COMMENTS RECEIVED AND RESPONSES CONCERNING
THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR

Jordan Aggregates EIS
Sand Creek Township
Scott County, Minnesota

The headings for the EIS Item topics are in brackets.
Comments received are in normal font following the name/organization of the commenter in bold font.
Staff responses are in Italics

Note: Comments received note the name of the commenter and are either quotes from their comments or are paraphrased by staff to capture the essence of the concern as it relates to the EIS item in question. Staff responses to the comments follow each comment and are in italics and noted as Staff Response. Comments received that were of similar concern are addressed once throughout the document.

Acronyms: Throughout this document the following acronyms will be used: Minnesota Pollution Control Agency (MPCA or PCA), Minnesota Department of Health (MDH), Minnesota Department of Natural Resources (MNDNR or DNR), Minnesota Department of Transportation (MNDOT or DOT), Minnesota Environmental Quality Board (MNEQB or EQB), Environmental Impact Statement (EIS), Environmental Assessment Worksheet (EAW), Responsible Governmental Unit (RGU), U. S. Fish and Wildlife (USFW)

Table of Contents

1.0 Purpose and Need 4
Sand Creek Township 4
Lou Pearson 5
2.0 Project Alternatives 5
Sand Creek Township 5
3.0 Affected Environment and Environmental Consequences 6
3.1 Erosion of the Upgradient Side Wall of the Mine Pond 6
City of Jordan 6
3.2 Increased Potential for Ice Jams on Sand Creek 6
City of Jordan 6
Scott County 7
3.3 Changes in Groundwater Levels During and After Mining 8
Minnesota Department of Health 8
3.4 Changes in the Base Flow of Sand Creek Caused by Mining 10
Metropolitan Council 10
3.5 Effect of Mining on Wetlands 10
U.S. Fish and Wildlife Service 11
3.6 Water Quality Impacts to Nearby Wells as a Result of Mine-Pit Inundation During and After Flooding 16
Metropolitan Council 17
Minnesota Department of Health 18
City of Jordan 19
Sand Creek Township 21
Scott County 23
Thomas V. Boncher 25
Carl Day 25
Peter Giancola 25
Pete Giancola 28
Mary Martin-Kahn & Michael Kahn 29
3.7 Impacts to Future City of Jordan Water-Supply Wells 30
3.8 Impacts to Traffic 30
Minnesota Department of Transportation 30
City of Jordan 31
Sand Creek Township 32
Sand Creek Township-RLK 32
Carl Day 35
Lou Pearson 35
3.9 Impacts to Noise 36
City of Jordan 36
Jodi Anderson 36
Lou Pearson 37
3.10 Cumulative Potential Effects 38
Minnesota Department of Health 38
Sand Creek Township 38
4.0 Summary of Mitigation Measures 38
Minnesota Department of Health 40
Jodi Anderson 44

Rick Beise 44
Chris Boemer 45
Travis Cherro 45
Margaret and Steve Gallentine 46
Pete Giancola 47
Sue Heimer 52
Mary Martin-Kahn 52
Michael Kahn 53
Mary Martin-Kahn & Michael Kahn 53
Myron and Deb Pauly 56
Lou Pearson 56
6.0 Approvals, Permits, or Consultation 57
Minnesota Department of Transportation 57
Minnesota Department of Natural Resources 58
Minnesota Pollution Control Agency 58

1.0 Purpose and Need

Sand Creek Township
Herb Baldwin
I wanted to list my concerns and future comments with the DEIS as written are:

1. Natural Resources
   a. Ground Water contamination
   b. Run-off water and drainage
   c. impact on wildlife and other natural systems

2. Short/Long term impact on existing urban/rural/natural systems / Planning or the lack of

3. Infrastructure
   a. Roads / Traffic
   b. Utilities

4. The Process of Review, Comment and Management

…of course, if we were able to think ahead as in "les Perspectives" we might be able to think about and anticipate what the future would or could be and initiate steps to make that happen…instead, we, with our heads in the sand, merely try to solve yesterday's problems and issues and satisfy ourselves that is good enough for now…we live in the present, but we are constantly moving forward, to something else…what is that, where is that and how are we prepared…?...
Response: *The purpose of an environmental review, whether it is an EAW or an EIS is to consider the proposed project and look into the future to anticipate potential impacts that could result from the proposed project, examine and explain the scope of such impacts, afford the project proposer an opportunity to suggest mitigative measures and reviewers an opportunity to comment and challenge both the completeness of the examination and the appropriateness of the proposed mitigation. This process is not a "heads in the sand" approach, nor is it an attempt to solve yesterday's problems. Quite the contrary, it is an opportunity to reflect on our collective memories and elicit suggestions to hopefully avoid repeating past mistakes or blindly blundering into new calamities.*

…it was a shock when at an earlier meeting on this same project, an engineer responsible for undertaking the drafting of the EAW said that he hadn't made a study of the potential contamination of the ground water, the water you and I and many others down stream drink every day, because "no one asked him to"…how can one think so myopically…?...
Response: *We do not recall this comment being made and would note that impacts to ground water quality as well as quantity are standard questions addressed in an EAW. However, the County did indeed agree that the issue had not been examined as completely as it needed to be in the EAW and therefore ordered an EIS.*

…my experience in the profession and education of landscape architecture insists that whatever we do on the face of this earth must consider the 'context', 'continuity' and 'comprehensiveness' in which any project, anything, must relate to its surroundings or its place in nature and society…
Response: *We agree with this statement.*

…I may be too late for a very important issue we are facing here in Scott County…seriously even as David Peterson in an article in the Star Tribune today focuses on the issue of mining and how Scott County lags behind the State of Minnesota in setting, monitoring and enforcing or permitting of the mining industry…sad…
Response: *We are not sure what article you are referring to in the Star Tribune by David Peterson. The one we read printed in the February 19th edition said: "Scott County takes no position on these issues other than to review applications as they come and take whatever steps appear necessary to safeguard the public," said Deputy Administrator Lezlie Vermillion." Scott County established the first ever ambient dust monitoring in Minnesota for a silica sand mine, even before the MPCA or EPA established standards for silica dust in ambient air. Our IUP is open ended allowing us to require specific limits when those limits are eventually established by the State.*

Lou Pearson, Citizen
240 Hooper Court, Jordan
Contrary to the EIS, 1.5 (Need for the Proposed Action), in the EAW Comments: 13- Water Use; in response to Kathy Lapic, staff indicated that this particular site was not a critical source, and that there are many risks associated with it.
Response: *The writer accurately notes that in the response to Kathy Lapic's comments for the EAW staff stated: "The County recognizes that there are considerable sand and gravel deposits throughout the county, especially along the Minnesota River Valley and this particular proposed site is not critical as a source of gravel to the county." This does not conflict with the statement in section 1.5 of the DEIS, which speaks to the need for aggregate in general but does not suggest that this particular site is a critical source.*

2.0 Project Alternatives

Sand Creek Township (RLK)

Project Alternative section

DEIS section 2.1.7, pg 16, All imported materials for reclamation whether used below or above the 100 year flood plain must be investigated to determine that the imported materials pose no potential environmental hazards. This determination must be performed before, not after, the imported materials are brought to the Jordan Aggregates site.
Response: *Staff agree, should this project proceed, staff will recommend that this be incorporated into a condition of the IUP.*

As part of the proposer's application for an Interim Use Permit (IUP), staff will recommend a condition requiring the implementation of a Phase 1 Environmental Audit and soil analyses program that will include sampling and analysis of every location from which fill will be collected. The condition will stipulate the following: sampling and analysis must be performed by an independent engineering/testing company approved by the County. That analysis, along with a description of the excavation site, will need to be submitted to the County for review before the fill can be brought to the Jordan Aggregates site. At the discretion of the County, the analysis may be reviewed by an additional environmental engineering firm contracted with the County. The proposer will not be allowed to bring the fill on-site until the County gives approval. The County will agree to timely review of submitted data. All costs will be borne by the proposer, including County review costs.

DEIS figures 2-3, pg 18 and 2-4, pg 19 show the proposed site entrance onto a gravel surfaced section of Valley View Drive. When questioned earlier about this by the Township, the proposer had suggested a new entrance location; see enclosed copy of e-mail messages and drawing. The entrance location must be shifted to a bituminous surfaced portion of Valley View Drive or the gravel surfaced portion of Valley View Drive from the entrance location to the existing bituminous surfaced portion of Valley View Drive must be improved to provide a 10 ton road design with bituminous surface.
Response: *Staff agree. Should this project proceed, staff will recommend that this be incorporated into a condition of the IUP. Ultimately, Sand Creek Township will be able to address this issue through their powers as the road authority for Valley View Drive.*

DEIS section 2.1.7, pg 20, does not include all the options discussed in the DEIS section 3.8.
Response: *The alternatives described in Section 2.1.7 relate to the project site itself. The truck route options, though they are required to be evaluated to identify potential impacts resulting from the mine by trucks coming to and from the mine are not alternatives to the mine project itself.*

Item 3 on pg 20 has a mistake; TH 182 is listed rather than TH 282.
Response: *This will be corrected in the Final EIS.*

3.0 Affected Environment and Environmental Consequences

3.1 Erosion of the Upgradient Side Wall of the Mine Pond

City of Jordan

The Draft EIS states that the end use of the site is to form two residential lots. The City of Jordan understands this end use may change to commercial or industrial property in the future. The City does not believe it is reasonable to require private monitoring and maintenance of the proposed spillway in the future by such property owners. The Draft EIS does not adequately address the long term monitoring and maintenance of the proposed spillway.
Response: *Staff agree. The need for long term monitoring and maintenance of the spillway is related to the need to keep Sand Creek from a permanent meander into the pond. Once mining has ceased it is uncertain as to whether or not this will be a concern. Depending on where such potential interconnections with the creek occur relative to flow, such a meander could result in increased risk of ice jams at the 173rd St. bridge. This would likely be of concern to the local road authority, Sand Creek Township. Since future ownership of this parcel cannot be predicted, staff will recommend that the need for long term monitoring and maintenance of the spillway and associated culvert be addressed in the IUP through the establishment of securities with the Township to address this concern.*

3.2 Increased Potential for Ice Jams on Sand Creek

City of Jordan

The Draft EIS notes that the proposed project will add to the possibility for ice jams to form during certain conditions. The only mitigation for this issue suggests Scott County and Township officials will need to

respond and one must infer these officials will solve the problem. The project proposer should be responsible for installing measures/practices to prevent such ice jams or otherwise mitigate this issue. Such mitigation should be identified in the EIS. The City of Jordan is unwilling to accept the additional ice jam associated risks imposed on its residents by the project.

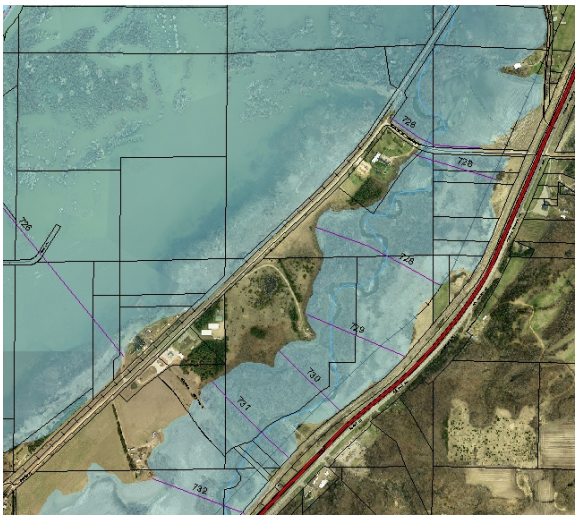
Response: *The issue of the increased potential for ice jams and the need to establish both a response plan and financial responsibility will need to be addressed in the IUP. The EIS noted this as a concern. Staff acknowledge that due to the variability of weather it is impossible to establish a risk potential or determine a cost for a response. This will likely remain a potential unresolved impact unless a definitive mitigation plan is proposed by the developer.*

Scott County

Scott County comments on Jordan Aggregates EIS
Issues affecting County Facilities

Surface Water Issues:
The EIS evaluated the potential for surface water impacts related to the proposed mine's location in the floodplain of Sand Creek. The proposed mine would excavate into the floodplain creating an open water body, an expression of the ground water, below the elevation of Sand Creek. There are two potential impacts related to the County facilities:
The open water in the pond will freeze in cold weather resulting in up to a 36 acre ice sheet that the EIS notes could result in increased risk of ice dams on Sand Creek likely at the bridge at 173rd St. This will be an ongoing risk after the mining ends that could result in higher flood events upstream of the bridge than would otherwise have occurred. When such ice dams occur at the bridge at 173rd St, the flood waters flow over 173rd St. temporarily closing this access as well necessitating public action and expense. Considering the changing climate and increasing incidence of extreme weather events, it is difficult to assess the frequency of such events. However, to occur, several conditions would need to occur at the same time:

a) Sand Creek would have to flood, and fill the quarry coincident with the quarry being covered by ice;
b) The velocity of flow in the flooded quarry would be low and most likely insufficient to force the ice into the creek but as noted in the EIS, ice could be moved by wind, and
c) If the bridge is blocked flow will rise until it flows over the road. At that point the capacity for flow increases significantly and provides relief. The FEMA Flood maps show the extent of flooding for 100 year flood events.



FEMA 100 year flood elevations

Response: *As the comments point out, the project has the potential to increase the likelihood of ice jams on Sand Creek at 173rd Street. The increased risk is due to the presence of a new open water surface that will remain as a permanent feature at the completion of mining, located in the floodplain of Sand Creek. The open water surface will be able to freeze with a sheet of ice covering 30+ acres; potentially adding to the ice load carried by the Creek should the creek flood into the pond high enough to allow pond ice to enter stream flow. As noted in one of the above comments, several conditions would need to occur before ice from the project area would result in movement to the bridge. The result of an ice jam could be the temporary closing of the 173rd street bridge, which would require that access to businesses and residences on Valley View Drive originate from CR 9, rather than TH 169. An ice jam on Sand Creek at the 173rd Street bridge would also likely result in necessitating public action and expense in the form of a backhoe or other earth-moving equipment to break up the ice jam. In the absence of an acceptable mitigation plan this will be noted as an unresolved issue.*

3.3 Changes in Groundwater Levels During and After Mining

Minnesota Department of Health

Well Construction
New wells that are constructed in Minnesota must be constructed according to the requirements of Minnesota Statutes, Chapter 103I, and Minnesota Rules, Chapter 4725. Abandoned wells will need to be properly sealed. Additional information is available at Well Construction and Well Sealing. MDH staff are also available to provide information and resources.

Response: *Any wells constructed/abandoned will be in accordance with Minnesota Rules for well construction and abandonment.*

Groundwater Quality

The main health-related water quality concern at this site is potential impacts to nearby wells, particularly following flooding of Sand Creek, which is occasionally expected to overflow into the mine and/or the lake that will remain at the site following mine reclamation. As a result, it is imperative that a comprehensive well survey be completed, not just a cursory review of well records in the County Well Index (CWI), which appears to be all that has been done. MDH offers the following specific comments regarding this issue:

Section 3.3.2 (page 38): The survey of nearby wells (Table 3 and Figure 3-3) is inadequate. According to MDH records, four of the wells identified as being near the site have been sealed:

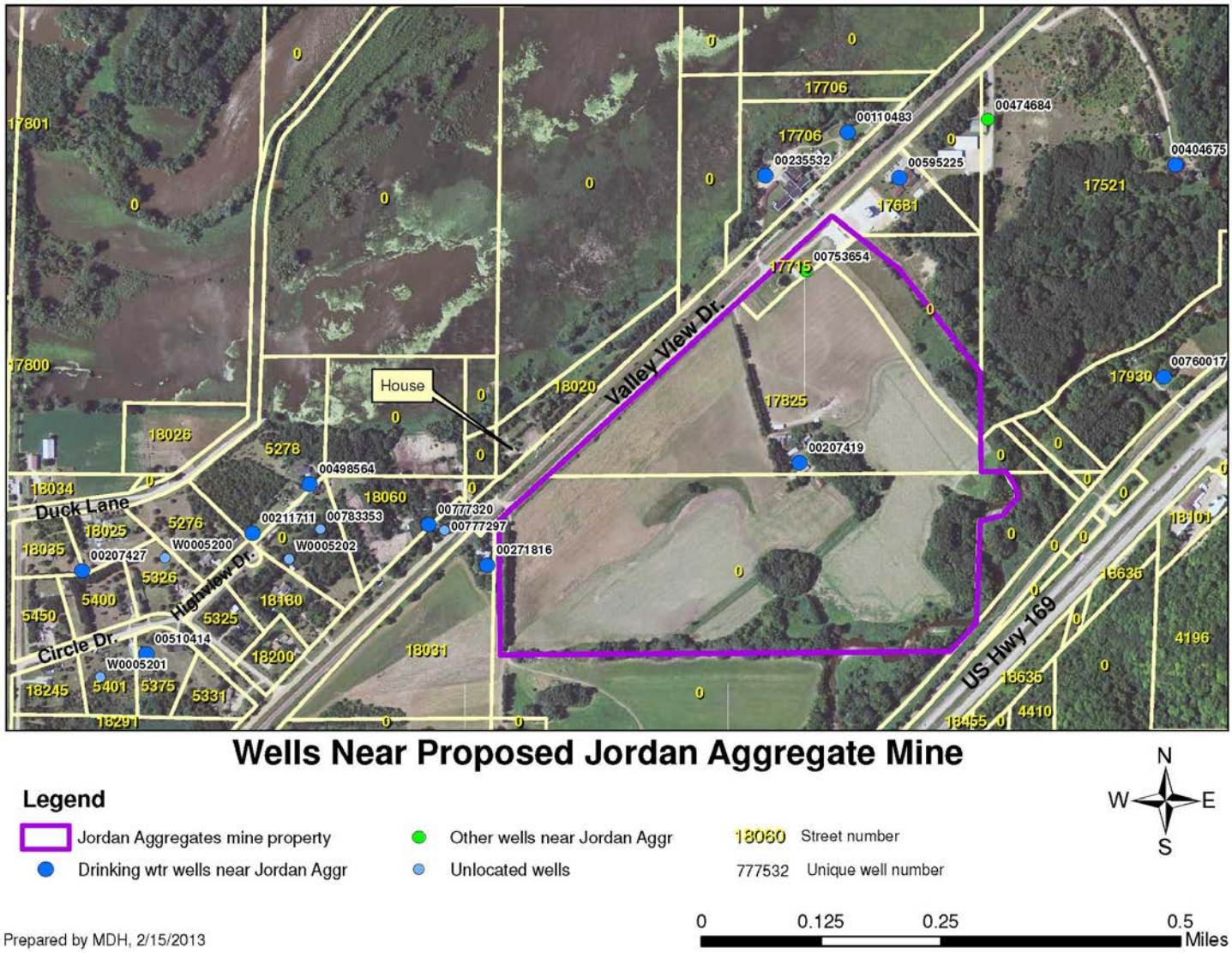
- 211711 – Sealed in 2011 (H294901), replaced with UN 783353 (completed in the CFRN/CFIG?).
- 235532 – Sealed in 1987 according to a 11/7/2007 MDH letter to Scott Co.
- 271816 – Sealed in 2010 (H287953) and replaced with UN 777297 (completed in the CFRN/CFIG?)
- 271924 – Sealed in 2010 (H292106) and replaced with UN 777320 (completed in the CFIG)

[The aquifer abbreviations used above are: CFRN = Franconia, CFIG = Franconia-Ironton-Galesville]

The survey also failed to include the following:

- 18020 Valley View Dr. – although CWI does not contain a well record for this property, there is a house located on the parcel and it must have a drinking water well. It should be assumed that it is a quaternary aquifer well until additional information is available.
- According to MDH records, the current wells at the SCALE property (UNs 249319 and 110483). The well identified for the SCALE property (UN 235532) was sealed (see above).
- A reportedly non-potable well (753654) located either on or immediately downgradient of the mine property. The address associated with this well is either 17706 Valley View Dr (address on well log in CWI) or 17715 Valley View Dr (where CWI locates the well)

The attached figure shows the locations of the properties and wells mentioned above.



