

33. Are you aware of the quantity right now of the total suspended solids in the headwaters of the creek?

The facility collected a grab sample from Pecumsaugan Creek on October 14, 2013 to assess background water quality. On this date, the concentration of total suspended solids in the creek downstream of the proposed discharge location was 9.8 mg/L.

34. We request that the Illinois EPA consider increasing the frequency of monitoring for TSS, pH, iron, nickel, and zinc be increased to at least twice per month due to sensitivity of mussels.

Iron, nickel, pH, and zinc monitoring results would be assessed using the water quality standards for these parameters. Water quality standards are developed to protect all forms of aquatic life, including mussels. There is no numeric water quality standard for TSS, but the TSS effluent standard is considered protective of aquatic life in this case. The permit requires the applicant to take a 24 hour daily composite sample once a month or 3 grab samples 3 times a month and report the results in the monthly discharge monitoring reports. The discharge from this may occur on a daily or less frequent basis due to being subject to variations in stormwater and groundwater flows. In addition the permit requires that the samples be representative of the discharge from the facility considering factors such as frequency, duration and intensity of precipitation runoff and operational practices that affect discharge quality. Increased frequency of monitoring for these parameters is not warranted.

35. The permit fails to characterize potential impacts on uses. Due to the high quality of Pecumsaugan Creek and its function as habitat for the state-endangered Weed Shiner and state-listed Slippershell Mussel, an evaluation of the impact of flocculant

on these species and coordination with IDNR must be performed prior to issuance of the final permit.

The potential impacts on the uses of Pecumsaugan Creek were assessed in the Antidegradation Assessment, which was included in the Public Notice along with the draft NPDES permit. The Illinois EPA consulted with IDNR prior to completing the Antidegradation Assessment and included their comments and recommendations regarding endangered species in the antidegradation assessment. Please see Response 5 in regards to flocculent usage and the low risk they pose to aquatic life.

36. The state and federally listed endangered Indiana Bat and the soon to be listed Northern Long Eared Bat are found in the Pecumsaugan Creek area. Riparian mammals are among the organisms most sensitive to levels of radioactive compounds in water they drink; a biota dose limit of 0.1 has been determined for riparian mammals. Thus, monitoring of radium levels in discharges from the mine should be required to make sure that the state's radium water quality standard, which is designed to not exceed the biota dose limit, is met.

    The maximum contaminant level for radium 226 and 228 (combined) determined to be safe for finished drinking water in Illinois is 5 pCi/L (35 Ill. Adm. Code 611.330), and the General Use surface water quality standard for radium 226 and 228 (combined) that protect fish and wildlife 3.75 pCi/L. A biota dose limit of 0.1 rad/day is not an endpoint that can be regulated via an NPDES permit or water quality standard, as it is a measure of the amount of radium absorbed per unit mass of the organism. Moreover, based on a literature search regarding the biota dose limit of 0.1 rad/day, it appears that this value was derived based on uptake of radium through exposure to contaminated soil. The Illinois EPA believes the radium drinking water and General Use surface water quality standards are protective of these uses.

37. Illinois Adm. Code Subtitle C Section 302.105 states to "protect existing uses of all waters of the State of Illinois, maintain the quality of water with quality that is better than water quality standards, and prevent unnecessary deterioration of waters of the State. The Section further provides that actual existing uses "must be maintained and protected and specifically prohibits actions resulting in a loss of aquatic diversity or the loss of commercially or recreationally important species. The draft permit notes that several sensitive species rely on the proposed receiving water, including the Indiana Bat, the Northern Long-Eared Bat, the Slippershell Mussel, and the Weed Shiner. C.O.R.E. believes that the draft permit is not sufficient to protect existing uses for these important species. C.O.R.E. members are concerned about the effects on Pecumsaugan Creek and recommend revisiting the permit to better protect the creek's existing uses. Not only does the Pecumsaugan Creek currently support an important diversity of species, including the Slippershell mussel and weed shiner, but it also flows into the I & M Canal, which is important to recreation for C.O.R.E. members, other residents of the area, and visitors.