MDH recommends that a comprehensive well survey be completed and relevant sections of the EIS (especially 3.3.2, 3.6, 3.10.4, and 4.2.1) should be revised accordingly. Such a survey should include direct contact with each property owner within 500 meters of the mine property boundary.

Response: *A comprehensive well survey was conducted for the project as part of the EAW process. Non-potable well (753654) is the SCALE facility fire training well, located approximately 100 feet northwest of the project site. The potential unidentified well at the house location northeast of the site has been contacted in the past to identify if a well exists but there has not been a response to requests. Additional efforts will be made and the Final EIS will be revised to include information on wells as listed above.*

3.4 Changes in the Base Flow of Sand Creek Caused by Mining

Metropolitan Council

The Metropolitan Council received the Draft Environmental Impact Statement (DEIS) for the proposed aggregate mining project on January 22, 2013. The following technical comments are offered concerning issues addressed in the DEIS that need to be clarified or expanded upon in the Response to Comments document.

3.4 Changes in the Base Flow of Sand Creek Caused by Mining:
The text on page 40 states that there may be a reduction in the base flow of Sand Creek as a result of mining as proposed, which may result in lower stream flows during the winter months and extended drought periods. The Creek is currently identified as impaired, and fails to support habitat for cold-water aquatic species and the 28 warm-water fish species that were identified in the Creek when sampled by the MDNR in 2008. Further reduction in the Creek's base flow by the proposed mine will exacerbate its already impaired condition.

Response: *The predicted reductions in base flow are very small (5% of current base flow). Sand Creek is not a cold-water fishery, and thus it is not surprising that it does not support habitat for cold water species. This segment of Sand Creek is listed as impaired for turbidity and fish Index of Biological Integrity (IBI), not specifically for habitat. The turbidity impairment is not linked to base flows. The IBI impairment was assessed for candidate stressors through a Stressor Identification Program using USEPA methods as part of the Sand Creek Watershed TMDL and Impaired Water Resource Investigations completed by the Scott WMO in 2010 (Scott WMO, 2010). This study had several findings relevant to this issue that support the conclusion that the base flow impact is not significant. First, the study showed that the fish IBI monitoring sites within this reach of Sand Creek that were impaired were upstream of the City of Jordan. Sites downstream of the City and in the vicinity of the proposed project met IBI scoring criteria showing non-impairment. Second, the probable cause of impairment at the upstream sites was habitat fragmentation; not simply habitat as stated in the comment. Habitat fragmentation refers to features that limit the movement or migration of fish in streams. In this case the suspected feature that limits fish movement is the water fall in the City of Jordan. Third, an assessment of aquatic habitat (using the Minnesota Stream Habitat Assessment method) in the stretch adjacent to the proposed project found that aquatic habitat was primarily "good" with a short stretch of "fair" just downstream of 173rd.*

Citation is Scott Watershed Management Organization (2010). Sand Creek Watershed TMDL and Impaired Waters Resources Investigations. Volume 1 – Sand Creek Impaired Waters Diagnostic Study, and Volume 2 – Sand Creek Impaired Waters Feasibility Study. Available Scott County Website, Watershed Management page.

Paul start here through all of 3.5

3.5 Effect of Mining on Wetlands

U.S. Fish and Wildlife Service

Thank you for the opportunity to comment on the Jordan Aggregates LLC Project Draft Environmental Impact Statement (DEIS), dated January 21, 2013. We have reviewed the DEIS and supporting information.

The proposed mining operation is located near the Louisville Swamp Unit of the Minnesota Valley National Wildlife Refuge (Refuge). Although we have concerns related to noise and air pollution, our primary concern is the potential of this project to adversely affect water resources critical to Refuge ecosystems.

This mining operation has the potential to affect the Minnesota Valley National Wildlife Refuge because surface water and groundwater from the project site are source waters for wetlands and other aquatic habitats on the Refuge, specifically the Louisville Swamp Unit. This project will result in less water entering the Refuge from the project area and will adversely affect Refuge habitats.

Response: *Staff acknowledge that the DEIS did not show or conclude that the project will adversely affect Refuge habitats. The analysis was based upon normal operational conditions and assumed that the proposed spillway and relief culvert will function as designed and there will be no permanent erosions of the creek channel into the mine pit. The analysis showed, using very conservative (worst case) assumptions that magnitude of hydrologic impacts would be very small, and some would be less than measureable (0.09 cfs in stream flow is not a change that can be measured with precision in a stream such as Sand Creek). Details regarding the assumptions and conclusions regarding significance are given in responses to the other USFWS comments below.*

Jailhouse Marsh is a 300 acre wetland directly northwest across the road from the Jordan Aggregates project area. In 2000, the Minnesota County Biological Survey described this marsh as "containing significant occurrences of the rare species and/or moderately disturbed native plant communities and landscapes that have a strong potential for recovery." In December 2012 the Refuge completed a restoration of the Jailhouse Marsh infrastructure allowing more active management of the marsh. Currently the marsh has a steady discharge of water through the basin regardless of season or precipitation. The source for most of this water supply is from groundwater discharge out of the highlands to the south, (i.e., the Jordan Aggregate project area). This reliable source of water enables the Refuge to manage water levels to restore and maintain high quality wetland habitat. Therefore, we are very concerned that the Jordan Aggregates project may adversely affect groundwater discharges into Jailhouse Marsh.

Response: See previous response.
Your concern is noted. The DEIS included an analysis of the potential impacts to the marsh demonstrating that even with worst case assumptions for water use, drawdown effects will not extend to the wetlands and net reductions in groundwater inflow into all wetlands is 0.10 cfs – a reduction of about 3 percent. The worst case assumptions used were with respect to wash water. The modeling simulated wash water as a consumptive use even though that is not necessarily the case since some of it is recycled or returned. Modeling also assumed a wash water usage of 100 gpm, which is 25 to 100 times higher than the anticipated average use of 1 to 4 gpm.

In addition, we are concerned about the adverse effect the Jordan Aggregates project will have on Sand Creek's hydrologic contribution to Louisville Swamp Marsh, located downstream from the Jordan Aggregates project area. Source waters for this wetland complex for most of the year are a combination of Sand Creek flows and groundwater discharge. The Louisville Swamp wetlands were described by the Minnesota County Biological Survey in 2000 as a "Site of High Statewide Biodiversity Significance." This means the Biological Survey

found the wetlands to contain "sites with high quality occurrences of the rarest species, high quality examples of the rarest native plant communities, and/or important functional landscapes."

Response. *Your concern is noted. The DEIS included an analysis of the potential impacts the project could have on base flows in Sand Creek using very conservative or worst case assumptions. The conclusion was the magnitude of possible impacts would be very small (a loss of 0.09 cfs) even under the worst case assumptions related to mine demands, but not including a permanent meander of the Creek into the mine pit. This was compared to a winter base flow estimate of 1.8 cfs to demonstrate the effect was 5% or less. Worst case assumptions used include: 1) simulating wash water as a consumptive use even though that is not necessarily the case since some is recycled or returned, 2) assuming a wash water usage of 100 gpm, which is 25 to 100 times higher than the anticipated average use of 1 to 4 gpm, and 3) using average annual pan evaporation in the simulation from the mine which in a winter conditions would actually be zero or near zero. The Draft EIS also showed that ground water table gradients intersecting Sand Creek would only be potentially affected for a two mile stretch (Figure 3-3) and noted that the creek changes back to a gaining reach further downstream. As noted in previous comments, the project developer is proposing to construct a reinforced spillway to minimize the potential for permanent meander of Sand Creek into the mine pit. Staff will include recommendations during the IUP process for routine monitoring of the effectiveness of the spillway system and securities for proper maintenance.*

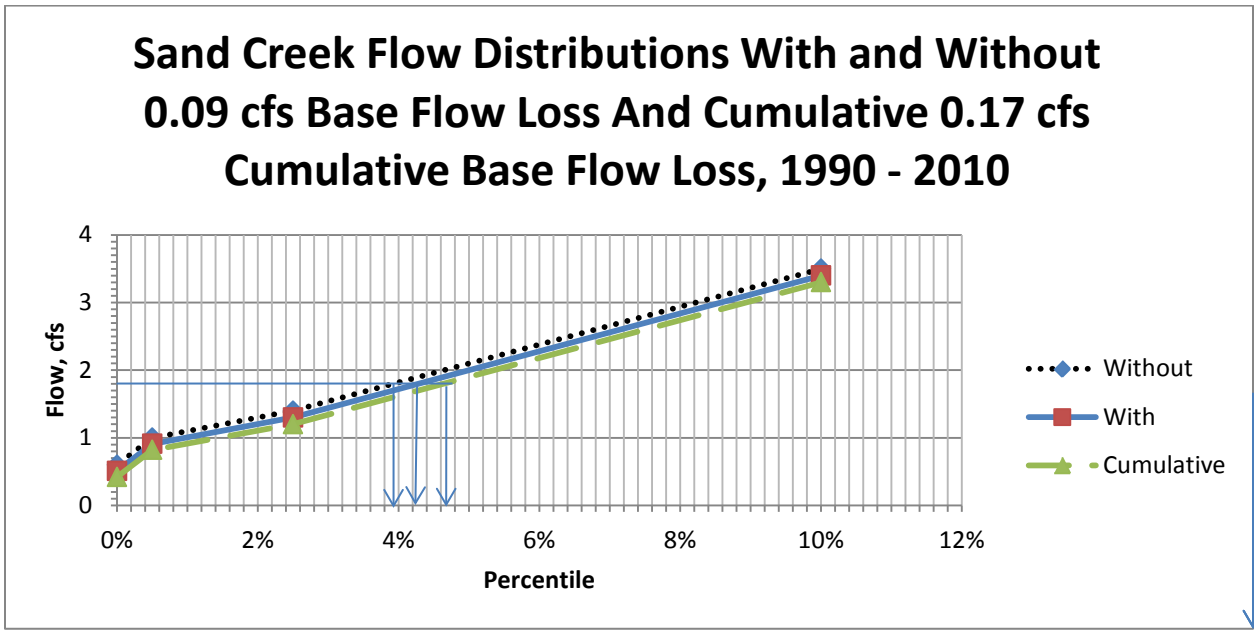
Results from project water use modeling presented in the DEIS identify direct impacts to groundwater discharge to Refuge lands immediately northwest of the project. Additionally, modeling identifies direct impacts to surface water flows into Sand Creek at the project site, which will affect downstream Refuge habitats. Although the models appear to be accurate, all model predictions are merely estimates and do not precisely reflect real world impacts. The DEIS should discuss the degree of error associated with the estimates and the factors to which the model was most sensitive (i.e., the factors with most influence over the modeled outcomes).

Response: *As a worst-case (and very conservative) assumption in the modeling, the groundwater wash well was assumed to pump at a continuous rate of 100 gallons per minute – a maximum instantaneous rate and not an average or continuous condition. As a further conservative assumption, the recycling and return of this water to the groundwater system was not assumed in the models. The total amount of loss of groundwater from mining activities and evaporation loss from the open expression of the aquifer was also noted and amounted to 222 gallons per minute on an annual average. This amounts to a very small (0.09 cfs or 5%) reduction in the base flow of Sand Creek predicted by the model. This is mostly the result of the flattening of the hydraulic gradient induced by the pond adjacent to Sand Creek.*

Assuming normal mine operations, outside of potential flood related impacts, the DEIS did not identify that the project will have direct impacts to groundwater discharge to Refuge land nor did it identify direct impacts to surface water flows into Sand Creek at the project site, which will affect downstream Refuge habitats. The analysis instead showed using very conservative (worst case) assumptions for normal mine operations that the magnitude of potential hydrologic impacts would be very small, and some would not even be measureable. The conservative assumptions used are presented in responses to comment 4 above.

The DEIS also should provide additional information on future hydrologic monitoring in the area to ensure that actual conditions do not significantly depart from modeled predictions. Water monitoring should ensure that "water use" necessary to sustain suitable fish and wildlife habitat in the area are not significantly impacted. The monitoring design should be closely coordinated with the local, state and federal agencies responsible for protection of these species and habitats, and the data should be shared continuously and openly among the various stakeholders.

Response: *Additional analyses presented in the figure below show that the potential exposure of aquatic life to low base flows, and the change in this exposure is very small, even with worst case assumptions related to the operations of the mine, excluding flood related impacts. [Note this analysis will be added to the FEIS]. The figure presents the percentile distributions for 21 years of flow record (1990 through 2010) at the Metropolitan Council monitoring site in Jordan without the 0.09 cfs potential loss to base flow and then subtracting that loss. The figure presents just the lower (0 through 10th) percentiles to enlarge the scale, and is conservative with respect to representing low flows in Sand Creek adjacent to the project since the monitoring site is upstream of the City of Jordan wastewater outfall. The City of Jordan waste water outfall has a permitted discharge of 1.289 MGD (2 cfs). The full distributions as analyzed in the JMP Statistical Software package are included as Attachment 1.*



This figure demonstrates that:

- *Zero or no flow has not been observed in the Sand Creek in Jordan during the period of 1990 through 2010. The lowest flow observed was 0.6 cfs. This is measured upstream of the Jordan WWTP and it is likely that low flow distributions are actually higher in the vicinity of the project.*
- *The 1.8 cfs referenced as the winter base flow amount, occurs less than 4 percent of the time, and the potential worst case change increases the exposure to low base flows in this range less than 0.4 percent of the time. Thus, the potential change, under worse case assumptions, is small in both magnitude and exposure.*

Given that the potential hydrologic impacts are very small, even under worst case assumptions, it was concluded that neither mitigation nor monitoring are needed beyond what is currently being conducted.

With respect to monitoring a fish community, (Index of Biological Integrity) site has previously been established and sampled in this stretch of Sand Creek, and the Lower Minnesota River Basin is scheduled for monitoring under the Minnesota Pollution Control Agency's Watershed Restoration Action Planning (WRAP) process beginning in 2014, and then again in 10 years. The local Watershed Authority (the Scott Watershed Management Organization) is working with the MPCA to select monitoring sites and will encourage the Agency

to continue monitoring the site in this reach. It is also likely that water chemistry will also be sampled/ analyzed at this site. It needs to be noted, however, that monitoring results in this reach will reflect conditions of the entire 300 square mile Sand Creek Watershed of which the project site represents 0.04%. The Metropolitan Council also operates a monitoring site on Sand Creek in the City of Jordan. This site includes flow monitoring, a turbidimeter, and the collection of samples for water chemistry analysis. The Scott WMO on a rotating cycle (every 3 to 5 years) supplements this sampling by monitoring an additional 5 sites upstream of the City of Jordan.

The term "significant impact" is used throughout the DEIS, however the threshold for the degree of change that would constitute a significant impact is not quantified nor explained. The predicted 5% decrease in the base flow of Sand Creek is assessed as "no significant impact;" however, the percent reduction in flow that constitutes a significant impact is not identified. When monitoring is initiated on Sand Creek and the local aquifer, there should be thresholds in place which will limit the mine's water use in the event that these pre-established criteria are exceeded, indicating that significant impacts are probable. These thresholds need to be predefined for water quantity and quality and explicitly stated in the DEIS, so an informed assessment of potential impacts can be made. Specifically, the basis for these criteria needs to be linked to minimum water quantity and quality conditions necessary to support fish and wildlife habitat in the area. Also the DEIS needs to present, at a minimum, a conceptual plan to mitigate adverse effects in the event that actual impacts exceed modeled impacts.

Response: *The term "significant impact" and "significant adverse impact" are used throughout the environmental review process in Minnesota but they are not defined statistically by the State rules or guidance. They are interpretive. However, given that worse case analyses presented in the DEIS, and additional information included above, show that the potential hydrologic impacts are small in both magnitude and exposure; it is reasonable to conclude these impacts are not significant, and monitoring is not needed. However, it is anticipated that during permitting, limits would be placed on wash water well pumping rates. This permitting is done by the Minnesota Department of Natural Resources. The County will also consider making the pumping limits assessed in the DEIS part of IUP conditions to insure that operations are consistent with what was assessed and found to not be significant.*

Before allowing activities which will further alter the area's hydrology a careful assessment of existing conditions and the down-gradient or downstream impacts to fish and wildlife communities should be conducted. The DEIS should expand its cumulative impacts analysis related to groundwater and surface water resources. Only a few sources of water use are identified in the cumulative impacts analysis, not all industrial, commercial, and residential uses surrounding the project area. Also, the cumulative impacts analysis should specify the historical timeframe covered as it currently is vague.

Response: *Unfortunately there was a mistake in the DEIS under the cumulative assessment where the cumulative modeled impact of the proposed mine and the city of Jordan well said the prediction resulted in reducing stream flow to no or minimal flow. This analysis was further assessed and the actual base flow change predicted by the model with the combination of the worst case mine and the city well is 0.17 cfs. This information, however, was not changed prior to publication. It will be added to an errata sheet and corrected in the Final EIS. The Figure presented previously shows Sand Creek flows adjusted for this cumulative amount and shows that it increases exposure to low base flows in the 1.8 cfs range about 0.8 percent of the time. Thus, the potential change, under worse case project mine related operational assumptions and cumulative actions, is small in both magnitude and exposure.*

Minnesota Environmental Review Rules require that cumulative impacts include only those activities that are proposed, planned for, or expected in the future. NEPA guidance on future actions for cumulative impacts suggests the inclusion of "local zoning requirements, water supply plans, economic development plans, and various permitting records." All of these were considered when determining which future actions to include in the cumulative impacts analysis for water. This is why the two silica sand projects in the region that are under environmental review were included. This is also why water supply plans for the City of Jordan were evaluated. The City of Jordan was also consulted regarding their plans, if any, for extending municipal utilities into the area (they are not planning to do so). While there may be future development along the TH169 corridor in the future, there are no current plans. Furthermore, it is difficult to forecast how economic development might be taking place, given current uncertainties. A time frame for cumulative impacts analysis was set with a future maximum date of 2030, as stated in the EIS, because this was the date when the last known water-resources related future impact (wellfield development) would take place.

Since the commencement of the environmental review for Jordan Aggregates, the Great Plains Sands EAW was completed, and an analysis of their contributing impacts to Sand Creek has been identified. However, the contributory impacts from the Merriam Junction Sand's project is still being reviewed, the timing of that project being delayed due to developer changes. As a result, the total impact to the lower Sand Creek watershed, from the Jordan Aggregates site to the point of confluence with the Minnesota River cannot be completed at this time. However, uncertainties associated with the location of the Jordan Aggregates mine pit within the floodplain of Sand Creek, and the potential risks associated with an unplanned incursion of the Creek into the mine pit as a permanent meander have been expressed in this EIS. However, quantifying that risk or cost for potential mitigation remains an unresolved issue and deemed impossible to assess within the scope of an EIS.

Much of the source water supply necessary to support the habitats and biotic communities of Louisville Swamp Unit flows through the Jordan Aggregates project site. These communities and habitats endure in spite of previous alterations to the hydrology of the area, including degraded water quality, increased groundwater withdrawals, and watersheds truncated by roads and infrastructure, which interrupt natural flow patterns. It must be recognized that additional changes to the quantity and quality of these waters, no matter how slight, may present a significant threat to these already rare and sensitive ecosystems. To put the mine's water use into context the cumulative impacts assessment must evaluate the trends in historic and current conditions of these resources.

Response: *As noted above, this is a project that will not significantly affect downgradient water discharge rates assuming normal mine operations. Furthermore, the water-quality impacts are limited solely to infiltration of surface flood water. Wetland features in the Minnesota flood plain area, as well as the Sand Creek flood plain area are regularly inundated or otherwise affected by flood waters.*

Additionally, we suggest a number of other factors be addressed in the cumulative impacts section of the DEIS, which would result in a more thorough document.

1. The groundwater table (stable, increasing or declining?).
2. Groundwater and surface water quality (improving or degrading?).
3. Modeling of future water use predicts Sand Creek base flow could be reduced to zero flow during periods of reduced runoff. The DEIS states that zero flow has been documented in the past on Sand Creek. The DEIS also should discuss the increased susceptibility or the potential frequency of future conditions caused by the increase in withdrawals from these aquifers. This is important because frequent or prolonged periods of zero flow on Sand Creek during periods of drought or low flow could result in the loss of management capability, habitat, or species on the Refuge.

4. Water demand typically increases as water becomes less available (i.e., drought) which often magnifies the impacts on wildlife habitat due to the fact that there is less water available and increased water use. Modeling of the potential impacts and an assessment of significant impacts" should be performed from a "worse case" drought scenario (i.e., 100a 10-year low flow, similar to how flood events are assessed) from both a water use and water availability perspective, with a discussion of impacts on aquatic habitats in the area.
5. The cumulative impacts analysis must recognize an increased demand and use of groundwater and surface water as the lands surrounding the project location are developed in the future. The DEIS assesses cumulative impacts based on only 4 major water users through 2037, but does not address additional groundwater uses in the area. What will the cumulative impacts be as more wells and water use interests come "on-line" in future years? With estimates of zero flow along Sand Creek by 2037 being reported in this DEIS based upon only 4 potential users, the cumulative impacts analysis must address the sustainability of natural ecosystems down gradient from the project area.

Once again thank you for the opportunity to comment on the DEIS. If you have any questions regarding our comments and concerns, please contact Gerry Shimek at 952-858-0705 or you may contact me at 952-858-0701

Response: *Thank you for your comments. Many of the cumulative impacts described above would warrant evaluation if (1) planned or expected future activities are suspected to cause significant adverse effects; (2) the proposed project was found to cause some significant adverse effects; or (3) possible future conditions (such as drought) would call into question the findings of the evaluations. But this project (or known/planned) future projects do not meet these conditions. In addition the Figure added above showing the flow percentiles for Sand Creek adds historic perspective of observed low flow percentiles for a 20 year record near the project site.*

With respect to the individual points they are each addressed below.

1. *There is no available information on ground water table trends.*
2. *There is no information on groundwater quality trends. Surface water quality in Sand Creek for suspended sediment and total phosphorus is improving, nitrates have varied but overall have decreased since 1990 (See Attachment 2 Memo March 5, 2013 from the Metropolitan Council, "Draft trends for Sand Creek and Credit River)."*
3. *See additional analysis and figure above using actual historic stream flow data from the Metropolitan Council monitoring site in the City of Jordan which shows the potential base flow change, under worse case project assumptions and cumulative actions, is small in both magnitude and exposure.*
4. *Modeling did consider a "worst case" both from a project operations perspective and from a stream flow perspective. The project perspective worst case assumptions are presented above. Stream 'worse case" is demonstrated in the added figure which shows that the 1.8 cfs base flow value used is infrequent at about the 3.8 percentile. This is conservative since the data is from upstream of the City of Jordan WWTP. Discharge from the WWTP would add a continuous flow augmenting base flow in the project area.*
5. *See response to previous comment. Water supply plans for the City of Jordan, where most future growth in the area will occur, were included.*

3.6 Water Quality Impacts to Nearby Wells as a Result of Mine-Pit Inundation During and After Flooding

Metropolitan Council

The text on pages 39-44 discusses the impacts of the mine pit and associated pumping on nearby groundwater-connected surface waters. Sand Creek and nearby wetlands are discussed; however, the DNR's Karst Feature Inventory Points database also indicated a spring located immediately north of the project site. In addition to being a sensitive groundwater feature, this spring is also indicative of karst conditions in the bedrock at the project site. The groundwater model does not account for flow through karst features. Conduit flow, and its impacts on the movement of groundwater contamination, should be discussed in this DEIS in pages 45-50. Additionally, the text on pages 100 and 101 summarizes mitigation measures for the impacts to Groundwater and Water Supply Wells. This summary should also include discussion of mitigation measures to prevent groundwater contamination and should acknowledge karst conditions.

Response: *The feature that is described in this comment is a former spring at the base of the bluff that once existed at what is now the SCALE facility. The SCALE facility, in the early part of the 20th Century, was a privately owned mud bath/spa where people came to soak in the mud. The depth to bedrock at this location is well over 150 feet and it appears that the spring feature referred to corresponds with the center of the eroded valley which cuts through the Franconia, Ironton Galesville aquifers and through the Eau Claire confining layer and possibly into the top of the Mount Simon. Historically these aquifers have had hydraulic heads higher than today and the FIG likely still has a hydraulic head higher than the quaternary aquifer in this area, which resulted in the upwelling of ground water observed in the springs that lie at the edge of the Minnesota River basin and the older more coarse alluvial deposits. The spring features are likely influenced by both the conditions of local quaternary aquifer and distant changes to the deeper aquifers. There are no karst features in this area.*

The creation of a mine pit lake has short- and long-term consequences for groundwater. While most short -term impacts have been discussed in the DEIS, one long-term consequence is the increased risk for subsequent land uses, such as urban development or agriculture, to introduce new contamination directly into the bedrock aquifer. Appropriate long-term land use controls are needed to protect and enhance the primary aquifers supplying drinking water to Scott County residents.

This concludes the Council's review of the DEIS. The Council will take no formal action on the document. If you have any questions or need further information, please contact Jim Larsen PE, principal reviewer, at 651-602-1159.

Response: *This area is in the Minnesota River Valley where vertical hydraulic gradients in bedrock aquifers are historically upward, with ultimate discharge to the Minnesota River. The mine is not going to penetrate to bedrock however as noted in the EAW and DEIS the excavation deep into the quaternary aquifer will allow for contaminants to travel vertically more than they currently can in response to surface contamination. The EAW and DEIS also noted the existence of the buried valley trending north of the project site which allows ground water from the FIG and perhaps even the Mount Simon to mix with ground water in the upper aquifer and into the Minnesota River related surface water features. Temporary head changes in the upper aquifer resulting during flooding episodes into the proposed mine pit may result in some temporary exposure of these deeper aquifers to contamination being introduced from the flood waters. However, this would likely be temporary and of local impact. A better understanding of the interconnection of the underlying aquifers and their relative hydraulic heads would be needed to more accurately characterize the local hydrology. The long term consequence of an exposed aquifer nearby subsequent land uses has been conservatively considered by assuming that the pit will be contaminated by Sand Creek flood water. Expert analysis of the setting by Barr Engineering was expressed and verified by ground water modeling to demonstrate that likely potential impacts*

were local and not regional. It was proposed by the developer that the existing downstream drinking water supply wells will be replaced with wells located in the lower FIG aquifer. Future wells after the mining operation closes should also be constructed in the lower FIG aquifer.

Your comments related to the risk posed by the deep mine pit into the quaternary aquifer and subsequently afforded interconnection with deeper bedrock aquifers concerns the potential for aquifer degradation which is addressed further in response to comments below.

Minnesota Department of Health

Section 3.6.2 (page 46) – As noted above, the well shown in Fig. 3-5 and evaluated for the SCALE property is UN235532 - this well was sealed in 1987 (MDH, 2007). The Minnesota Drinking Water Information System database (MNDWIS) lists wells 110483 (QWTA) and 249319 (UNK) as the active, transient non-community public water supply wells at this property. Well 110483 is shown. [QWTA = Quaternary water table, UNK = aquifer unknown]

Response: *Figure 3-5 will be updated to show the current active wells*

Section 3.6.2 (page 46) – The well at 18020 Valley View Drive is located immediately down gradient of the mine. Fig. 3-5 shows that 50-70% of flood water from a mine flooding event would reach this property in 1 year. Similarly, 20-50% of flood water would reach well 753654 (if it is located on the mine property) in 1-2 years. The depth and status of these wells should be provided.

Response: *Scott County contacted area well drillers to learn more about this well as the property owners could not be contacted. Scott County discovered from Bohn Well drilling that the well for this property had been serviced by them a year before and they found that it was 205 feet deep with a casing terminated into the top of the FIG aquifer at 150 feet and with a static water level at 32 feet at the time it was serviced. Well 753654 is not a potable well, it was constructed 163 feet deep. This new information will be included in the FEIS.*

Section 3.6.2 (page 50) - The water table results shown in Fig. 3-7 indicate that one 100 year flood event would have a larger footprint both on-site and off-site than three successive 100 year flood events. This does not seem probable and should be confirmed.

Response: *The groundwater modeling results for a single-event 100-year flood and 3 successive 100-year flood events (each 2 weeks apart) are nearly identical, although careful examination will show that the 3-event results are slightly larger in area and magnitude than the single event. The reason they are nearly identical is that when a second and third flood event occur in a short time period, the pond water is already completely containing flood waters from the previous event and the dissipation in the hydraulic head from the previous event(s) are only partially completed. Therefore, the effect of introducing more flood water into an already floodwater-affected pit turns out to be minimal.*

Section 3.6.2 (page 50) – An analysis of potential flooding of the property at 18020 Valley View Drive should also be completed.

Response: *A discussion for the potential contamination at the well located at 18020 Valley View Drive will be added to the EIS, and mitigation measures if warranted.*

Section 3.6.3 (page 51) – The text refers to a "JAF" well. This acronym is not defined in the text or shown on any of the figures and the unique well number is not provided. The location and unique number of this well should be provided.

Response: *"JAF" stands for Juvenile Alternative Facility, which has well 00595225. The "JAF" acronym will be clarified in the EIS.*

Section 3.6.3 (page 52) – Possible mitigation actions should be described for 18020 Valley View Drive (and any others identified by a comprehensive well survey).

Response: *Staff agree;* a *discussion for the potential contamination at the well located at 18020 Valley View Drive will be added to the EIS, and mitigation measures if warranted.*

City of Jordan

The Draft EIS noted an increased potential for flooding at the SCALE facility, resulting in an increased potential for inflows of flood and or ground water to the City's sanitary sewer system. The project proposer should be required to mitigate this issue. We suggest mitigation be replacement or waterproofing of any impacted infrastructure.

Response: *The groundwater modeling analysis indicates that the presence of the mine pit will result in an increase of 0.51 feet over flooding conditions without the mine pit. However, even without the mine pit present (i.e. current conditions), flooding is expected to be above the north entrance to the SCALE facility. In other words, the presence of the mine pit does not induce a new condition but may make it a little worse. With the simultaneous flooding of both the Minnesota River and Sand Creek, the model predicts that the mine pit would cause an additional approximate 6 inches of additional flood inundation of the SCALE facility. Providing replacement or waterproofing for any impacted structures should be done regardless. Whether the project proposer can/should be involved in this can be further considered as part of the IUP if this project proceeds.*

The City of Jordan understands the Draft EIS identified impacts to shallow aquifers in the form of contamination with flood water and other undesirable chemicals or materials which migrate into the open pond. The City further understands that proposed mitigation to this issue is to resolve drinking water concerns by way of installing wells at depths that they would be assumedly not impacted. The City rejects the notion this fully mitigates the issue at hand that groundwater aquifers are impacted by the project. The City does not believe the EIS successfully identifies proper mitigation for this issue. The contamination of this aquifer is an unacceptable stewardship of environmental resources.

Response: *Staff acknowledge that the mine proposer has not suggested any mitigation for the assumed degradation of the quaternary aquifer in this area. State law does address this in MN Statutes Chapter* 103H.001, 116D.04 Subdivision 6 and Rules CHAPTER 7060. *The DEIS has accomplished its purpose in identifying this impact and noting that no mitigation in this regard has been proposed. This finding and Minnesota Statutes and Rules will be helpful to the County when determining whether or not to permit this mine. Since several State Agency permits are also required to facilitate this project, state agency permits may also cite these laws and rules to justify their decisions.*

The primary concern regarding potential contamination of the quaternary aquifer consists of introduction of flood-borne chemicals and pathogenic organisms deep into this aquifer in an area where there is the potential for additional impacts to deeper aquifers due to their exposure through the buried river valley. Another uncertainty is how introduction of oxygen and nitrogen via surface water deep into the aquifer may affect the chemical and biological aspects of deep aquifer water. It is reasonable to assume that biological activity will be considerably increased deep into this aquifer, and therefore the risk to wells in this aquifer downgradient from the proposed mine will be at greater risk. The developer is not proposing to mitigate any impacts to the quaternary aquifer, though they had submitted plans to do this in response to comments received in the DEIS. During the exchange of information and discussions that ensued with the EIS team they have subsequently withdrawn any proposal for mitigation for the potential aquifer degradation resulting from their deep excavation into the quaternary aquifer which will be subject to periodic inundation from flood waters. In lieu of that, they are proposing that mitigation will be provided to address predicted impacts to affected wells in the quaternary aquifer by replacement of potable quaternary aquifer wells located downstream from the mine with FIG wells. Two of the existing quaternary wells to be replaced with FIG wells are non-community public water supply wells serving County facilities. The third well is a private residence well. The County and the private residence owner will need to accept this alternative. Since the County is uncertain as to the applicability of the noted state laws and rule and the mine proposer has chosen not to address the issue of monitoring for and mitigating any aquifer degradation that results from the deep excavation into this quaternary aquifer this issue is unresolved.

The analysis of the effects of Sand Creek flood water entering the proposed mine pit and migrating in the groundwater was performed with the conservative assumption that the flood water entering the mine pit would be "contaminated" and that this contamination would not be naturally attenuated (i.e. concentrations reduced) by flowing through the aquifer media. This assumption was made in order to be as protective as possible of downgradient water users (two non-community public water wells and one domestic well). However, it is important to acknowledge that the water quality of Sand Creek during flood conditions may be of overall better quality (i.e. has lower concentrations of contaminants and nutrients) than during non-flood conditions. Regular water-quality monitoring of Sand Creek near the project site has been performed by the Scott County WMO for many years for several parameters. For nearly every water quality parameter in the test protocol conducted, the concentrations are lowest during spring flood conditions and highest during summer and fall, non-flood periods. This year, however Sand Creek has been at or close to flood stage at least three times, two of those episodes were after agricultural activity within the watershed had commenced. Even total suspended solids (an indirect indicator of the input of sediment into the stream from farm fields and streets) are lowest during spring flood events. Only nitrate is slightly elevated (i.e. above the 10 mg/L drinking water standard) but the elevated nitrate occurs not during spring flood events but during isolated early summer rainfall events.

Flooding on Sand Creek is predominantly a spring-time event, when snow melt combines with spring rains to produce runoff. While it is likely that this flooding does indeed introduce contaminants into Sand Creek from farm-field runoff and urban runoff, analysis of the conducted tests suggests that the large volume of water entering the flooded creek causes much lower-than-typical concentrations of dissolved and suspended sediment in the Creek water through dilution. Several years of monitoring for fecal coliform, sulfate, chloride, metals, dissolved organic carbon, and total phosphorous in Sand Creek support this conclusion. It is acknowledged that there is not a similar record of data for pesticides and herbicides in Sand Creek but the concentrations of these constituents are also expected to be very low in Sand Creek flood waters through the mechanism of dilution. Generally, however there is insufficient data from which to draw any conclusions about the frequency of Sand Creek flood events that may inundate the excavation into the quaternary aquifer, much less about the potential contamination it may pose.

In summary, for purposes of the EIS and protection of well users immediately downgradient (north) of the proposed site, it was assumed that flood water entering the proposed mine pit should be treated in a conservative manner by assuming that the flood water is "contaminated".

The Draft EIS acknowledges the need for groundwater quality testing at multiple locations should the open pond be installed. The entities to perform such testing are not identified nor are the specific locations. The City of Jordan believes the developer should not be allowed to perform such tests as it presents a clear conflict of interest. Should the construction of the open pond be allowed, groundwater quality testing should be performed by an independent firm at multiple locations on-site and at the nearest active wells to be used as a drinking water supply. The water quality testing should be performed at least annually.

Response: *Specifics about the monitoring and mitigation plan were requested from the Project Proposer for inclusion in the FEIS. Two draft monitoring and mitigation plans were subsequently received, but neither was acceptable to the County. The Project Proposer was so advised but has not submitted acceptable plans for inclusion in the FEIS, therefore this remains an unresolved issue.*

Sand Creek Township

The Town Board of Sand creek Township has reviewed the Draft Environmental Statement (DEIS) for the proposed development of a gravel mining operation and other operations related to the mining operation by Jordan Aggregates. The Sand Creek Town Board requests consideration of the following concerns:

- The Town Board of Sand Creek Township does not believe that sufficient research and study has been undertaken concerning the most important issue of the potential contamination of the ground water underlying the site and extending into the surrounding areas and region. Sand Creek Township is deeply concerned of the impact and ramification of the exposure to the aquifers as Sand Creek floods/overflows in to the mine pit, which is proposed to extend 120' into the water table. Now is the time, in the DEIS, to adequately address this very critical issue!

Response: *The EIS assumes groundwater contamination resulting from inundation of the pond by Sand Creek flood waters and presents a model of the likely movement of the contamination. Staff acknowledge that a ground water monitoring and mitigation plan should be presented in the EIS with sufficient details to afford reviewers a clear understanding of what is being proposed and to enable a quantification of the potential costs associated with this to enable sufficient securities to be established during the IUP to ensure that ongoing monitoring and mitigation is conducted. The mine pit is a permanent incursion into the quaternary aquifer and an ongoing pathway for contaminants to be introduced deep into this aquifer and potentially other deeper bedrock aquifers. Staff agree that sampling and testing should be performed by independent parties.*

- Sand Creek Water Shed comprises three counties, Scott, Rice and Le Sueur, which consists of 254 square miles with a primary land use of agriculture and related uses such as dairy and feed lot operations. Obviously, any contamination, which can happen at the mining site, can have a critical negative effect downstream through the Minnesota River, the adjacent wetlands, wells, wildlife and aquifers used by highly populated urban and suburban areas.

Response: *The proposed mine is near the ultimate discharge point for the Sand Creek watershed. Therefore the risk associated with the mine is not to the Sand Creek Watershed but from the Sand Creek Watershed to the local quaternary aquifer introduced via the 120' deep excavation into this aquifer created by the mine. Potential sources of pollution that might enter the mine excavation into the aquifer are from the upstream watershed from agriculture, urban runoff and waste water treatment plant discharges from New Prague, Montgomery and Jordan. Jordan's waste water treatment plant discharges several hundred feet upstream from the proposed mine.*

- Sand Creek already is an impaired waterway and the use of pesticides, insecticides and fertilizers raises a great concern for the short/long term impact on our natural resources. Already there is evidence of high nitrates in our drinking water. The proximity of the City of Jordan's Sewage system should be addressed!