Discharges from the proposed facility would be received by Pecumsaugan Creek, which has been designated as a General Use stream. General Use water quality standards would be applied as NPDES permit limits for the proposed facility, thereby protecting the biota of Pecumsaugan Creek. General Use standards are developed using toxicological data from sensitive species, which often include mussels and minnow species similar to those found in Pecumsaugan Creek. Although often based on aquatic life toxicity thresholds given that aquatic biota are typically more susceptible to aquatic toxicants than terrestrial biota, General Use standards are also protective of recreational and wildlife uses of watersheds. The Illinois EPA reviewed all information and made the determination that the existing uses of Pecumsaugan Creek, including recreational and fish and wildlife uses, would be attained through the implementation of General Use water quality standard based permit limits.

38. C.O.R.E. recommends additional study of impacts on bat species in light of the presence of White Nose Syndrome in Illinois and the importance of the Blackball Mine Nature Preserve.

White Nose Syndrome is a disease attributed to fungal infections. There is no evidence to suggest that surface water quality is associated with this disease. A study of the impacts of White Nose Syndrome on bats within the Blackball Mine Nature Preserve is outside the scope of review for issuance of an NPDES permit to this facility.

39. C.O.R.E. requests reassessment of alternatives to discharge in Pecumsaugan Creek. The draft permit dismisses all alternative wastewater control measure. C.O.R.E. asks that the Illinois EPA revisit this determination in light of the impacts to aquatic communities, imperiled species, and recreation.

An alternatives analysis with respect to the proposed activity was conducted during review of the proposed activity as required by 35 Illinois Administrative Code 302.105. As with all projects subject to Antidegradation review, potential impacts to aquatic communities, imperiled species, and recreation were considered when reviewing the facility's proposed activities. This review concluded that since the discharges are primarily driven by stormwater, use of sedimentation basins is the preferred method of treatment for effluent at this facility and there are no other alternatives that would be practical or feasible. Unless new information regarding treatment alternatives becomes available to the Illinois EPA during the term of the permit, a reassessment of alternatives to the proposed discharges is not warranted.

Groundwater Issues

40. My family has two farms, side by side, and I also live nearby. All of us are within a half mile of the Quality Sand Mine. All three home sites have shallow wells. The water table is less than 40 feet deep; the pits that they are digging will be deeper than that. The water that seeps into the pits will have to be discharged as waste water so it doesn't accumulate. But I wonder: Whatever chemicals are accumulating down there, are they also seeping back into the groundwater at the same time, which would possibly affect the quality of our well water?

    The only chemicals to be used in the processing of mined materials are the proposed flocculants. These chemicals adhere to suspended particles and settle out to the bottom and therefore not expected to migrate within the aquifer serving this facility and nearby groundwater wells. Please see response 5 concerning toxicity of the proposed flocculants. Additionally, the Illinois EPA has determined that the facility's Spill Prevention Control and Countermeasure Plan is sufficient to prevent contamination of groundwater resources and prevent violations of surface water quality standards resulting from spills of other chemicals used and stored on-site.

41. I understand that the mines don't stay in one spot forever. Sooner or later, one area will become abandoned; and they will move down the road a little bit and start another area. In the meantime, that shallow pit will remain there, fill up with water and just lay there. You pass existing abandoned mines and see pits with various colors of water that is nowhere near clear. The water just sits there, and I wonder if that water contaminates the aquifers in those areas.

    The quality of water in other abandoned mine pits is outside the scope of review for issuance of an NPDES permit to this facility. However, the Illinois EPA has determined that the proposed activity will not cause water pollution or negative impacts to groundwater quality. Upon abandonment, this mine will be required to adhere to its approved abandonment plan which requires that the abandoned mine will not cause a violation of the Illinois Environmental Protection Act.