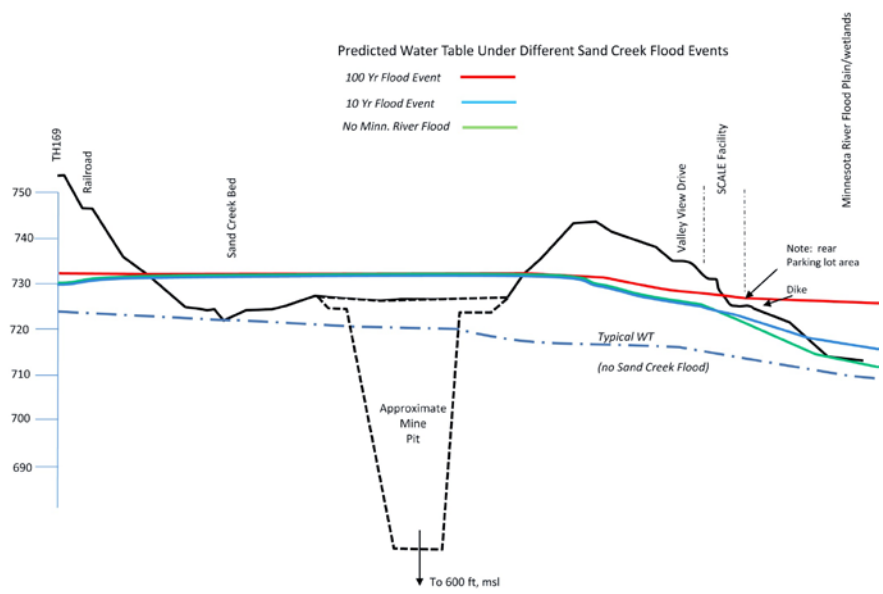
Response: *The primary risk to the ground water relative to this project is not from the mining operation itself but from contaminants from the upstream watershed which will be introduced during flood conditions deep into the local quaternary aquifer created by the mine pit. The discharge water from the City of Jordan's sewage treatment facility can be introduced deep into the local quaternary aquifer as well as water from the entire Sand Creek watershed along with any contaminants.*

- Technical data can be found in the "Sand Creek Impaired Water Study Technical Finding" prepared by Greg Wilson of Barr Engineering.
- Generally the DEIS lacks sufficient and conclusive research data pertaining to the potential and, to be expected, contamination of the ground water. Little, if not any, effective, appropriate management or mitigation solutions have been made in the DEIS. Methods of continued and constant monitoring of the mining operation and the surrounding areas throughout the pre-mining, during the mining operation, immediate and constant site restoration and post-mining operations need to be considered and proposed.

Response: *Staff acknowledge that there is no way to predict what potential contaminants might be carried by Sand Creek into a deep excavation into the aquifer. Testing that has been conducted on Sand Creek water quality suggests this is not currently potable water. Recognizing that contamination of surface waters though regulated often occurs as a matter of fact from agriculture and urban runoff the DEIS simply acknowledged the potential for pollution from Sand Creek to be introduced deep into the quaternary aquifer and to potentially adversely impact water quality at three downstream wells. The developer chose to propose replacement wells rather than mitigate the contamination into the aquifer resulting from flooding of the deep opened expression of the quaternary aquifer. Whether or not this is appropriate or acceptable mitigation will ultimately be decided by the County in their determination of whether or not to approve an IUP for this mine. DNR regulations prevented the developer from proposing a flood wall dike protecting the mine pit from inundation during Sand Creek flood events. Though the mining operation itself isn't proposed to introduce contamination the open pit will act like a large diameter abandoned well in the flood plain of Sand Creek. Sufficient or conclusive research into what pollution might be introduced into Sand Creek is not possible. Testing of Sand Creek for current pollution would not be sufficient to characterize potential pollution during flood events, which is when the water from Sand Creek could be introduced directly deep into the local quaternary aquifer, therefore it was deemed by the RGU to not be of practical value. Never-the-less, this concern was not diminished in its importance as an issue that should be thoroughly considered by the RGU when determining whether or not to issue an IUP. Further, the RGU acknowledged and draws attention to this concern by submitting comments in this regard, recognizing that the RGU owns and operates for public purposes two facilities that would be impacted by this proposed mine.*

Scott County

1. The creation of a 36 acre pond will result in the expansion of flood elevation water closer to the SCALE facility and increase the risk for ground water intrusion above ground surface elevation in the parking and drive area behind the SCALE facility. The EIS identifies that the increased water level during a peak flood would be half a foot higher than it would have been without the mine. This event, however, is based on coincident 100 year peak flows of both the Minnesota River and Sand Creek a worst case scenario. A graphic representation of this condition is attached. The worst case scenario is unlikely and consideration of concurrent 100 year floods on both Sand Creek and the Minnesota River are not part of standard engineering or flood risk management assessments. In addition, the dike at the SCALE facility is currently in the 100 year floodplain of the Minnesota River, an event more likely to occur than the analyzed event. However, the analyzed event would increase the ponding depth of ground water intrusion by six inches. The existing municipal waste water lift station and vent pipe may already be at risk for flooding and might need to be modified to prevent this. Flooding from ground water upwelling in the parking area behind the SCALE facility may occur more severely because of the proposed open mine pit. It is difficult to predict such events especially in consideration of the increasing frequency of extreme weather.



Horizontal and vertical depiction is not at the same scale. Prepared by

Response: *This potential impact is acknowledged but due to the uncertainty of the potential frequency of such concurrent events and the fact that the additional increase in flood elevation would be a fraction of the overall impact for such an event this impact is not deemed significant. However, what modeling cannot predict is the potential for increased frequency of minor flooding in the low area west of the SCALE facility resulting from the creation of the mine pond and the elevation of the water table on the west side of that pond from a leveling of the water table. The EIS illuminates this impact and no mitigation has been proposed.*

Ground Water Issues:
The proposal is to mine out the alluvial sand and gravel deposits in this area to a depth of 120 feet or approximately the top of the bedrock in this area. The bedrock under the site slopes northerly into a buried bedrock valley transecting several aquifers from east to west through the Franconia, Ironton and Galesville (FIG) Aquifer and into the Eau Claire Shale formation. Ground water flow in a buried river valley is more difficult to predict leaving uncertainty regarding the reliability of the ground water modeling that was conducted. The EIS predicted risk of contamination from the open pond water to two non-community public water supply wells serving the SCALE Training Facility and Juvenile Alternative Facility (JAF). The proposed mitigation is to drill deeper wells into the lower elements of the FIG to supply water for these facilities. There are two potential impacts related to the County facilities:

1. The proposed mitigation is not detailed and suggests either a single well interconnected under the Railroad and Valley View Road to supply water to both facilities or a new well for each. The cost for these wells has not been determined and would need to be addressed through the IUP.

2. The difference in quality of water from the existing wells serving these two facilities and that of water from the lower FIG has not been explained, but it is acknowledged that the water will likely be more mineralized requiring treatment to reduce scaling of fixtures, boiler operation and aesthetic concerns such as smell and taste associated with water from the lower FIG. The well currently servicing the Public Works facility in Spring Lake Township is from the lower FIG. The objectionable quality of this water has been an ongoing problem at the Public Works facility. The EIS acknowledged that the SCALE facility is heated with a boiler that will likely require treated water to prevent scaling problems. The cost for water treatment has not been addressed in the EIS.

The potential degradation of an aquifer serving these two facilities for private profit is contrary to good environmental practices and in conflict with State Statutes and no mitigation for this has been proposed. *"103H.001 DEGRADATION PREVENTION GOAL: It is the goal of the state that groundwater be maintained in its natural condition, free from any degradation caused by human activities. It is recognized that for some human activities this degradation prevention goal cannot be practicably achieved. However, where prevention is practicable, it is intended that it be achieved. Where it is not currently practicable, the development of methods and technology that will make prevention practicable is encouraged." See (https://www.revisor.mn.gov/statutes/?id=103H.001&year=2012)*

The EAW proposed as mitigation for the degradation of the aquifer serving the SCALE and JAF facilities that the developer would provide for the extension of municipal water service from Jordan to serve these facilities. This would have eliminated the need for ongoing monitoring and was the mitigation recommended by a Minnesota Department of Health hydrogeologist. Extension of municipal water was withdrawn as an option in lieu of the proposed substitute wells. The only alternative proposed, drilling deeper wells to serve these facilities, is noted in the EIS to necessitate ongoing additional costs for monitoring and treating this water due to its inferior quality until such time that municipal water is available.

The EIS suggests that monitoring of the new wells will need to be conducted since modeling to determine the potential for contamination is not definitive. The potential for contamination will remain after the mine is complete. The cost for ongoing monitoring until municipal water is provided was not addressed. Should contamination be discovered after the mining operation ceases the cost for mitigation may fall on the County.

Response: *The developer as noted in responses to comments from Pete Giancola below has opted not to propose direct mitigation for any contamination that is introduced into the quaternary aquifer or subsequently*

into the FIG aquifer into which they are proposing to construct "safer" wells for those modeled to be impacted. As noted in the EAW: "Unless the Developer presents an acceptable mitigation plan, staff will recommend that the securities established by the Developer for mitigation of ground water contamination be sufficient to connect potentially affected wells to Jordan's municipal water supply." *The County should also consider MN Statutes Chapter* 103H.001, 116D.04 Subdivision 6 and Rules CHAPTER 7060 *when deciding whether or not this project should be approved and recognize that mitigation has not been presented to address the potential degradation of the quaternary aquifer resulting from the creation of a deep conduit into this aquifer.*

Thomas V. Boncher
113 Marlane Circle, Jordan (public meeting court reporter)

I've reviewed a lot of the documents given to the public about this Jordan Aggregates mine, and so far I see very little to indicate that any thought has been given to three open water mines within about a mile space. Groundwater will be exposed in three separate places within a mile radius; and although I understand that the scope of the EIS is for one mine specifically, I don't think mother nature pays much attention to our desires. If stuff gets into the water here or at one of those other sites, I'm concerned that there is going to be a transfer of pollutants from one site to another. I don't think you can just draw a line and say it's not going to go past this point, and I haven't seen anything that convinces me that that has been considered in this EIS.

Response: *The DEIS does account for the three new open water mines (Jordan Aggregate, Great Plains Sands, and Merriam Junction), please see 3.10 Cumulative Potential Effects. The proposed Jordan Aggregates mine is located in a different geological formation than the two silica sand mines. If you look at the three different open mine pits as if they were three different streams entering the Minnesota River it may be easier to see that the concern for a "transfer of pollutants from one site to another is impossible. However, the concern for cumulative impacts to Sand Creek was evaluated and discussed in this EIS.*

The direction of groundwater flow in the vicinity of the three proposed projects (Jordan Aggregates and the two proposed silica sand mines) precludes water from one proposed project from interacting or co-mingling with groundwater from the other proposed projects.

Carl Day
310 Valley View Drive East, Jordan (public meeting court reporter)

I am concerned about the water quality because over a period of time with their digging they will leach into the aquifer, and they will contaminate the water. The water flow will contaminate wells and the city drinking water.

Response: *This concern was extensively addressed and evaluated in the EIS and further addressed in responses to similar comments above.*

Peter Giancola
18281 Sioux Vista Drive East, Jordan

In figure 3.3 showing predicted drawdown of the water resource, Is this just with the wash plant well running? How deep is their well into the Franconia Ironton aquifer?

Response: *Figure 3-3 depicts the groundwater modeling results for predicted drawdown (i.e. change in groundwater elevations) in the water-table aquifer with (1) the pit dredged to its final depth and (2) the wash plant well pumping continuously at 200 gpm (which is a conservative assumption because the well will only be operated intermittently). The wash plant well is proposed to be completed in the sand-and-gravel (water-table) aquifer and was modeled as such.*

At 735 ft elevation will effluent from flood waters be brought down into the aquifer via the wash water well if it is overrun with flood waters?

Response: *No, this will not happen because unlike the mine pit itself wells drilled into this aquifer are required to be out of the flood plain and their casings extended 5 feet above the 100 year flood elevation or constructed with seals to prevent introduction of flood water. The depth of the proposed well will be equal to or less than the depth of the mine pit. The Minnesota Department of Health regulates well construction in Scott County. The location and depth of any wells drilled on this site must comply with MDH requirements.*

What procedure is in place if the drawdown compromises the waste water treatment ponds and contamination is drawn into the aquifer and is spread to the Jordan Aquifer?

Response: *The wastewater treatment ponds are no longer being used and were lined. They have not been decommissioned however and still contain waste water sludges. The predicted drawdown resulting from the project is very small (less than one foot) at the wastewater treatment ponds. The proposed project will not compromise the wastewater treatment ponds. However, flow direction of ground water from under the ponds has been modeled to be influenced by the elevation of the ground water in the mine pit.*

What is the rate of draw down at 500,000 gallons per year with all of the local wells drawing down at the same time, and what would be the rate of drawdown at 2,000,000 gallons annually? (people tend to use their wells to at the same time the wash plant will be scheduled to run on Saturdays)

Response: *The project was evaluated using a much higher extraction rate – 105million gallons per year. None of the analyses results in anyway suggest that this proposed project will impact the ability of any wells in the area to pump water at rates less than currently used.*

What is the drawdown of the combined effect of all of the Jordan wells the local wells and the wash plant well running at 200 GPM when the combined operational capacity of all wells demands at the same time in just our neighborhood equals 175 GPM combined at a single moment, what about when the city of Jordan Well is operating at the same time?

Response: *All of the evaluations assumed included the condition that the City of Jordan wells were pumping. A combined neighborhood pumping rate of 175 gpm, while seeming to be large, is very, very small compared to the capability of the surficial aquifer to yield water.*

What is the procedure if the combined well drawdown dry out the local wells in the aquifers above the wash plants well (assuming a well located in the FIG aquafier would be drawing water lower into the ground and compromising our wells which are located higher in the Jordan Aquifer?

Response: *The proposer is required to obtain a Water Appropriations Permit from the DNR and must report water used on a monthly time period every year. The DNR has the authority to stop all water withdrawals if*

nearby wells are impacted. Please note that the wash water will be in the surficial aquifer – not the FIG aquifer.

What happens if the wash plants well accidentally introduce a pathogen into the potable water that the residents need to live with? (say they somehow cause a sink hole under the water treatment facility by accident?) What are the emergency contingency plans for such a disaster?

Response: *The proposed wash well will not cause the formation of a sink hole. The Minnesota Department of Health regulates the construction of the wash water well. The well must be constructed according to Minnesota Well Code rules so it will not act as a conduit for contaminants.*

Will the local residents be able to get the wells tested in advance to create a base line indication for contamination?

Response: *Residential well sampling and analyses prior to construction of the project may be a condition in the IUP. The residential wells that will be sampled will likely be limited to approximately one mile of the proposed project's property boundary.*

Were all local wells operating all at the same moment when the expected non effect was being measured (my assumption would be no considering the test was run from February 11-17th?

Response: *The pumping effects of wells, other than the pump-tested well, were not observed in the February aquifer test. It is generally desirable not to have wells pumping in the vicinity of a controlled aquifer test.*

Was the drawdown retested during the drought conditions that we had during the summer months of 2012? When the lowest levels of water flow have been experienced in years in the Warren or Minnesota river basin?

Response: *Drought conditions would have very minimal effect on the calculation of the aquifer parameters that were derived from the pumping (aquifer test).*

Why must anyone accept these statements? Because there is always an inherent "uncertainty in groundwater models due to an incomplete understanding of subsurface conditions, some difference between observed and simulated conditions must be accepted" an incomplete understanding of ground water models in our area does not lend itself to a level of comfort for any one of us that have to rely on our sole water source even possibly becoming compromised.

Response: *There is a level of uncertainty in all analyses (groundwater and otherwise) that must be considered, which is why mitigation measure are discussed. However, the level of uncertainty in this analysis is actually quite small because there is a lot of information already available about the aquifer system in this area. The State Agencies that reviewed this DEIS have a good understanding of how groundwater models work in this area. A monitoring plan will be established to determine the difference between simulated and observed.*

What is a short period of time? A minute, an hour, a day, a week, a month a quarter? What exactly is short? "peak rate water use of 200 gallons per minute (i.e. the wash water well will be operated at a maximum rate of 200 gpm for a short period of time."

Response: *A short period of time, as used in this context, is approximately 1 hour in the course of a day.*

If these waters reach our potable water source that we depend on, our families depend on and our livestock depend on what strategy will you be employing to alleviate the condition? Especially since flooding may alter the flow and ground water direction?

Response: *The mitigation strategies for predicted impacts were described in the EAW and DEIS. An updated ground water monitoring and mitigation plan will be distributed in the FEIS.*

"Flood waters from Sand Creek that are retained in the mine area behind the spillway have the potential to temporarily alter the groundwater flow direction (because of temporarily elevated hydraulic head in the mine pit). The flood waters may also contain contaminants, including water - borne pathogens, that may adversely affect the water quality of the water -table aquifer and could impact nearby wells."

Really, if the results don't conform to what the tester is expecting we "abort" the test and reconfigure the parameters to meet our expectations?

"As shown on Figure 4, it appears the initial attempt at the pumping test on 2/13/2012 was aborted when rapid drawdown indicated that the pressure sensor was located too shallow in the well. The pump was shut off at 11:07 on 2/13/2012, and then restarted at 11:21 the same day after the sensor was lowered approximately 30 feet. Table 2 defines the four pumping periods of the test; the initial aborted test is not included here or in the analysis."

When you list to many unknowns on a testing area that you claim is stable and sudden increases and decreases occur with no explanation isn't it then possible that you have a highly permeable structure that could allow the release or escape of pollutants just as quickly? Again with no apparent attempt to diagnose or figure why these events are occurring?

Response: *The descriptions of the drawdown and replacement of the transducer are included for completion. It commonly happens that during the first part of an aquifer test, the test is restarted because of either excessive pumping rates or the need to relocate transducers. There is nothing unusual about this.*

"The data for the Greenhouse Well and the House Well both show sudden increases in sensor depth during the late morning hours on 2/15/2012, as shown in Figure 3. The reasons for these abrupt changes are unknown, as the pumping rate remained constant during this time and the sensors were not moved. Lacking a justifiable basis for applying an offset to a large portion of the data, no attempt was made to remove the jumps from the dataset."

Response: *Sometimes during pumping tests, unusual events such as the sudden (but very short-duration) drop and recovery in water elevation occurs. It is important to point out that this is a single data point among thousands of time-series data. The trend in the data was unchanged and while a definitive explanation for this single data point anomaly has not been found, there is no reason to suggest it is anything other than some kind of data recording glitch in the data logger.*

Pete Giancola
18281 Sioux Vista Drive East Jordan (public meeting court reporter)

The biggest thing I want to say is that it is very unsettling to remove the test wells immediately after the site has been mined, and they should be left in for an additional five years to test for contamination traveling away from the site and into private wells. The results of the study that say there is the possibility of contamination without

a disaster plan in place for the potential or if contamination does occur is a situation that's unacceptable. There should be a disaster plan in place just in case some unforeseen circumstance occurs and there is a need for water to be drawn by local residents whose wells are contaminated on an immediate basis.

Response: *A proposed monitoring and mitigation plan was presented in the EAW but recognizing that considerably more modeling was conducted for the EIS and additional issues were identified an updated groundwater monitoring and mitigation plan was prepared and submitted to the EIS review team for consideration (see Exhibit xx). That plan was deemed inadequate by the review team and a request for additional information was given to the developer (see Exhibit xx) Of issue with; the developer's plan were the issues you noted related to both the long term costs for monitoring and a mitigation plan. A meeting was held on July 19, 2013, where the developer stated they were choosing not to propose any mitigation to address potential quaternary aquifer degradation resulting from their mine regardless of whether or not contamination was introduced by them or carried by flood waters conveyed deep into the quaternary aquifer via the open pit they had created. Instead, they proposed to replace potentially affected quaternary aquifer wells with wells constructed deep into the FIG aquifer that ground water modeling predicts is less likely (see page 24 of Barr's* Groundwater-Flow and Solute-Transport Modeling*) to be impacted by the proposed mine. However, based on the ground water testing conducted by the developer's consultant, the County's consultant suggested that contamination of the FIG resulting from the proposed mine conveying contaminated water into the FIG via the deep valley might still occur though the risk is relatively small. The hydraulic head of the water tables within each lower aquifer relative to the flood affected upper aquifer presents an element of uncertainty for such risk. In addition, gradual lowering of the hydraulic heads of the bedrock aquifers responding to increasing demand within the metropolitan area have already been noted and are anticipated to continue. Multiple variables make it impossible to predict with certainty the reliability of the FIG aquifer in this location as a substitute water source for those wells in the quaternary aquifer that have been identified by the modeling to be likely impacted. Constructing a FIG well at the SCALE and JAF facilities and then conducting pumping tests to assess the interconnectivity of such wells to the quaternary aquifer in the vicinity of the proposed mine pit would provide better information of the potential interconnectivity of these aquifers afforded by the buried valley. The developer has not proposed any additional testing, monitoring to detect such impacts or mitigation for this risk. The suitability of the FIG as a satisfactory alternative to the existing quaternary water wells also remains an unknown until water quality can be assessed. Failure by the mine proposer to identify a mitigation plan to address either potential aquifer degradation for the quaternary aquifer that the mine will be excavated into or the FIG aquifer that could be impacted results in an unresolved issue.*

Mary Martin-Kahn & Michael Kahn
18520 Valley View Dr, Jordan

Wells, ground water contamination - While the reports presented by Barr Engineering Company and Carlson-McCain, Inc. indicate that the chances of wells or ground water being drawn down or contaminated are 'little', 'low', 'small' etc., the conditional use permit should require that bonds should be put in place by the proposer to cover any costs that might arise from either the drawn down or contamination of the area's water supplies and the cities future needs. The area covered by the bonds should be expanded to cover a 'worse-case scenario' to protect homeowners, businesses and governmental units in the area from the loss of or contamination of wells and/or ground water. Bonds should be required to be kept in place by the proposer and/or any successors to the proposer should the business be sold or transferred to others in the future due to the long life of the pit. If, in fact, the chances of draw down or contamination are 'little', 'low', 'small', the costs of the bonds to the proposer and/or his successors will follow.

Response: *The commenter raises a valid concern noted by others that though ground water modeling provided most probable information about the likelihood of certain impacts, the qualifying statements about the accuracy of the model leave doubt especially for wells located in the immediate proximity of the proposed mine pit. As noted above, an updated ground water monitoring and mitigation plan has been provided, but it does not address long term monitoring nor costs for mitigation. As noted above, this remains an unresolved issue. As noted in the EAW, an acceptable alternative would be the extension of municipal water to the affected properties. However, costs for this or for mitigation of identified impacts to the quaternary aquifer were rejected by the developer leaving this an unresolved issue.*

3.7 Impacts to Future City of Jordan Water-Supply Wells

3.8 Impacts to Traffic

Minnesota Department of Transportation

Thank you for the opportunity to review the Jordan Aggregates Environmental Impact Statement (EIS) and for meeting with us on January 29. The Minnesota Department of Transportation (MnDOT) has reviewed the EIS and has the following comments:

Consistent with our October 21, 2012 letter concerning the Jordan Aggregates Traffic Analysis, MnDOT has concerns with the alternatives in the EIS that propose truck U Turns on US 169. US 169 has been classified as a high priority interregional corridor. These highways serve as key corridors for both interstate and intrastate travel. MnDOT performance measures identify an average peak hour travel speed of 60 miles per hour on interregional corridors. Mobility is strongly emphasized on these corridors. Additionally, this section of US 169 serves approximately 31,000 vehicles per day. To make this situation as safe as possible, truck access on US 169 must be carefully evaluated. The County and Township should work together with the developer to provide frontage/backage roads that support current and future truck traffic.

In order to determine the feasibility of a U-Turn on US 169, MnDOT developed potential design alternatives. We were unable to design a U-Turn alternative that was safer than Option 1 in the EIS.

The preferred alternative, option 2, will conflict with MnDOT's access management projects identified on US 169 and will pose a hazard as trucks will have to cross traffic on US 169 and then make a U-Turn. This movement will occur at a low speed and conflict with the high speed traffic on US 169. Option 3 and Option 4 have geometric limitations at the TH 282/TH 21 intersection. Option 5 will negatively impact intersection operations as the trucks will be making a slow U-Turn and use up the green time of the protected left turn phase.

If option #1 cannot be implemented, consideration should again be given to the construction of a U-Turn on TH 21. TH 21 is a low volume minor arterial, which is more suited, than US 169, to serve merging truck traffic. MnDOT completed a general design of the proposed U-Turn on TH 21 and it appears to be feasible. Also, as stated in the October 2012 letter, a combination of County, City and Township roads can be used for the safe movement of trucks.

For questions concerning these comments, please contact David Sheen (651) 234-7647 in MnDOT Metro District's Traffic Engineering Section.

Response: *CH2M HILL has added alternative #6 that includes the U-turn on TH 21to the traffic analysis. This was sent to the MnDOT for comment and their letter is attached. A revised traffic section will be distributed for review and comment in the FEIS..*

MnDOT has expressed concerns for the developer's preferred truck route involving a U turn on TH 169 enabling the approximate 80% of outbound trucks to travel north on US 169 as indicated by the developer in the EAW as necessary to provide aggregate to their anticipated market. MnDOT also identified issues with the other options other than Option 1. MnDOT suggests frontage/backage roads, which have not been evaluated nor acknowledged by the Project Proposer. MnDOT also suggested further consideration be given to construction of a U-Turn on TH 21. Since neither extension of frontage/backage roads or construction of a U-Turn on TH 21 have been evaluated in the EAW or EIS and the new alternative 6 has not been fully evaluated for efficacy or funding the issue of a safe route for outbound trucks to reach their proposed market remains an unresolved issue.

City of Jordan

The City of Jordan does not believe the introduction of a significant volume additional truck traffic to Valley View Drive is appropriate within the City limits. If Valley View Drive was the route to be used, the City believes additional truck volumes proposed would present negative safety and environmental impacts to residents along Valley View Drive. Further, the existing Valley View Drive pavement cannot support the additional truck volumes proposed and mitigation would be required. The City is supportive of the project proposer's preferred alternative to use roadways other than Valley View Drive within the City limits.

The City of Jordan is supportive of the proposer's preferred truck route alternative. However, the City is concerned over the viability of the alternative in light of MnDOT's comments and access management guidelines. A long term acceptable route should be determined for the likely event MnDOT requires the TH 169 U-turn location be closed. Once studied, the impacts of this route should be opened for public comment. The Draft EIS is inadequate in that it fails to identify an alternative which can reasonably be expected to remain in place for the proposed duration of the project related activities.

Response: *Please review the new Option 6 of the Traffic Study and MNDOT's letter (attached) which comments on the expectation that Options 6 will remain for the duration of the project.*

The City of Jordan is aware MnDOT has developed sketch plans illustrating a proposed U-turn on TH 21 just south of TH 169. The City cannot comment on whether this option is acceptable, however, as it has not been fully evaluated to a level it demands. The City supports further evaluation of this option and its inclusion in the EIS for consideration. The evaluation of this route should also be made available for public comment. The City of Jordan believes the Draft EIS is inadequate in that it fails to review all potential reasonable solutions for mitigation of the identified traffic issues.

Response: *The City of Jordan, has again expressed concerns about the adequacy and safety of truck route option 1, Valley View Road to Co. Rd. 9. Staff acknowledge that the EIS was inadequate in not evaluating nor providing an opportunity for consideration of the newly introduced U-turn option on TH 21. This option was discussed at a meeting on January 29, 2013 when MnDOT revealed their suggested U-turn option on TH 21. The project proposer initially declined further consideration of this option in the EIS but reconsidered and authorized the County to evaluate this option working with MnDOT. The results of that additional evaluation*

are presented in the FEIS. However, additional design and noise evaluation work still is required for the TH 21 U-turn to proceed. In addition, the MnDOT has indicated that they have no funding for this interim modification, therefore, the issue of a safe route for outbound trucks to reach their proposed market remains an unresolved issue.

Sand Creek Township

> Given the obvious impact that the mining operation will have on the increased traffic volumes of heavy truck traffic from the developer and other users of the mining product, in and out of the site throughout the day (hours) and weekly use, will result in poor if not severely impacted safety, traffic control, efficient traffic flow and the ensuing disturbance of the existing local neighborhoods and commercial land use activities and their systems. The four to five intersections proposed in the DEIS are weak solutions, which are 'squeezed' into existing travel lanes and to magically happen within narrow medians and right-of-ways. No constructive mention is made of the often times interruption caused by the existing railroad lines which contain the mining site and local crossings. No constructive mention is made of how the railroads might play in the operations of the mine.

Response: *Sand Creek Township is the local road authority for Valley View Drive, which is the only access for the proposed mine. As a part of the FEIS a traffic analysis was completed to inform of the benefits and consequences of the proposed routes, including an estimated cost for improvements. CH2MHill has expanded their traffic analysis to include the feasibility of a U-turn at TH21. This analysis has been incorporated into the Final EIS for public review. CH2MHill has also included in the expanded traffic analysis for the Final EIS a review of the railroad crossings. This review does not include the interruptions the railroad will have on the proposed mine operations, the developer will have to understand that operations may be delayed by the existing rail line.*

Sand Creek Township (RLK)

On behalf of the Sand Creek Township Board, I am providing you with the following review comments from the Township regarding the referenced Draft EIS.

Traffic numbers various documents (EAW, DEIS, traffic analysis memo) contain different traffic numbers and the description of the nature of the activities that generate these traffic numbers varies as well.

EAW and Traffic analysis memo supplement to DEIS state maximum daily round trips for mining as 110 trips with an average of 5 round trips per hour and a maximum of 11 round trips per hour. DEIS section 1.3.1, pg 3, states that 110 round trips per day are anticipated <u>including when temporary asphalt and concrete plants are operating</u>. DEIS section 1.3.1, pg 3, states that an average of 8 round trips per hour and 15 round trips per hour are anticipated. DEIS section 2.1.7, pg 16, states an average of 5 round trips per hour and a maximum of 11 trips per hour for <u>aggregate products</u>. DEIS section 3.8, pg 61, states that the effects that <u>'gravel-hauling trucks will impose'</u> are examined.

At the joint County, City and Township meetings there seemed to be agreement that the traffic from concrete and asphalt plants should be included in the DEIS, but that does not appear to have been done.

There does not appear to be any consideration given to the round trips anticipated for imported fill for reclamation operations or for the receipt of waste concrete and asphalt to be crushed and recycled. There is no mention whether the recycled concrete and asphalt will be processed and shipped as aggregate or used in the concrete or asphalt plant operations.

The statements of truck trips should be consistent and it should be clear what activities are included in the trip numbers.

Sand Creek Township and others have questioned how the number of truck trips will be monitored and enforced. There is no discussion of this topic in the DEIS.

Response: *The statement on page 3 Section 1.3.1 of the DEIS that 110 round trips are anticipated, including when temporary asphalt and concrete plant are operating is correct. The developer was consulted after the joint meeting and the developer explained that when the asphalt plant and concrete plant are operating the anticipated volume of haul trucks will go down and replaced with trucks associated with the asphalt and concrete plant, so the volume of total trucks remains the same. This is the same for importing fill, trucks returning to the pit (which have been accounted for) will haul in imported material, instead of returning empty. The EIS will clarify the traffic numbers so that they are consistent and accurate throughout the document. Although, the incorrect number may have been stated in the EIS; for example 8 round trips instead of 5 round trips, the results of the traffic and noise study are not affected. The developer is proposing to submit the electronic scale house weight ticket assigned to each truck to the County in order to verify the number of trucks leaving the pit, as a condition of the mining permit. An updated traffic section has been prepared for the FEIS. However, some issues remain unresolved.*

DEIS Traffic section - 3.8

Return truck trips from south of Jordan Aggregates site - EAW identifies that northbound trucks on TH 169 will either follow County Highway 9 and Valley View Drive or proceed on TH 169 and follow 173rd St, then Valley View Drive. DEIS section 3.8, pg 61 repeats these return route options in a reference to the EAW. DEIS section 3.8, pg 62, summary of proposer's revised traffic plan states that outbound trucks are routed to 173rd and TH 169, but there is no mention of inbound truck routing. The two return routes from the EAW are repeated in DEIS section 3.8.2.1, pg 78, discussing option 1, but are not repeated in DEIS sections 3.8.2.2,3.8.2.3,3.8.2.4 or 3.8.2.5 discussing options 2 through 5.

DEIS section 3.8.1.1, pg 63, states that changes to the signals at the railroad crossing of Valley View Drive would likely be required. This should be expanded to state that geometric/alignment changes to the roadway of Valley View Drive at the railroad crossing would also be required.

Response: *The FEIS describes the return routes and the geometric/alignment changes.*

DEIS figure 3-12 should be replaced with a more current photo showing the % access configuration.

Response: *A current photo has been added to the FEIS*

DEIS figure 3-15 has the TH 169 NB and TH 169 SB labels switched.

Response: *CH2M HILL has revised these labels in the FEIS.*

DElS section 3.8.1.1, pg 72, states that peak hour turning counts were not available for the intersection of TH 21 and TH 282. Turning counts should be obtained for this intersection rather than using estimated counts.

Response: *CH2M HILL addressed the issue of traffic counts at this intersection in the FEIS.*

DEIS section 3.8.1.1, pg 78, 'Consequences of Alternative' discussion should be expanded to include the signal changes and geometry/alignment changes needed at the railroad crossing of Valley View Drive.

Response: *Changes were made in the FEIS as proposed.*

DEIS section 3.8.2.2, pg 80, should be expanded to reference the fact that the EAW states that the IRC Management Plan developed by MnDOT envisions that over time access points to TH 169 would be limited and key intersections converted to interchanges and overpasses. This option 2 discussion should state that permits from MnDOT would be required and that a permit for the U turn construction may not be issued by MnDOT due to the IRC Management Plan. Also note the comment contained in DEIS section 3.8.3.5 , pg 87, stating that MnDOT may eliminate median openings when deemed unsafe .

Response: *Section 3.8.2.2 in the EIS refers to MnDOT comment that Option 2 may not be compatible with future MnDOT access and safety projects, which will eliminate median openings and reduce direct access. The draft EIS also states that MnDOT may eliminate median openings when deemed unsafe, we believe this informs the public of the MnDOTs permitting authority.*

DEIS section 3.8.3, table 7, pg 85, - The asterisk note at the bottom of the table should be revised to state that the cost includes $100,000.00 to upgrade the northen portion of Valley View Drive to 10 ton standard.

Response: *Changes were made in the FEIS as proposed.*

Mitigation under Options 4 and 5 should list the need to construct an additional lane on the TH 169 bridge north of the TH 282/TH 169 intersection.

DEIS section 3.8.3.4 , pg 86, mitigation discussion for Option 4 should be revised to include the need to construct an additional lane on the TH 169 bridge north of the TH 282/TH 169 intersection.

Response: *Changes were made in the FEIS as proposed.*

DEIS section 3.8.3.5, pg 87, mentions two additional truck routings suggested by MnDOT. These routings should be reviewed and discussed in greater detail in the draft EIS given MnDOT's apparent objections to the preferred altemative, Option 2. Each of these additional options has traffic and noise impacts that should be investigated.

Response: *CH2M HILL added alternative #6 that includes U-turn on TH 21to the traffic analysis.*

Other Sand Creek Township comments and issues:
A development agreement will be required to address issues of Township concern with the proposed Jordan Aggregates operation including costs for maintenance of Valley View Drive and 173rd Street.

Response: *The County acknowledges the Township's authority for Valley View Drive and 173rd St..*

Carl Day
310 Valley View Drive East, Jordan (public meeting court reporter)

Concern number one is the truck traffic with noise and uncovered loads. I think that when they tested they used trucks that were brand new and not filled in October of last year, and that's not a true reading. They are going to be using trucks that are not kept up to par and not the newer trucks because they are going to go ahead and let out bids, and they are going to use the cheapest bid in order to transport their gravel. Number two, the dust and dirt along the route if it goes through Valley View Drive will be unbearable in the summertime for those of us that live on the road. Number three, it is a city street, and it is paid for by the residents that live on that street. If they want, they need to build their own road or enter into an agreement to maintain repair and keep up our road. I believe that this whole project has been undermined by county officials in order to make money for them through the gravel tax and for the township, and, if that is the case, then, they should pay for damages done to the people that are affected by this.

Response: *As stated in the noise study conducted for the DEIS in October 2012, three Scott County haul trucks and one S.M. Hentges haul truck were used. The County provided haul trucks that were loaded and of varying ages.*

As a condition of the mining permit, the portion of Valley View Drive that S.M Hentges intends to use will have to be upgraded to a 10 ton road, therefore it must be paved. This will reduce the dust not only from the haul trucks but from existing traffic. Road maintenance issues relative to a new major truck user required to obtain a land use permit are generally negotiated between the developer and local road authority and made a condition of the use permit. This has not occurred to date and remains an unresolved issue.

Lou Pearson
240 Hooper Court, Jordan

In regards to 3.8.1.2 (Analysis of Existing Safety, Crash Records), this section is irrelevant because it was made a ¾ Access in 2012, the crash records are from 2007-2011, and don't apply. The intersection from 173rd St. is a right turn only, the rating should be "Few Safety Risks, "+". Also, this section complains about a railroad crossing on 173rd St. This set of tracks is rarely used, however the tracks by the mine site and Co. Rd 9 (which would involve trucks crossing twice) has high use, and has been the site for at least two fatalities and one injury in recent years. Yet there is no regards given to the true safety risks regarding the truck safety and railways. It could be concluded the reason is a bias or slant, not the truth.

Response: *CH2M HILL reviewed train crashes in the area to confirm crashes and had included additional discussion of increased interaction between heavy vehicles and trains, and added discussion on number of daily trains on the two railways.*

3.8.2.1, Traffic Consequences of Alternative Option 1: The EIS document does not address the noise pollution, roadway condition, or safety on Valley View Dr. in city limits, or the Co Rd 9 / Valley View Dr. intersection. The truck traffic will be turning left from Valley View Dr. onto Co. Rd 9, which is a very limited sight line for both street and roadway. If you have a fully loaded tractor trailer pulling very slowly onto a high traffic roadway from three directions, you can expect there will be a very high safety risk. Not hardly a mention in the EIS. This is totally unacceptable unless Valley View Dr. at this location is excluded from consideration.

Response: *The Valley View Drive route was evaluated in the EAW including noise assessment. CH2M HILL did note problems with the sight lines at Co. Rd. 9 and has offered suggestions for improvements. However, improvements to Valley View Drive and intersection improvements at Co. Rd. 9 have not been discussed with the local road authorities. Recognizing that Sand Creek Township has proposed to post a 5 ton limit on the gravel portion of Valley View Road between the proposed mine site and the City of Jordan the issue of the use of Valley View Road as a truck route has not been resolved. It is noted that empty trucks may still be able to legally use this route to the mine; some of the expressed concerns remain unresolved.*

3.9 Impacts to Noise

City of Jordan

The Draft EIS illustrated the potential for adverse noise impacts at the intersection of TH 282 & TH 21 should alternatives 3 or 4, as defined in the traffic study, be used for routing trucks. The City is unwilling to accept the adverse impacts which would add to an existing noise problem exceeding noise standards.

Response: *The purpose of the EIS was to identify impacts and for the developer to propose mitigation. The impact of noise at this intersection was identified. The developer has proposed to use another truck routing option in lieu of alternatives 3 or 4. If the other truck route options become unavailable the County would need to consider the implications of permitting a use that has been demonstrated to result in the further exceedance of State Noise Standards at an impacted receptor along a truck route proposed by the developer to serve his mine.*

Jodi Anderson
5326 Circle Drive, Jordan (public meeting court reporter)

I have mainly three concerns that I didn't feel I got good enough answers for. One was the noise level that's going to come from either the traffic and as well as the permanent equipment out here. I do work from home, and I'm on conference calls pretty much ten hours a day, and with the increase in noise I am concerned about that disrupting my life as well as actually my quality of life living in the country. So, I don't feel that they answered that question clearly, and I also am concerned about it actually disrupting it. That would be the first concern. The second concern also has to do with noise, but it has to do with nighttime noise. They are talking about it running 24/7, and I would be concerned about the noise level occurring at night, as well; and that I would like to note if that's going to be written up in the conditional permit that they limit nighttime work. So, that would be the second one.