42. Now, they do say that if you're close enough to a mine, the mine will offer a water agreement to you to drill a new well or to help you out if your well goes dry. But if you're surrounded by several mines, who takes the blame for your well going dry? Who is to say that the water quality where they dig down for a replacement well will be as good as what I have now? Right now, I've got excellent water from a shallow well. I know they are talking about drilling down 300 or 400 feet to get to a different aquifer, but a lot of the water that is being pumped from those type of aquifers is not nearly as good and certainly has some problems. So I ask you to keep that in mind.

The Illinois EPA does not regulate the use of water from groundwater resources. Groundwater use is governed by the Water Use Act of 1983, 525 ILCS 45/6, which provides that the rule of reasonable use applies to groundwater withdrawals. The Illinois EPA cannot limit the permittee's water usage or require them to provide private individuals with relief from damages caused by water withdrawal.

43. The City of LaSalle well field is currently downstream of the discharge area. Because those wells are only 50 feet deep, if the discharge rate increases and if there is any contamination in that discharge, that contamination could affect the quality of the City of LaSalle's well water. Please consider and review the statutes in place governing the discharge rates and the potential for contamination of the well field for the approximately 12,000 citizens of LaSalle.

    The Illinois EPA has determined that the proposed activity will not cause groundwater contamination or negatively affect the quality of water in LaSalle's water supply wells.

44. Has there been any consideration taken to all of the tile and so forth that perhaps will be affected by these pits?· Are they going to be rerouted to handle the groundwater and so forth?

    The application documents indicate that if any field tiles are encountered during the mining process they would be rerouted or incorporated into the site drainage systems in a manner not to impede the flow of the field tiles.

45. According to the draft permit, sedimentation basins have been chosen as the mechanism to minimize environmental degradation from pollution in discharges from the mine. However, it was confirmed at the hearing that no liner requirements have been incorporated into this permit. We request that sedimentation basins be appropriately lined with a clay or geo-synthetic liner to reduce the likelihood of leaching of contaminations from process water and alkaline mine drainage to groundwater and nearby streams. Many landowners in the area rely on well water sources and contamination of groundwater from the pollutants from the proposed mining, including the use of settling aids and flocculants, will adversely affect water quality and public health.

    The excavation and processing of on-site silica sand deposits will result in the production of refuse consisting of mostly fine grained materials. This material will be found as suspended particles in sedimentation ponds and as settled material on the bottom of these ponds. The Illinois EPA expects the flocculant settling aid to adhere to fine grained particles and settle to the bottom of the settling ponds. Because of their chemical properties these materials will remain within the bottom sediment and will not migrate into the surrounding aquifer. Therefore the Illinois EPA has determined the proposed sediment basins are not required to have a liner to protect groundwater resources.

46. We are also concerned with the lack of groundwater monitoring in the draft permit. Due to the proximity of nearby wells, as well as the sensitivity of Pecumsaugun Creek, the draft permit must acknowledge the potential for loading of pollutants to waterways through groundwater connections. Mining the sandstone will increase evaporative losses and increase the risk of groundwater contamination. The current setback distances from private and public wells do not ensure that groundwater sources will be protected. Monitoring wells must be included to protect the water supplies of the communities surrounding this site.

    The Illinois EPA has considered the potential pollutant loading from the mining activities to groundwater and has determined that no additional pollutant loading to the stream will occur as a result of groundwater interaction between the mine and stream. This determination is made on the basis of the low concentrations of measured parameters in the groundwater as well as the Illinois EPA's expectation that the proposed mining activities will not cause elevated dissolved or total concentrations of pollutants including flocculants within groundwater. Therefore the Illinois EPA has determined that the mine will not cause additional pollutant loading of the stream through groundwater connections.

47. We are concerned for our private wells on the Whipple Farms and the single family well that supplies our home in the Senica Manor Subdivision in Utica, south of quality Sand. How much of the 1.25 million gallons of water that quality Sand discharges will be water taken from their wells and from underground aquifers that supply us and others with good quality drinking water?

    Please see response 10 concerning the expected quantity of ground water usage. The Illinois EPA does not regulate the use of water from groundwater resources. Groundwater use is governed by the Water Use Act of 1983, 525 ILCS 45/6, which provides that the rule of reasonable use applies to groundwater withdrawals.