Response: *A noise analysis was conducted to determine the potential for exceedance of the State Noise standards at several locations along the potential alternative truck routes noted in the EAW or EIS. With the exception of the intersection of TH 21 and TH 282 where it was found that current conditions likely exceed the State Noise Standards all other locations studied were found not to be at risk for exceedance of the noise standards from proposed truck traffic. Regarding the potential for exceedance of State Noise standards resulting from operational activities and equipment at the mine itself, an analysis was presented in the EAW relative to the closest receptors to the mine and based upon the assumptions used in the assessment it was not believed that the State's noise standards would be exceeded at nearby receptor locations. Regardless of the modeled or assessed findings the mining operation would not be permitted to exceed established State noise*

standards during operation. Conditions can be imposed in an IUP that are stricter than regulatory standards to address concerns. Similar concerns were expressed for Great Plains Sand's night time operation related to equipment back up alarms which although did not come close to exceeding the State's night time noise requirements, were acknowledged to be a nuisance disturbance that was addressed in their IUP. Alternative back up alarms were required for Great Plains Sand to reduce the audible noises above background noises in the area. Similar conditions will be recommended for consideration for the IUP to address likely night time disturbance impacts on the Juvenile Alternative Facility and residences adjacent to the mine. Concerns about night time truck related disturbance, which although it might not exceed State noise standards can be discussed and considered to address concerns of affected receptors. Since night time operations will require an additional permit (and would be of short duration anyway) such permits can be denied. The issue of night time operations at the mine and related trucking, though noted as a possibility in the EAW and EIS, are not directly connected to the initial permit for which the EAW and EIS were prepared. It should be noted that the County is not currently prepared to monitor noise to enforce state standards should complaints be received. Consideration of any requests for night time operation will include an assessment of the potential for exceedance of the State's noise standards, which are more stringent for night time, as well as nuisance or disturbance noises which might not exceed state limits but might present a nuisance disturbance concern for neighbors. This issue will need to be further resolved should this project proceed to consideration of an IUP.

Does not feel that the EIS addressed her quality of life disruption caused by truck and mining operation noise.

Response: *The EAW and EIS assessed noise impacts relative to the State's Noise standards. The studies conducted for both the EAW and EIS addressed the possible violation of the State's Noise Standards at locations deemed to be most at risk. State Standards set the limiting levels of noise established for the preservation of health and welfare of Minnesota residents, by preventing unacceptable levels of annoyance, speech interference, and sleep interferences caused by environmental noise sources. The mine operation is not predicted to exceed those levels, and the truck operations should not exceed those limits during daytime hours of operations. Concerns about impacts such as quality of life disruption for neighbors of a proposed development are just as valid, however, in an environmental review as compliance with established laws. However, they are difficult to quantify. That is why public comment is such an important step in the Environmental Review process. Concerns such as this are as important for consideration in the IUP process as are similar concerns about visual screening and the appropriateness of potentially conflicting land uses. The IUP should consider concerns about backup alarms as well as the quality of life, disturbance comments received.*

She is concerned that the mine would operate 24/7.

Response: *The developer stated in the EAW and DEIS that the mine will only operate during daytime hours, and the noise consultant has suggested that the truck traffic be limited further from 7:30 a.m. to 9:30 p.m. The developer has indicated that they may wish to apply for a short term permit to operate a temporary asphalt and/or concrete plant with associated trucking at night. However, the impacts from such operations were not evaluated in the EAW or EIS and would need to be addressed through a separate IUP application and subject to public comment and County Board approval.*

Lou Pearson
240 Hooper St, Jordan

Regarding Truck Noise Tests: The noise tests failed at most locations tested and it can be assumed would also fail in the residential Brentwood section of Valley View Dr. if Option 1 was considered. The EIS fails on many

counts regarding the Valley View Dr. in the Brentwood residential neighborhood, by not submitting to most, if not all the issues concerning the gravel pit, asphalt and concrete plants, including truck traffic, like it did for other considerations. Again, there seems to be a bias.

Response: *The noise tests actually indicated that State noise standards would not be exceeded by the trucks from the mining operation at any of the likely locations that were evaluated based on the assumed number of trucks during daytime hours. Recognizing that the sites tested were on a proposed truck route, it is unlikely that State noise standards would be exceeded at the commenter's home unless trucks took a shortcut via 9th St. W. to access County Road 9 to and from an aggregate market in that direction. The County acknowledges that it does not have the ability or authority to limit truck traffic on public roads nor currently, the ability to monitor noise.*

3.10 Cumulative Potential Effects

Minnesota Department of Health
Section 3.10.4 (page 99) – The text should be revised to incorporate discussion of the well at 18020 Valley View Drive (and any others identified by a comprehensive well survey).

Response: *This will be included in the final EIS.*

Sand Creek Township

Severely missing in the DEIS is any comprehensive overview of the proposed mining operation's impact and cumulative effect of the sum of each potential environmental impact issues that will likely occur. The Town Board is aware of the engineering input in the preparation of the DEIS, but it is shallow and lacks comprehensiveness. Where are the Natural Resources (DNR) and Community Planning Department's views, particularly from the State of Minnesota, Scott County and the City of Jordan? The DEIS, as written, is in dissected, disassociated pieces of potential issues with mitigation pertaining to the singular issue itself. We need the DEIS to present a comprehensive view that looks forward into the future!

Response: *The DEIS is intended to meet the environmental review requirements of the Minnesota Environmental Quality Board. As part of these requirements, certain cumulative effects are evaluated. However, an EIS is not intended to be a regional planning document. Minnesota rules provide another mechanism for regional environmental impact assessment and planning – the Alternative Urban Areawide Review (AUAR). An EIS focuses on a specific project whereas an AUAR provides for regional environmental planning. Staff will prepare a report for consideration by the Scott County Planning Advisory Commission and County Board to use in their consideration of the Interim Use Permit. That staff report will summarize the potential impact identified through the environmental review process, discuss the efficacy of proposed monitoring and mitigation and recommend securities to be required of the proposer to ensure that monitoring, mitigation and other proposed requirements will be implemented even in the event that the project is commenced and ceases prematurely.*

4.0 Summary of Mitigation Measures

City of Jordan

The City of Jordan understands that the project proposes to generate aggregate products available for commercial sale and will be exported from the site by trucks at a rate of 10,000 round-trips per year and up to 110 round-trips per day during periods of peak demand. The City further understands these figures were provided by the developer. These figures should be incorporated into the future IUP as maximums allowed. As these figures were used as maximums in the EIS as well as former documents for consideration of environmental impact, exceeding these limits would potentially imply additional environmental impacts not previously undergoing review by the project stakeholders or public.

Response: *Staff agree and will recommend that the proposed intensity of the project as stated in the EIS be used to establish constraining conditions for the IUP to ensure that impacts do not evolve to be greater than what was evaluated.*

The EIS does not acknowledge the possibility for the proposer to go out of business after initiation of on-site activities but before final reclamation. The proposer should be required to post bonds to address this issue or the mitigation should be otherwise identified in the EIS.

Response: *Staff agree and will recommend that appropriate securities be established to ensure that required reclamation, monitoring and other activities established as conditions to the IUP can be accomplished in the event that the mining operation closes prematurely.*

The City of Jordan is opposed to the developer's use of the site for production of asphalt materials. While the potential for oil leaks and spills may be consistent with other asphalt plants, the installation of an asphalt plant is adjacent to the exposed groundwater aquifer. The EIS does not provide any proposed mitigation for the removal of oils as a result of such potential spills and the City must assume such removal after a spill is not feasible. The City finds the potential for irreversible environmental impact s associated with an asphalt plant at this site to be unacceptable. The proximity of the asphalt production facility with respect to Sand Creek is also of concern. As the Creek will now be more subject to flooding due to ice jams, the asphalt plant will be more at risk to flooding and is therefore an unacceptable threat to the surrounding environment.

Response: *The Minnesota Department of Health had commented on a similar concern in the EAW and that issue will (if the project proceeds) be addressed by requiring that all asphalt and waste concrete operations be conducted on impervious surfaces with stormwater collection systems and located out of the 100 year flood plain. The potential for contamination from flood events of Sand Creek, which receives both agricultural and urban runoff presents a more significant threat to the aquifer once the mine pit extends through it. Staff recognize that the concern raised by Jordan is valid and note that there has been no mitigation proposed to address degradation of the aquifer itself.*

Other comments have noted concerns about night time operations that would likely be requested in conjunction with a temporary asphalt (or concrete) plant. Recognizing that neither plant noise, night lighting impacts, air pollution, or night time truck traffic impacts have been evaluated in the EAW or EIS, any future decisions relating to permitting of such operations would need to evaluate these potential impacts and address them in an appropriate manner. The developer did not provide any description of such activities to enable an environmental assessment of potential impacts.

Minnesota Department of Health

Section 4.2.1 (page 101) – The text should be revised to incorporate discussion of the well at 18020 Valley View Drive (and any others identified by a comprehensive well survey).

The document assumes that contamination of wells due to flood waters migrating away from the mine/lake will impact only those wells completed in the Quaternary aquifer, and proposes to mitigate potential problems by replacing Quaternary drinking water aquifer wells with wells completed in the Franconia-Ironton-Galesville (CFIG) aquifer, which would not be affected by migrating floodwaters. While the groundwater modeling appears to support this, direct evidence is a better guarantee of protecting the quality of nearby water supply wells. MDH recommends that monitoring wells completed in the Quaternary and CFIG aquifers be installed downgradient of the mine/lake to provide early detection of any contaminants that may be migrating away from the site. MDH also recommends that any CFIG well installed to replace a quaternary well on properties near the mine be tested for manganese and, if detected at levels above MDH guidelines, appropriate water treatment be provided. MDH further recommends that all drinking water wells located downgradient of the site be sampled before mining activities begin and the samples analyzed for pH, total coliform bacteria, nitrate, and DRO to provide a baseline measurement of water quality in those wells.

Responses: *A revised ground water monitoring and mitigation plan will be included in the FEIS.*

The reclamation plan as described on pages 20-24 does not specifically state whether any of the backfill material will be placed in the deep mine area, to provide any filtration cover for the CFIG aquifer. The post-reclamation plan provided in the EAW (Sheet 4) indicates the final elevation of the base of the lake will be 600 feet above mean sea level (msl), which is the anticipated excavation depth and approximately the depth to the top of the CFIG. Based on these plans, it appears that there will be no cover above the CFIG which is the main drinking water aquifer for this area. This provides even more support for the need to monitor water quality in the CFRN/CFIG downgradient of the mine/lake.

Response: *A revised ground water monitoring and mitigation plan will be prepared as part of the FEIS.*

The developer proposed on July 19, 2013, that the mining operation would stop short of the top of the Franconia by 10 feet. However, there are insufficient soil borings to identify exactly where the top of the Franconia is under the site and it will be virtually impossible to monitor this during mining operations. It has been the experience of staff, observing numerous mining and excavation operations in the past that the interface between glacial till deposits and bedrock is often a mixture of till and regolith. This material is difficult to excavate through and likely would pose an impediment to dredging anyway. The efficacy of regolith as a confining or filtering layer between the excavated pond and the underlying bedrock is questionable. Recognizing that the Franconia may be intermittently a discharging and receiving formation beneath the excavated pond, hydraulic connectivity between the pond and the Franconia is assumed.

According to the "End Use Plan" (Section 2.1.7; page 24), following reclamation of the mine the property is intended to be used for residential development. The EIS fails to consider potential impacts to the lake water quality from such development. This is important since the bottom of the lake will be open to the CFIG drinking water aquifer. For example, will these lots be sewered, or will they have private underground septic systems? What stormwater controls will be in place to prevent contaminated runoff from entering the post-reclamation lake? What potential impacts might be expected from use of lawn and household chemicals at these properties? By leaving a direct conduit to the area drinking water aquifer, a higher degree of planning and management is required to ensure the future water quality in this area. MDH recommends that the monitoring

network recommended above be maintained beyond the reclamation of the site and that samples be analyzed on some regular basis for pH, chloride, nitrate, total coliform bacteria, metals, diesel range organics (DRO), and gasoline range organics (GRO), and if monitoring indicates groundwater contamination has occurred, the wells should also be tested for volatile organic compounds (VOCs) and pesticides.

Response: *A preliminary ground water monitoring plan was presented in the EAW but was not updated for the DEIS. Staff agree with the concerns raised by MDH relative to future land use and the potential for impacts to the CFIG through the open expression deep into the quaternary aquifer. However, staff note that such concerns related to two future residences with code complying subsurface sewage treatment systems and relatively minor risks from lawn chemicals are minor in relation to the impacts likely when Sand Creek floods and flood water from a 300 square miles watershed containing agricultural, urban runoff and Jordan's waste water treatment plant discharges are introduced directly into the mine pit lake and the hydraulic head on the CFIG is possibly temporarily increased due to the flooding. Staff would note that no mitigation has been proposed for this acknowledged potential degradation of the quaternary aquifer or for potential impacts to the top of the CFIG. The updated monitoring and mitigation plan provided by the developer has been included with the FEIS.*

The need for monitoring beyond the period of reclamation will be addressed in the updated monitoring and mitigation plan with sufficient up front funding proposed to cover costs for monitoring and mitigation.

Air Quality

Silica exists in two forms: amorphous and crystalline. The toxicity of crystalline silica to humans has been well characterized. In occupational settings where exposures tend to be higher than ambient exposures, silica is capable of causing a number of diseases. The best known disease is silicosis (silicotic nodules and fibrotic scarring of the lung), but exposure to crystalline silica is associated with other health concerns. Silica exposure contributes to other diseases of the lung including emphysema, chronic obstructive pulmonary disease, tuberculosis, and lung cancer. Silica exposure has also been associated with several diseases of the renal and immune systems.

When discussing the toxicity of silica, the real concern is with respirable crystalline silica particles with a diameter of 4 micrometers (4 μm or 4 microns) or smaller. Particulate matter 4 microns or smaller is referred to as PM4. Particles this small are invisible to the naked eye. PM10 (particulate matter 10 microns or smaller) is respirable but the fraction of PM10 larger than 4 microns only reaches upper levels of the respiratory system. Particles 4 microns or smaller can travel much deeper in the lungs and reach the lower respiratory surfaces (alveoli) where the changes that produce silicosis take place. Disease risk is related to both the levels and duration of silica exposure and the onset of disease may occur long after the exposure has ceased.

The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) has used information from occupational studies to develop a chronic reference exposure limit for silica in ambient air of 3 μg/m3. The MPCA has requested that MDH develop an exposure limit for respirable crystalline silica in air. MDH staff are currently developing this exposure limit, which should be available mid-2013. In the interim MDH has suggested that the MPCA use the OEHHA value of 3μg/m3 for screening purposes.

MDH has little to no information on the levels of respirable silica generated by frac sand mining or processing. MDH has not been provided with any information on the ambient levels of silica that result from frac sand mining operations. MDH is aware of air monitoring plans for ambient crystalline silica associated with several frac sand mining facilities in Wisconsin and these results could be applicable to assessing potential risks posed by proposed facilities in Minnesota.

The EIS does not discuss dust or dust suppression and does not provide an assessment of air quality impacts associated with dust. There is only a cursory discussion in the EAW for this project. There is also no consideration of combined air quality impacts of the three mines proposed in this area (Jordan Aggregates, Great Plains Sand, and Merriam Junction).

Response: *This issue was not within the scope of the DEIS and was addressed in the EAW. Since completion of the EAW for this mine proposal, the Great Plains Sand operation was permitted and has been required to develop an ambient air quality monitoring plan, install permanent monitors, a weather station and conduct routine monitoring. It is also noted that the Jordan Aggregate's proposed mine will excavate and process sand and gravel not pure silica sand. However, since completion of the EAW and preparation of the scoping document for this project, the issue of silica dust has emerged as a significant concern in south eastern Minnesota. The response to this concern may justifiably result in increased state and local regulation of other mining operations where there is a potential for silica dust emissions. According to an expert at the Minnesota Geological Survey, alluvial deposits of sand and gravel in this area may contain from 50-70% quartz which is silica. Crushing and screening of this material will release silica dust. Recognizing that mining operations in the vicinity of one another can individually add to cumulative impacts in the local area staff acknowledge the benefits of additional ambient air quality monitoring for this facility and will work with the MPCA to develop a monitoring plan to be recommended as a condition to the IUP should this project proceed. This is especially relevant for this site since it is immediately adjacent to two public facilities, one a residence facility for youth and the other a training facility for police and fire fighters. In addition there is a nursing care facility less than a mile north which will be impacted by all of the outgoing gravel trucks. Dust monitoring should be considered, therefore at the mine site and the IUP should require that all loaded trucks be covered.*

Truck traffic

Trucking from the expansion, estimated to be 220 truck trips per day, will put significant burden on the streets used for hauling the silica sand and the surrounding community. Increased truck traffic has potential to increase vehicular and pedestrian injuries. Additionally, trucks emit PM and chemicals that with acute or long-term exposure can exacerbate respiratory and cardiovascular disease, and can increase the risk of asthma, allergic diseases, bronchitis, impaired respiratory function, pneumonia, cardiopulmonary diseases and cancer. Reviewing truck routes to prevent exposure of sensitive populations to pollutants, such as schools or assisted living facilities, is recommended. Truck routes can be changed to alleviate the risk of exposing sensitive populations to these risks. Emergency routes also should be reviewed to ensure that increased truck traffic does not interfere with timely responses of emergency vehicles such as ambulances and fire trucks.

Response: *The silica sand mines proposed for this area are both indicating a preference for rail transport of their product. The MPCA allowed in the Air Quality permit for Great Plains Sand their transport of silica sand in open rail cars. The Union Pacific Railroad serving the two silica sand mines in Scott County and several more in counties south of Scott County runs adjacent to this project site. It is also acknowledged that both of the silica sand mines (one permitted and one in the process) are proposing that they may truck some silica sand. Trucks from this mining operation will use some of the same regional roads as those from the other mining operations. The primary route proposed for Jordan Aggregates passes the Valley View Nursing Home. The railroad serving the silica sand mines runs adjacent to this nursing home as well. The nursing home is likely the most sensitive receptor of dust in the immediate vicinity. Concern for dust problems from the trucks can be addressed by requiring all trucks leaving this proposed mine to be covered. Similar conditions were placed on all trucks from Great Plains Sands in their Air Quality permit. Staff will recommend a condition for the IUP that all loaded trucks leaving the proposed mine be covered.*

Health Impact Assessment

A Health Impact Assessment (HIA) is a research and community engagement process that can be used to help ensure that people's health and concerns are being considered when decisions on infrastructure and land use projects are being made. The National Research Council defines HIA as "a structured process that uses scientific data, professional expertise, and stakeholder input to identify and evaluate public-health consequences of proposals and suggests actions that could be taken to minimize adverse health impacts and optimize beneficial ones." HIAs have been used to provide important health information to decision makers on a wide range of projects outside the typical health arena, including comprehensive plans, brownfield redevelopment, transportation projects, energy policies, and housing projects. Over 100 HIAs have been performed in the US to help improve public health. Ten HIAs have been completed in Minnesota, mostly on comprehensive plans and transportation projects.

In Colorado, an HIA was undertaken to access health impacts associated with a hydraulic fracking project proposed in that state. However, to date, no HIA has been used to evaluate frac sand mining in the US, but HIAs have been used to inform decision makers about additional health effects in projects that have some similarities, including oil and gas leasing, coal mine proposals, and copper, zinc and gold mining. These HIAs may review health issues that are typically included in an EIS, such as water and air quality, but they also review additional health effects that are related to the specific site and community. Some health effects considered in these HIAs include reviewing the health effects of newly built infrastructure and traffic to support mining, the influx of migrant workers, and the disturbance of food sources relied upon by subsistence cultures.

An HIA on silica sand mining could provide additional health information for policy makers in determining how to balance health and citizens' concerns with the economic benefits of silica sand mining. Ideally, the HIA would include an air monitoring study, but this requires significant time and resources. An HIA could be scaled according to available resources and still answer some of the health questions posed by the community. An HIA could provide recommendations to policy makers to support possible positive health outcomes and to mitigate or prevent possible negative health outcomes to improve the public's health and to inform zoning, permitting, monitoring, and reclamation policies

Response: *The EAW and EIS process can and we believe has accomplished some of the same goals as a Health Impact Analysis to the extent that these reviews were designed to consider human health impacts in addition to environmental impacts. There are no legal requirements for subjecting a private development request to a HIA but there are for an EAW or EIS.*

Summary of Recommendations:

- A comprehensive well survey is needed.
- Reassessment of potential risk to nearby drinking water wells and possible mitigation actions, based on the results of the well survey.
- Installation of monitoring well network to provide early detection of contaminant migration in the Quaternary and CFIG aquifers.
- The acronym JAF needs to be defined and the "JAF" well needs to be clearly identified on a figure and by its unique well number.
- Monitoring of water quality should continue beyond the reclamation of the property and include pH, chloride, nitrate, total coliform bacteria, metals, DRO, and GRO, and if monitoring indicates groundwater contamination has occurred, the wells should also be tested for VOCs and pesticides.

- Any CFIG well installed to replace a quaternary well on properties near the mine should be tested for manganese and, if detected at levels above MDH guidelines, appropriate water treatment be provided.
- Collect baseline samples from downgradient drinking water wells.
- Provide an assessment of air quality impacts associated with dust.
- Provide an assessment of the potential for cumulative air quality impacts associated with the three mines proposed in this area (Jordan Aggregates, Great Plains Sand, and Merriam Junction).
- Project operation should include a plan to monitor for respirable crystalline silica on a regular basis.

Health starts where we live, learn, work, and play. To create and maintain healthy Minnesota communities, we have to think in terms of health in all policies. Thank you again for the opportunity to provide comments on this EIS. Please feel free to contact Michele Ross at (651) 201-4927 or michele.ross@state.mn.us if you have any questions regarding this letter.

Response: *Staff agree with and will address each of the MDH recommendations above. Specifically, the well inventory will be updated in the Final EIS, a ground water monitoring plan will be requested for inclusion in the FEIS; including baseline monitoring and testing for water quality in the replacement CFIG wells. The JAF acronym which stands for Juvenile Alternative Facility will be explained in the FEIS. An air monitoring plan including TSP, PM4 and respirable silica along with an onsite weather station will be prepared in consultation with the MPCA and requested of the developer as a condition of the IUP.*

Scott County also recognizes the importance of ensuring "Safe, Healthy and Livable Communities" and has established this as a fundamental goal. Should staff believe that this project cannot be assured to meet this goal, staff will recommend denial of the project.

Jodi Anderson
5326 Circle Drive, Jordan (public meeting court reporter)

And, then, the third was that they did not address the reduction in property values of the people who live close to the mine, and that they did not take that into consideration. That was confirmed. They haven't even looked at that; and, so, I would like to have that addressed by someone, the property values. I think that's actually my three concerns.

Response: *According to the County Assessor, they have not seen a reduction of property values related to new development such as pipelines, high voltage power lines or gravel mines near residential property. There are many variables that affect purchasing decisions. They admitted that such nearby impacts may discourage some buyers and extend the time it takes to sell a house. However, such impacts are beyond the scope of an EIS to evaluate in advance of a specific project.*

Rick Beise
200 Valley View Drive Jordan (public meeting court reporter)

My main concerns when I came here was about the truck traffic. I don't want it going past Valley View Drive or going down Valley View Drive; but now that I have listened to this stuff, he's going awful close to the aquifer. I disagree with that. I think there should be -- I don't know -- there should be something done about it. It's not right. More studies.

Response: *It should be noted that truck traffic on Valley View Drive cannot be precluded through the IUP. This is a public road with existing truck traffic. The Township has said it will be posted for 5 tons, which will possibly reduce the number of loaded trucks, but empty trucks and trucks ignoring the posting limits will likely still use this route if it is the shortest option. Jordan has said that Valley View Drive is not constructed to sustain the addition of the proposed number of trucks and opposes this as a truck route, but whether or not this can be enforced remains a question. The concern about the impact to the aquifer has been addressed in response to other comments.*

Chris Boemer
601 Hooper Ct. Jordan (public meeting card)

Valley View road is a residential street and not a truck route. There are many other routes that are safer roads like 21 or 169 use your head.

Response: *See previous response.*

Travis Cherro
18200 Valley View Drive, Jordan

Is the county going to regulate the decibels of the trucks coming into the pit? Is it going to be put on into the permit as the noise expert stated to have all the trucks tested that come into the pit and if they do not pass the test they must fix it before coming back to the pit? Also if they do not pass are they going to be allowed to take a load out of the pit?

Response: *Scott County currently does not have the ability to conduct noise testing. Local governments often do enact noise ordinances, train staff and procure testing equipment. Such programs are generally adopted by municipalities, however, rather than counties. The City of Jordan does have a noise ordinance and can regulate truck noise within the City. Motor Vehicle Noise Limits are also regulated by the Minnesota Pollution Control Agency in 7030.1040 Minnesota Administrative Rules.*

How is this going to effect our house value?

Response: *See previous response to a similar comment.*

Where is Hentges coming up with the numbers of trucks coming in and out of the pit? It seems it's on the low side for the middle of summer. Especially if they are allowed to be open till 9:30 p.m.

Response: *Developers are required to describe their projects including the estimated number of trucks etc. The County may impose conditions through the IUP to limit the number of trucks associated with a project to the number stated in their application.*

How are they going to be monitoring the water quality? Will they be testing individual homes or just there monitoring wells? Who is responsible for how often they will be testing the wells? What houses will be tested?

Response: *An updated ground water monitoring plan will be prepared and distributed for review and comment in the FEIS.*

Margaret and Steve Gallentine
5325 Circle Dr, Jordan

Wells

Will our well be tested?
How often?
Who will pay for testing?
What pre-cautions are being taken to avoid incident such as tainted water?
Who will pay for any incident that may occur?

Response: *See previous response to this concern.*

Neighboring Roads – Valley View Road – Circle Drive – Highview Drive

Will Valley View Road, Circle Drive and Highview Drive be paved and maintained?
Who will pay for that?
What is the maintenance schedule?

Response: *Paving and maintenance of these roads is the responsibility of the local road authorities. These issues can possibly be addressed in the IUP, since this proposed mining operation will undoubtedly result in additional truck traffic and thus impacts to these local roads. The local road authorities, the City of Jordan and Sand Creek Township, will likely submit comments during the IUP process and can note the need for road improvements and ask that appropriate conditions be included in the IUP to require the mine proposer to participate in such improvements. If the issue about Valley View Drive in particular is not addressed to the satisfaction of the local road authorities it will undoubtedly reflect their recommendations to the Scott County Planning Commission and County Board relative to the County's consideration of the IUP for this project.*

Dust

How much dust will be generated from the pit?
What actions will be taken to avoid the dust?

Response: *The EAW explained that the mining operator would use best management practices to control dust. However, the Minnesota Department of Health has recommended that ambient air quality monitoring also be required. Staff, will, as noted above, work with the MPCA to develop a recommended air quality monitoring plan to recommend as a condition for the IUP.*

Revenue

Will we see a property tax break?
Suggestion – the county uses part of the gravel pit revenue and pay our property tax every year the gravel pit is in operation
Where will we see the revenue be spent?
How will we benefit from the revenue generated by the gravel pit?

Response: *Gravel tax revenue must be spent in accordance with the enabling laws for this tax. To the extent that local road improvements are needed that can now be funded in total or in part by the collected gravel tax it could result in lower assessments for benefited parcels. Property taxes are established on the basis of property valuations, which are determined by reviewing recent sales for similar properties in the local area.*

Operations

What are the hours of the gravel pit operations?
What are the days and months the gravel pit will operate?
Suggestion – please don't have the truck running earlier than 7:30AM and no later than 5:30PM. We need peace, that is why we live here.

Response: *The proposed hours of operation were stated in Section 6 of the EAW and noted again in the DEIS. The IUP will actually establish the allowable hours of operation.*

Opportunities

Are there job opportunities for this community

Response: *The EAW and EIS indicated the number of employees that would be needed for the proposed mining project.*

Pete Giancola
18281 Sioux Vista Dr E, Jordan

The following are some of the suggestions that other Gravel mines are using to reduce or minimize their impact to residents from their ongoing operations. Along with some of the procedures they are using which Scott county is currently not using to identify potential issues.

Here are some other questions as well:
Who will ascertain that the bond held would provide enough monetary resources for an immediate remedy to an issue occurring 10-25 years out into the future. Who monitors the effects of inflation to the amount of the bond needed or what interest rate is being applied to the bond? (I.e. would the bond cover the cost for just connecting to a water source for one well within 20 feet or 300 wells within 3 miles?
How long will the bond be held in escrow and how does a resident have access to the bond?
What are the requirements for quality of the bonding company? Which rating agency - agencies would apply? (AM best, moody's duff and phelps act.)

Response: *Issues related to required financial security to ensure that required activities such as monitoring and mitigation occur are dealt with in the IUP process. The County Attorney's office and County Risk Management provide advice to Planning staff in setting the appropriate amounts and identifying the appropriate financial instruments. The findings of the EIS will identify issues needing to be addressed and present associated costs.*

What procedure is in place and what length of time would be required for residents and what proof would they need should there be an emergency situation (IE your well becomes contaminated or dry)
Would the County provide water trucks within a specified period of time frame such as two-days?

Would the county force a connection to the city of Jordan in conjunction with the DNR with water lines above ground?
How long would it take the county to replace the water sources needed by the residents?

Response: *Since the potential for a nearby well going dry or becoming contaminated was identified in the EAW and EIS this issue will be dealt with in the IUP as a condition. A ground water monitoring plan will be updated for the FEIS and the issue of the financial assurance mechanism to assure such responses can occur in a timely manner will be dealt with in detail during an IUP process.*

what procedures would be in place should the entity that Hentges is putting in place for the gravel Mine go out of business or go bankrupt for covering these costs? Would the remedies have to wait until someone is deemed legally liable as things wind through the court system?

Response: *The environmental review process (EAW and EIS) help to identify environmental monitoring and mitigation to address identified impacts. The actual dollar amounts associated with ongoing monitoring and mitigation will also be identified in the FEIS to enable comments on the appropriateness of the level of effort proposed to address identified potential impacts. For those potential impacts that are expected to continue past the cessation of mining activities that will have associated ongoing costs, such as monitoring of impacts to the aquifer that have been identified in the EIS as concerns, and associated mitigation, sufficient securities will need to be identified and stipulated in the IUP. It has been acknowledged by the County and by the proposer that some of these issues will be particularly challenging. The amount of and type of security required to provide financial assurance for completing all required improvement, monitoring, mitigation or reclamation actions is dealt with during the IUP process and/or a developer's agreement with all involved parties.*

What contingency plan is available for review by the public?

Response: *The EIS identifies proposed environmental impacts and mitigation offered by the developer in response. Contingency type actions are actually called mitigation plans. Every potential environmental impact that is identified suggests the need for a mitigation plan to identify how the impact can be reduced or eliminated. Some impacts are not immediately evident such as ground water contamination so monitoring plans are also often required to afford early detection of emerging impacts and provide advance warning to commence mitigative actions to prevent harm. Both monitoring and mitigation plans have been presented in the EAW and EIS and open for review and comment.*

What set of criteria need to be met in the event a well is compromised by the Gravel Mine, What proof would be sufficient without a legal battle?

Response: *The revised ground water monitoring and mitigation plan which will be prepared as part of the FEIS will address this concern.*

Who in the County would make the determination when the testing wells and the length of time they are monitored would be sufficient? In speaking with the BARR hydrologist he indicated that the minute that the mine had removed all of the gravel the wells would be discontinued for monitoring. Really? when the holding pond is completely excavated and full of contaminated water that is when it needs to be monitored the most for at least 5 years if not longer. That is when the contamination possibility is the greatest.

Who will monitor and pay for these tests after the mine has outlived its useful life?

In other areas they are sampling up to 500 wells in the surrounding area to set a baseline how come this is not being done here?

Response: *The findings in the EAW and EIS suggest that the ground water is at highest risk following a flooding event of Sand Creek during which flood waters enter into the mine pond and are thereby afforded direct and deep access into the aquifer. The potential for such risk is indeed permanent and will continue after the mine is completed and will remain an issue for area wells until such time that municipal water is provided. The issue of adverse impacts to the area aquifers resulting from the excavation of this direct conduit deep into the local quaternary aquifer and into the Franconia aquifer will remain a potential impact literally forever after the mine is completed. Therefore this issue must be dealt with in the revised ground water monitoring and mitigation plan. Alternatively it will become an outstanding unresolved issue that will reflect on staff recommendations for consideration by the Planning Commission and County Board regarding issuance of an IUP.*

POTENTIAL MITIGATION MEASURES

This section summarizes potential mitigation measures that were identified to reduce the impact of the Project. Tiller would need to include a reclamation plan in its CUP application. The City would use this EIS and recommended mitigation measures to review the plan. The reclamation plan must meet City ordinance requirements and must result in successful reclamation. The City may need to amend the definition of "topsoil" in its Development Code to permit the use of the mitigation approaches discussed in this EIS. The following potential mitigation measures have been identified and would be considered as possible conditions of any future CUP for the Project should it be approved:

- Require Hentges to provide a funding mechanism to conduct any and all required monitoring at the Site,
- Require a vegetation establishment and monitoring period of at least 5 years after completion of the Project.
- Develop an adaptive management plan to address long-term management issues.
- Identify the responsible party and funding source for active long-term stewardship of the Site.
- Establish specific criteria for measuring and defining reclamation success that are acceptable to the City (i.e., percent cover requirements for seeded native species; limits on aggressive native species, invasive and exotic species, and so on). The diversity of the proposed reclamation must be met in order for the cover type and wildlife habitat evaluations in this EIS to be acceptable.
- Specify actions that would be taken by Hentges if reclamation were determined not to be successful and conditions under which reseeding, overseeding, and/or spot seeding or other management methods would be required.
- Construct the berm on the North end of the Site as close to the mining and reclamation limits as possible. This would result in lower off-site peak flow rates and increased on-site infiltration.
- Require Hentges to keep records of when the Gravel pit Site Well is pumped, and provide these to the County for groundwater monitoring activities. This should document both the daily use and total annual pumped volume from the Gravel pit Site Well. The daily total should not exceed 10,000 gallons at a maximum pumping rate of 1,200 gpm. The total annual pumping should not exceed 1,000,000 mgy.
- Require that the WCD monitoring point installed for the pump test and collection of baseline data in Minnesota River Watershed be monitored during the lifetime of the Project. This monitoring should be funded by Hentges.

- Require Hentges to monitor all on-site construction equipment for leaks and receive regular preventive maintenance. Fueling and maintenance of vehicles would occur within the active mining phase and no “topping off” of vehicle fuel tanks should be allowed.
- Require that any aboveground storage tank (AST) at the Site to be located more than 500 feet from surface water to reduce the potential for impacts to surface water.
- Notify the Minnesota Pollution Control Agency about all ASTs within 30 days of installation by submitting an AST Notification Form.
- Require Hentges to sample and analyze groundwater for diesel range organics. If it is ever determined that gasoline is to be stored on the Site, gasoline range organics and benzene should be added to the analyte list.
- Install MMUTCD compliant truck warning signs on valley view to advise drivers of trucks in and out of the Hentges Site. The installation of warning flashers is another option but should be discussed with Mn/DOT to evaluate the safety impacts.
- Monitor the mitigation methods used at the Site to reduce emissions of fugitive dust for the life of the Project. Records of the sweeping and water application would be maintained to document the fugitive dust control measures. The County should require Hentges to provide a funding mechanism to conduct any and all County-required monitoring at the Site to confirm that sufficient dust control measures are being implemented. Hentges should provide a funding mechanism for monitoring.
- Monitor to ensure that the proposed screening and reclamation strategies are successfully implemented.
- Establish a maximum stockpile height limit of approximately 880 feet mean sea level. Stockpiles limited to this elevation would be effectively screened by proposed and existing berms. ld

Why hasn't this also been done for Hentges site if it is a far more comprehensive standard for drawdown for other gravel pit sites? All tests were done at low water periods not in the middle of February. It appears that simulating pumping of the aquifer would act as an aquitard. Look at how long they were pumping 4 hours! to ensure that the aquitard was indeed an aquitard limiting flow. That is the type and scope of testing needing at Hentges operation at the lowest periods June-August not in February.

AECOM initially simulated pumping of the aquifer around the Zavoral Site Well for 10 minutes at a rate of 1,200 gpm. Ten minutes is longer than the length of time required to reach the daily maximum volume of 10,000 gpd. The simulation was completed using a numerical computer program, PT1, presented by Walton (1989).

The results of the simulation performed indicated that, after 10 minutes of pumping, water levels would drop by 0.2 feet at a distance of 670 feet from the Zavoral Site Well. Based on the simulation, no drawdown would be observed at a distance of 1,682 feet. However, to collect Site data, rather than rely on a simulation, AECOM also completed an aquifer test using the Zavoral Site Well. An aquifer test was proposed to evaluate the potential effect of pumping groundwater from the Zavoral Site Well upon groundwater resources and groundwater-dependent resources of the area around the Site. The aquifer test was designed to determine if the St. Lawrence Formation is an effective aquitard between the lower aquifers and the upper aquifers. The aquifer test was also used to measure the decline in water levels that would be expected to occur in wells screened in the Franconia Formation, the same aquifer from which the Zavoral Site Well draws water. The aquifer test was also designed to measure the potential impact of pumping on surface water, including the seeps that exist in the bluffs east of the Site. Figure 33 shows the relationship between the Zavoral Site Well and surface water bodies. The seeps and creeks are located at an elevation above the base of the St. Lawrence Formation. The St.

Croix River is apparently located at or near the base of the St. Lawrence Formation. However, based on the water levels shown in Figure 33, groundwater flows into the St. Croix River. Pumping could potentially reduce the total volume of groundwater that discharges into the river.

Water level measurements obtained during the aquifer test provided direct evidence of the effect of pumping from the Zavoral Site Well upon the surrounding environment. The data generated allowed a better characterization of the groundwater system and the interaction between groundwater and surface water near the Zavoral Site. The aquifer test pumped several times more water than the maximum daily water production of 10,000 gpd. Three existing wells were monitored during the aquifer test (Figure 41). These wells are described below:

- The Zavoral Cabin Well is located about 1,300 feet east of the Zavoral Site Well. The Zavoral Cabin Well was measured (on May 24, 2010) to be 240 feet deep and, therefore, is completed in the Franconia-Ironton-Galesville Formation. It is representative of other wells close to the St. Croix River and it is the closest deep well to the Zavoral Site Well.
- The Trails End Well is located about 1,700 feet west of the Zavoral Site Well. Measurements conducted by AECOM determined that this 4-inch-diameter well is 139 feet deep. The well is shallower than the other nearby wells and is likely completed in sand and gravel deposits above the bedrock.
- The Magnuson Well is located about 1,900 feet west-northwest of the Zavoral Site Well. This 175-foot-deep well is completed in the Jordan Sandstone Aquifer and is representative of many wells located west, southwest, and northwest of the Zavoral Site and farther away from the St. Croix River. In addition to monitoring water levels in nearby wells, the following surface water measurements were collected.