48. Who will be monitoring the aquifer? How do we know if our wells and water are being preserved for future generations? Conserve Our Rural Ecosystems, a community group made up of La Salle County residents primarily in the Village of North Utica, Utica and Logan Townships (C.O.R.E.) suggests amending the permit to include requirements for groundwater quality monitoring. This monitoring should include testing for pH; for any chemicals used onsite, including flocculants; and for any minerals, chemical byproducts, or other contaminants unearthed during the mining process. Additionally, groundwater monitoring requirements should include static water level observations. This information is essential to protect the current groundwater use and to understand the hydrology of the area. C.O.R.E. requests that additional studies be completed of potential impacts on groundwater. The draft permit does not contain adequate information concerning the potential impact of the proposed discharge and onsite wastewater on groundwater and wells in the area.

C.O.R.E. recommends evaluating nearby groundwater resources that may be impacted and cataloguing local wells and their uses. Mining the sandstone will increase evaporative losses and increase the risk of groundwater contamination. The current setback distances from private and public wells do not ensure that groundwater sources will be protected. C.O.R.E. proposes that 35 Illinois Adm. Code Subtitle F Part 620 must apply to this permit in order to protect the existing use of their groundwater wells. Accordingly, the Illinois EPA should take appropriate steps to ensure that the existing and potential uses of groundwater by C.O.R.E. members and other residents are protected.

Groundwater sample analyses were provided as part of the application for the proposed activity. The results of these analyses indicated that all measured pollutant parameters are below groundwater quality standards of 35 Ill. Adm. Code Subtitle F Part 620. The Illinois EPA expects that the proposed mining of silica sand deposits and processing of mined sand will not cause violations of groundwater standards. The Illinois EPA has considered pertinent information regarding the use of flocculants and the applicant's plan for the prevention and response to chemical spills. As a result of this review, the Illinois EPA expects that the mining activity will meet water quality standards and will not cause violations of groundwater quality standards pursuant to 35 Ill. Adm. Code Subtitle F Part 620. Therefore, the Illinois EPA has determined that there is no basis for requiring the facility to complete additional groundwater studies or groundwater quality monitoring. Section 14.2 of the Illinois Environmental Protection Act establishes a minimum 200 foot setback requirement for mining activities with respect to potable water well locations. This setback provides protection of domestic potable well use and the Illinois EPA has determined that the facility will be in compliance with this setback requirement.

Other Issues

49. C.O.R.E. members also encourage Illinois EPA to alter the permit to better protect existing uses of aesthetic appreciation and recreation. C.O.R.E. members are particularly concerned about the effects on recreation from the additional flow that may exacerbate flooding along the I & M Canal State Trail. Recent flooding has been costly and left significant damage to the trail. C.O.R.E. members recommend adding requirements to the permit to divert or attenuate the flow of the discharge so that existing recreational uses to downstream waters are protected.

The facility conducted a site reconnaissance to ascertain the condition of the area of confluence of the Pecumsaugan Creek and the I & M Canal. The information indicated that there was substantial infrastructure built to manage storm flows; however, noting that maintenance of these structures was needed to optimize their flood control capabilities. Moreover, the facility provided a stormwater analysis to demonstrate that the facility's operations

will not cause or contribute to flooding downstream. The stormwater analysis provided to the Illinois EPA indicates that the presence of the proposed mine facility actually causes a reduction in peak flow to the Pecumsaugan Creek during storm events as a result of storage capacity provided by the large settling ponds and excavated pits that are common for surface mines. The Illinois EPA has determined that the proposed mine can be expected to lessen flood conditions to a small degree.

50. If you do approve this permit and they are allowed to disperse the water into the Pecumsaugan Creek and into the canal, maybe they can be convinced through the goodness of their heart or some encouragement to direct some of that canal water toward Utica. The canal is now very stagnant because all the water is flowing toward LaSalle. If you're going to dump that much water into it from this treatment plant and if you find that the water is safe and clean enough to be used in that regard as a recreational purpose, I'd like to see it directed back toward Utica. Maybe they can split the discharge, and we could have a free-flowing canal that would be something to be proud of.

    The facility conducted a site reconnaissance to ascertain the condition of the area of confluence of the Pecumsaugan Creek and the I & M Canal. The information provided to the Illinois EPA indicates that there is substantial infrastructure built to manage storm flows and maintain water levels in the I & M Canal; however, the report noted that the canal between Utica and Pecumsaugan Creek is highly silted in, therefore diversion of flow would not solve the problem concerning lack of flow in the canal. The facility has no plans of addressing this issue and the Illinois EPA does not have the authority to require this to be addressed in the NPDES Permit.

51. Flooding of this creek has occurred in recent years, resulting in stream bank destabilization and increased sedimentation. The addition of 1.25 MGD of discharge would alter water flow in this sensitive creek and contribute the erosion of stream banks and increased loading of suspended solids. Furthermore, the use of sedimentation basins raises concerns regarding the potential for overflow of pollutants. The applicant must provide analysis demonstrating that flooding will not outstrip the capacity of basins and threaten surface water quality.

    The facility is expected to meet the NPDES permit limitation of 25 mg/L of Total Suspended Solids. This limitation is considered protective of aquatic habitat. The application for NPDES permit to discharge includes provisions to prevent erosion at the facility's discharge point by locating the discharge pipe outlet on top of a large area that has riprap spread on top of it. This area, which is outside of the existing channel, will dissipate the effluent's hydraulic energy such that no erosion will occur. Routine inspection and repair of this area is also required by the NPDES permit. The sedimentation ponds are designed to discharge when the level of water within them reaches the elevation of the discharge structure. This arrangement provides sufficient

settling time in order for the operation to meet the permit requirements at the time of discharge.

52. LaSalle County is considering teaming up with the United States Geological Survey to perform a comprehensive study of LaSalle County groundwater. It is anticipated that funding for the study will be in place by Dec. 1, 2014. Is it possible to delay Quality Sand's NPDES Permit until such time as a comprehensive Water Study could be completed in LaSalle County?

The Illinois EPA has decided to issue the permit based on existing information from the applicant and in the record. The Illinois EPA does not expect further studies of the groundwater to affect the outcome of its decision on the permit application.

Acronyms and Initials

CFR	Code of Federal Regulations
COE	Corps of Engineers
C.O.R.E.	Conserve Our Rural Ecosystem
CWA	Clean Water Act
DMR	Discharge Monitoring Report
HUC	Hydrologic unit code
IDNR	Illinois Department of Natural Resources
IDPH	Illinois Department of Public Health
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
ILCS	Illinois Complied Statutes
Illinois EPA	Illinois Environmental Protection Agency
Ill. Adm. Code	Illinois Administrative Code
mg/L	Milligrams per liter
NPDES	National Pollutant Discharge Elimination System
OMM	Office of Mines and Minerals
pH	A Measure of Acidity or Alkalinity of a Solution
SMCRA	Surface Mining Control and Reclamation Act of 1977 (federal)
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
USGS	United States Geological Service

DISTRIBUTION OF RESPONSIVENESS SUMMARY

An announcement, that the NPDES permit decision and accompanying responsiveness summary is available on the Illinois EPA website, was mailed to all who registered at the hearing and to all who sent in written comments. Printed copies of this responsiveness summary are available from Barb Lieberoff, Illinois EPA, 217-524-3038, e-mail: Barb.Lieberoff@illinois.gov.

WHO CAN ANSWER YOUR QUESTIONS

Illinois EPA NPDES Permit:

Illinois EPA NPDES technical decisions:	Darren Gove.....	217-782-0610
Legal questions	Stephanie Flowers ...	217-782-5544
Water quality issues	Brian Koch	217-558-2012
Public hearing of June 17, 2014	Dean Studer.....	217-558-8280

The public hearing notice, the hearing transcript, the NPDES permit and the responsiveness summary are available on the Illinois EPA website:

http://www.epa.state.il.us/public-notices/npdes-notices.html#quality-sand