4

- Zavoral Creek at the culvert (near the Zavoral cabin). This monitoring point was located a few feet upstream from the monitoring station installed by the WCD for long-term monitoring. The Black ash seepage subtype wetlands were identified by the MnDNR in their comment letter on the EAW for the proposed Project (Sunde 2008). Zavoral Creek is fed by the seeps. AECOM staff conducted a reconnaissance of the Zavoral Site and the seeps on September 1, 2009. The seeps emerge from the rock faces and slopes along Zavoral Creek.
- Zavoral Creek near Crystal Springs, located about 1,100 feet northwest and up-stream of the Zavoral Creek culvert (on the property of Gregory Page).
- Unnamed creek designated as Middle Creek located about 400 feet south-southeast of the Zavoral Creek culvert. This creek is the next creek south of Zavoral Creek.
- Unnamed creek designated as Spring Box Creek located at the north end of a culvert below Quint Avenue North, west of railroad tracks, a short distance downgradient from spring box, and about 2,800 feet south of the Zavoral Creek culvert. The purpose for monitoring the creeks near the Zavoral Site during the aquifer test was to document whether measurable changes in water flow occurred during the aquifer test. Two other monitoring points were observed and measurements were taken during the aquifer test:
- St. Croix River stage was measured four times for the aquifer test at a benchmark point established near the Zavoral cabin: 1 day before the aquifer test day (June 28), two times on the day of the aquifer test (June 29), and a final time on June 30, 2010.
- The water pumped from the Zavoral Site Well during the pump test was piped to an on-site depression to prevent excessive runoff, sediment transport, and erosion. This Discharge Pond is located south of the Zavoral Site Well. A staff gauge was installed in the pond. The water level at the staff gauge was observed and recorded a total of five times: three times on the day of the aquifer test (June 29), once the next day (June 30), and a final time on July 2, 2010.

5
There is one permitted high capacity well within the 3-mile radius around the Zavoral Site Well—Abrahamson Nurseries Well (MnDNR Permit: 2007-0195, MN Unique Well No. 00 733013). Since the permit allows pumping at a rate up to 420 gpm, pumping from that well could interfere and invalidate the pump test. Abrahamson Nurseries was contacted and they agreed to not pump during the period of the pump test or recovery.

The aquifer test started at 9:00 a.m. on June 29, 2010. After 4 hours and 20 minutes of pumping, the pump failed (1:20 p.m.) and could not be restarted. The calculated average pumping rate was 664 gpm. The total volume of water pumped was 172,600 gallons, or more than 17 times the maximum amount of water Tiller would use daily during its seasonal operations at the Zavoral Site. The pumping was planned to be conducted for a longer period of time but was stopped due to the pump failure. A review of the aquifer test measurements indicated that the duration and the volume of water pumped were sufficient to evaluate the impacts of pumping the Zavoral Site Well at the proposed maximum rate of 10,000 gpd. The pumping was also determined to be sufficient to determine if impacts to shallow wells and/or surface water would likely occur due to the planned pumping.

Response: *The so-called Zavoral project (actually the Tiller Project) is near Scandia – in a completely different hydrogeologic setting than Scott County. The primary difference at that site was the concern for springs emanating from the Jordan Sandstone along the bluffs of the St. Croix River. The Jordan Aggregates site is much different – there are not bluffs between it and the Minnesota River and the Jordan Sandstone is not present at the site.*

These comments are not specific to the project site and therefore are inappropriate as comments to this EIS. Attempting to sort out which of these comments might appropriately apply to the current project is the responsibility of the commenter and not the RGU, therefore the RGU has elected not to respond to any of these comments.

Sue Heimer
601 Hooper Court Jordan (public meeting card)

I wish you would please use a different route instead of using Valley View. Why ruin a nice quiet residential area.

Response: *This comment will be appropriate during the IUP process. The EIS is not an opportunity to express opinions, but rather to raise issues of concern related to potential impacts.*

Mary Martin-Kahn
18520 Valley View Drive Jordan (public meeting court reporter)

I would like to see the hours of operation limited to 7 a.m. to 9:30 p.m. to comply with various noise ordinances and laws. It's mostly noise I'm concerned about; and that the permit holder would mitigate any noise related complaints or issues raised by the community. With regards to water contamination or drawdown of the water tables, I would like to see something in writing that would require the operator of the pit to mitigate any damages up to and including reimbursement to homeowners, city governments, township units, or state government units.

Response: *The hours of operation will be established during the IUP process and will take into consideration the State's noise regulations. A revised ground water monitoring and mitigation plan will be included in the FEIS.*

Michael Kahn
18520 Valley View Dr Jordan (public meeting card)
I am concerned about aquifer contamination as I have a well, and who is responsible for costs associated with any future contamination?

Response: *A revised ground water monitoring and mitigation plan will be included in the FEIS.*

Option 1 for traffic puts truck traffic by my house. We have a relatively quiet and rural existence now and I am concerned this increase in heavy truck traffic could adversely affect my property value.
The cost to upgrade Valley View Dr. would surely increase my property taxes.

Response: *The potential truck route for trucks coming and going to this proposed mine site has not been clearly defined to date despite the fact that five different options were presented in the DEIS there still remains uncertainty in this regard as a result of comments received from MNDoT. This issue will be further expanded in the FEIS, though ultimate resolution will rest with the affected road authorities and will need to be clearly defined in the IUP. The issue of property values was addressed in a similar earlier response.*

Mary Martin-Kahn & Michael Kahn
18520 Valley View Drive Jordan

Reclamation – The conditional use permit should require that a bond be put in place to cover the future plan to put the property in the condition that the proposal states so that if the proposer and/or his successors fail, there are funds available to put the land in a usable state by others.

Response: *The EAW noted that financial securities would be required to address site reclamation and other concerns associated with the proposed project and that this would be addressed during the IUP process.*

Sound/Noise – Pit – The conditional permit should limit hours of operation to day light hours during peak season (summer) and between the hours of 7:00 a.m. and no later than 6:00 p.m. during off season to reduce the noise that surrounding residents will be subjected to.

Response: *The EAW dealt with the processing plant related noise and will be further addressed in the IUP.*

Sound/Noise – Trucks – The conditional use permit should restrict the usage of jake brakes by drivers on any access route to Highway 169 to reduce the disruption caused by engine noise to surrounding residents and businesses. Additionally, maintenance records of all vehicles/equipment owned and used by the proposer and/or his successors in relation to the pit operation, should be open to inspection by concerned citizens, in a reasonable manner during normal business hours of operation, to ensure that vehicles and equipment are maintained in a manner that reduces noise. While it is acknowledged that the proposer and/or his successors do not have control over the records of all trucks coming to and from the pit, the proposer is holding himself out as

the controller of the operation and needs to put in place procedures that assist with the reduction of overall truck and/or equipment noise that arises from the operation.

Response: *An EIS is intended to identify impacts that might result from a proposed project assuming that applicable regulations are complied with and/or enforced. Where the local authorities do not have ordinances in place or committed to that would address concerns such as noise then the impacts from the proposed project must be assumed to be legitimate concerns. In the case of noise, Jordan has adopted ordinance provisions to address noise from trucks. However, neither Sand Creek Township nor Scott County have adopted such regulations. Under state laws owners of vehicles are required to maintain them in safe working order and the County feels it would be inappropriate and unreasonable for the County to monitor vehicle maintenance records.*

Odors – The conditional use permit should require that any odors emitted from the asphalt plant needs to be monitored by the proposer and/or his successors. Any and all steps need to be taken to minimize/reduce/ eliminate any odor that may affect surrounding residents negatively, up to and including the availability of maintenance records for inspection by concerned citizens, in a reasonable manner during regular business hours, to insure that the equipment is maintained in a manner to minimize/reduce/eliminate objectionable odors.

Response: *The issue of odors was not within the scope of this EIS but was addressed in the EAW. There are no State regulations or standards associated with odors and complaints regarding odors are difficult to regulate. The concern about nuisance odors can be dealt with during the IUP in accordance with the provisions within the Scott County Zoning Ordinance that address nuisance odors.*

Safety

Speed limit – The conditional use permit should limit the speed that any trucks travelling on any access route to Highway 169 limited to and posted at 30 miles per hour. People residing in the surrounding residences walk, ride horse, or bicycle on those access routes. Their safety is of upmost importance. The existence of the pit operation should not impact the surrounding resident's usage of access routes since their use was in existence to prior to the proposed operation.

Response: *Local road authorities are responsible for posting speed limits on their roads. The DEIS considered the posted speeds when evaluating the concerns addressed in the DEIS.*

DOT safety and maintenance records – The conditional use permit should require that all DOT safety and maintenance records, maintenance records of all vehicles/equipment owned and used by the proposer and/or his successors in relation to the pit operation, be open to inspection by concerned citizens, in a reasonable manner during normal business hours of operation, to ensure that vehicles are operated and maintained in a manner that ensures safety. While it is acknowledged that the proposer and/or his successors do not have control over the records of all trucks coming to and from the pit, the proposer is holding himself out as the controller of the operation and needs to put in place procedures that assist with the safe operation and maintenance of vehicles coming to and from the pit ensuring that the public and surrounding residents are protected from accidents arising from improper operation or maintenance.

Response: *This issue is not within the scope of this EIS. Under state laws, owners of vehicles are required to maintain them in safe working order and the County feels it would be inappropriate and unreasonable for the County to monitor vehicle maintenance records.*

Economics

Overall appearance – The conditional use permit should require that every measure be taken by the proposer and/or his successors to ensure the appearance of the pit be as pleasing as possible, the noise caused by its operation or the trucks coming to and from the operation minimal, and any odor be minimized so that the value of surrounding properties are not negatively impacted. It is noted, that the proposer's current operation/office in Jordan, meets these standards.

Response: *This issue is not within the scope of this EIS. Concerns about the appearance of the proposed mine are appropriately dealt with during an IUP process.*

Road improvements – The conditional use permit or other agreement with the proposer and/or his successors, should require that any necessary road improvements or traffic controls be paid for by the proposer and/or his successors. If residents required an upgrade, they would be expected to shoulder the costs.

Response: *The issue of what roads loaded trucks will be using remains unresolved. Sand Creek Township has stated that the unpaved portion of Valley View Drive in Sand Creek will be posted for 5 tons, thus restricting loaded trucks. The City of Jordan has changed the designation of that portion of Valley View Drive within the City but has not posted any restrictions that would limit truck traffic. Empty trucks will likely still use Valley View Drive through Jordan to access the pit even if the gravel portion is posted. The issue about road upgrade and maintenance is generally addressed during the land use permitting process. In the absence of a negotiated agreement established in advance of the County's consideration of the IUP this issue would be identified as an unresolved potentially adverse impact.*

Changes in ownership – The conditional use permit should include language that any successor to the proposer, either by purchase, gift or inheritance, be bound to all the conditions set forth in the permit.

Response: *This is a standard provision in an IUP.*

Changes to the Conditional Use Permit – The surrounding residences, businesses and governmental units need to be notified of any material changes to the conditional use permit in the future and allowed a hearing in order to protect their economic stake in the area.

Response: *This is a standard provision in an IUP.*

Job Creation – Per the proposer, approximately six full time positions will be created as a result of the pit operation and the positions will be compensated in line with "49ers" wage levels. Since 'job creation' by the 'job creators' is generally used by business owners, politicians, and others as a rationalization to impact taxpayers and residents surrounding an operation, please consider including requirements in the conditional use

permit which require the proposer and his successors to: maintain labor agreements with 49ers or other appropriate unions, to keep wages in line with '49ers' wage levels for non-union positions such as foremen, to pay any part time employees '49er' wages proportionately to time worked, and to adjust any amounts paid to independent contractors upwards to cover ½ of their SE tax. This should not be a huge economic burden to the proposer and/or his successors since the estimated 'new jobs' is six. While it is noted that there is a reluctance on the part of any governing body to impose conditions that seem to dictate how an employer should compensate their employees, I hope the same reluctance is present when considering a proposal such as this and its economic impact on all surrounding residents.

Response: *This issue is not within the scope of this EIS.*

Myron and Deb Pauly
5276 Highview Dr Jordan (public meeting card)
Concerns: Well water contamination, noise, traffic, traffic flow, air quality and dirt from excavating. DNR input – upset of balance of nature in the adjacent wetlands caused by noise, etc. This will devalue all of our property.

Response: *The comment is generic, so we cannot comment on specifics but we note that the issues of noise traffic and ground water contamination have been addressed in this EIS and we have responded to specific concerns.*

Lou Pearson
240 Hooper St, Jordan

Is the county going to demand mandatory noise log book to police/monitor the truck noise? And impose restrictions (residential area)?

Response: *This issue of noise related to the mine site was addressed in the EAW. The issue of noise from trucks was further addressed in the EIS. In both cases it was found that the project would not likely exceed State daytime noise standards. Scott County does not have a Noise Ordinance and no ability to monitor for noise. A standard condition in an IUP is that all federal, state and local laws are complied with. The governmental authority that established a specific law is generally responsible for enforcing it. However, when the impacts are local such as noise it is common for the local authority to address local enforcement within the IUP.*

What are the noise output from the concrete and asphalt recycling? What is going to be done to monitor/police those? This should be done before the EIS

Response: *See previous response to the issue of noise.*

Will this devalue my property, and when/how will I be compensated for that?

Response: *See previous response to this issue.*

Will the wild turkey habitat be affected by the mining, trucks, noise? Has this been looked into?

Response: *The potential impact on wildlife was addressed in the EAW and is not within the scope of the EIS.*

Because the trucks failed the noise evaluation at 21 and 282, would it also fail anywhere in the city, including Valley View?

Response: *The existing background noise at the intersection of TH 21 and 282 was in excess of the State noise standards at the time the testing was conducted. It could not be determined whether or not the presence of the trucks being tested appreciably changed this status; however, State laws preclude making a bad situation worse. Background noise levels at the other tested locations did not exceed state standards at the times tested.*

How will the dirt/dust from the gravel part of Valley View be taken care of?

Response: *Impacts to the gravel portion of Valley View Drive will need to be addressed by the Township. This would generally be achieved through negotiations with the project proposer prior to consideration of the IUP. If however this remains an unresolved issue it will be so noted and become a factor in the decision made by the County in considering whether or not to approve the IUP.*

6.0 Approvals, Permits, or Consultation

Minnesota Department of Transportation

Permits:
Any use of or work within or affecting MnDOT right of way requires a permit. Permit forms are available from MnDOT's utility website at http://www.dot.state.mn.us/utility/. Please include one 11 x 17 plan set and one full size plan set with each permit application. Please direct any questions regarding permit requirements to Buck Craig (651-234-7911) of MnDOT's Metro Permits Section.

Plan Submittal Options;
As a reminder, there are four submittal options. Please submit either:

1. One (11) electronic pdf version of the plans. MnDOT can accept the plans via e-mail at metrodevreviews.dot@state.mn.us provided that each separate email is less than 20 megabytes.
2. Three (3) sets ofof full size plans. Although submitting seven sets of full size plans will expedite the review process. Plans can be sent to: MnDOT - Metro District Planning Section Development Reviews Coordinator 1500 West County Road B-2 Roseville, MN 55113
3. One (11) compact disc with plans in pdf. format.
4. Plans to MnDOT's external FTP Site. Please send pdf. files to: ftp://ftp2.dot.state.mn.us/pub/incoming/MetroWatersEdge/Planning. Internet Explorer doesn't work using ftp so please use an FTP Client or your Windows Explorer (My Computer). Also, please send a note to metrodevreviews.dot@state.mn.us indicating that the plans have been submitted on the FTP site.

If you have any questions concerning this review please feel free to contact me at (651) 234-7794.
Sincerely, Tod Sherman

Response: *This information will be transmitted to the developer.*

Minnesota Department of Natural Resources

The Minnesota Department of Natural Resources (DNR) Central Region has reviewed the DEIS for the Jordan Aggregates LLC project (the Project) located in Sand Creek Township. The DNR previously provided comments on the Environmental Assessment Worksheet prepared for the project in February 2011. Several items of concern were identified in that letter. The DNR offers the following comments for the DEIS based off those comments.

The DEIS adequately addressed our request for additional clarification regarding the project's groundwater drawdown, Sand Creek base flow reduction, influence on floodplain wetlands, mitigation for the possible breaching of the natural berm, flooding of the quarry and cumulative potential impacts on groundwater users and resources. Based on the information provided through the DEIS and documents leading up to the DEIS, it is the DNR's opinion that previous comments have been addressed appropriately. The reports provided would appear to be a conservative approach to evaluating the potential impacts the project may have on natural resources.

Please note that the following previous comments still apply:

> In the event that impacts to Sand Creek would occur as a result of project activities, a Work in Public Waters Permit would likely be required. The DNR cannot guarantee permit approvals for modifying the course, current or cross-section of Sand Creek.
>
> The DEIS correctly identified the need for a water appropriation permit for the new well. Water usage was estimated to be about 500,000 to 2 million gallons annually with monthly usage variations. A DNR Waters Appropriation permit application should be submitted to the DNR for review. The DNR is required to make permit decisions within 30 days following the completion of an EIS unless a later date is agreed upon by participating parties.

Thank you for the opportunity to review this project and the DEIS. We look forward to receiving the responses to comments and the final EIS. If you have any questions about these comments, please call Melissa Doperalski, Regional Environmental Assessment Ecologist, at 651-259-5738, or by e-mail at melissa.doperalski@state.mn.us.

Response: *This information will be transmitted to the developer.*

Minnesota Pollution Control Agency

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for the Jordan Aggregates Proposed Mining Operation project (Project) located in Jordan, Minnesota. The Project consists of an 84 acre sand and gravel mining operation. Regarding matters for which the Minnesota Pollution Control Agency (MPCA) has regulatory responsibility and other interests, the MPCA staff has the following comments for your consideration.

- The DEIS describes three activities that will occur at the Project site: nonmetallic mineral mining and processing, hot mix asphalt production, and concrete production. The DEIS indicates that these activities will receive separate permits. Please note that it is very likely that these activities will require a single permit covering all activities. Furthermore, an adequate assessment of the air quality impacts of the Project in the EIS cannot be completed unless the permit applications) and any required supporting documentation are submitted concurrent with the EIS process. As noted in the MPCA comment letter on the Scoping Environmental Assessment Worksheet (EAW) dated October 11, 2012, the submittal of the permit application(s) and permit development must be coordinated with the EIS process to ensure that the MPCA can act on permit decisions within 30 days after an EIS Determination of Adequacy, a goal set by the Minnesota Legislature. In order to achieve these ends, the Project proposer should submit an applicability determination to the MPCA Air Quality Program. This submittal would identify all potential sources of air emissions for the project and will allow for a determination of appropriate permitting requirements. MPCA records do not show that the submittal of the permit application(s) has been made. If this is in error, the Project proposer should contact us as soon as possible. For questions regarding air emissions permitting, please contact Jeff Hedman at 651-757-2416.

- Please note that if process wastewaters are allowed to comingle with the floodwaters and discharge back into Sand Creek, an individual National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit will be needed. This information should be fully disclosed and evaluated in the EIS. Please note that if an individual NPDES/SDS permit is required, a 30-day public notice will also be required.

We appreciate the opportunity to review this project. Please provide your specific responses to our comments and notice of decision on the need for an Environmental Impact Statement. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit action(s) by the MPCA. Ultimately, it is the responsibility of the Project proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning our review of this DEIS, please contact me at 651-757-2508.

Response: *This information will be transmitted to the developer.*