

NOTE: Please add this email to the 17-ZONE2113 Project File

All,

Thank you in advance for reading this email regarding Loveland Ready Mix's Proposed LaPorte Operations, Knox Pit Groundwater Study (File Name: Additional\_20170814\_GroundWater Study). This email contains three sections providing:

- Review comments of the Groundwater Study
- My personal perspective
- Summary of initial citizens' comments that pertain to Groundwater

#### **I. Groundwater Study Review Comments**

1. Page 1, Section 1.1 Project Description: The applicant, as in other documents, describes the operations in context to Taft Hill Road (i.e., "approximately one-half mile west of Taft Hill Road") instead of in context to Laporte.
  - a. Recommend that the applicant provide additional description of the project location (e.g., "less than one-quarter mile east of Overland Trail/the center of Laporte).
2. Page 1, Section 1.1 Project Description states "The Project lies approximately 4,000 feet north of the Cache la Poudre River"
  - a. The southern border of project is approximately 2,200 feet north of the river and the northern border of the project is approximately 4,200 feet north of the river. If 4,000 feet was used in any of the groundwater modeling simulations, the simulations should be rerun with an accurate number.
3. The Groundwater Study incorrectly refers to "Figure 1" in multiple places(should be Figure 2)
  - a. See Page 1, Section 1.1 Project Description
  - b. See Page 4, Section 2.0 Background
4. Page 3, Section 1.2 Objectives states: "predict impacts to groundwater and its users"
  - a. Statement needs clarification regarding impacts of what:
    - i. Impacts of proposed mining and different phases?
    - ii. Impacts of dewatering?
    - iii. Impacts of reclamation?
5. Some descriptions in the document appear unnecessary to the study since they provide information that is not relevant to the proposed site:
  - a. Page 5: Section 2.2.2: How does the "municipal wastewater plant charges" (I assume that the study is referring to Fort Collins) impact this study?
6. Page 7 Laporte Area Wells section:
  - a. Incorrectly states that Telesto sent questionnaires in the early summer. Page 49 of the Groundwater study shows that the questionnaires were sent "April 14, 2017"
  - b. Page 49: Shows the letter the Telesto mailed on April 14, 2017 that contained the following statement "The measurement results will be provided to you and used in the groundwater analysis."
    - i. Telesto measured my well, but did not provide me the measurement results.
  - c. The statement "Copies of the questionnaires and field notes are included in Appendix A" is incorrect. Appendix A is named "Neighborhood Well Questionnaire and Notes". However,

Appendix A only contains the questionnaires completed by the well owners. The applicant should:

- Include the field notes in Appendix A
- Provide the actual measurements to the well owners as promised in the letter
- Include the measurements (total depth, the water level and the pumping rate) in the study.

7. Page 8, Section 2.2.5 Groundwater Flow Patterns
  - a. States that the neighborhood water level measurement campaign started during the early summer is not accurate. My well was measured in May.
  - b. States “LRM will measure depth to groundwater in the same wells (with owner’s permission) during the winter (i.e., non-irrigation season) when irrigation infiltration, rainfall, and irrigation ditch flows have ceased allowing the water table to drop.”
    - i. Why should the well owners let LRM measure our wells again, when they did not provide us the results from the original measurement as originally promised and then their Groundwater Study states in Section 4.1 that the original measurements that they conducted “were not professionally surveyed”?
8. Page 9, Section 2.3.1 Boundary Conditions, the groundwater flow model used the “staff gauge height/flow measurements taken at USGS gauging station 06752260”.
  - a. The reader is unclear why the model would use the Fort Collins gauge that is farther away from the site and is down river from the site. Wouldn’t USGS Gauging Station 06752000, Cache La Poudre River at Mouth, provide more meaningful parameters to the model? If so, the groundwater flow model should be rerun using Gauging Station 06752000 height/flow measurements.
9. Page 14, Section 4.1 Calibration Targets states “Because the neighbor’s wells were not professionally surveyed, more weight is given to the Site monitoring wells as measurements from the monitoring wells are of higher accuracy.”
  - a. Why did the applicant not professionally survey the 18 neighborhood wells?
10. Page 14, Section 4. Calibration Results states “Once the model was running, adjustments were made to boundary conditions and model parameters within ranges as defined previously that represented the early irrigation season (May-July).”
  - a. The reader assumes that the early irrigation season would be when the irrigation ditches are first turned on raising the groundwater levels. Our personal logs show the Taylor and Gill Ditch is turned on in April.
11. Page 16, Section 5.0 Model Predictions states “The first model prediction was to estimate the late off-irrigation season timeframe. This was accomplished by setting the water elevations in the ditches equal to the ditch bottoms (representing a dry-ditch), and **lowering the River stage by approximately 6 feet**”
  - a. The phrase “lowering the River stage by approximately 6 feet” does not make sense. It is unclear what is being lowered by 6 feet. Shouldn’t the model have used average recorded heights of the USGS Gauging Station 06752000 (Poudre River at Canyon mouth, not Fort Collins) during winter months?
12. Page 16, Section 5.0 Model Predictions states “The overall mine plan related to groundwater is to excavate a dewatering sump and remove groundwater to the water management pond.”
  - a. The applicant did not include the dewatering sump as a source of noise in their Noise Study. The Groundwater Study mentions “a dewatering sump” and then in the conclusion states that there will be multiple dewatering sumps “Groundwater flow paths were shown to be towards the dewatering sumps”. Based on Figures 14 -16, there appear to be six dewatering sumps.

- b. Applicant should evaluate the impacts to Noise in the Noise Study. Are the dewatering sumps running 24 hours a day? Do they use generators? How loud are the sumps and generators?
  - c. Based on Section 5.3, it appears that dewatering will continue until the Reclamation Phase.
  - d. Recommend that the applicant label the Water Management Pond in Figures 14 -16 of the Groundwater Study.
  - e. It is unclear to the reader how the Water Management Pond can hold all the dewatering ground water year round. Where would the excess water go?
  - f. The Groundwater Study does not show a Storm Water Management Pond that other studies (e.g., Noise Study) show on the southwest corner of proposed site.
13. The Groundwater Study is based on four phases and a reclamation phase whereas other portions of the application describe more than 4 phases of mining. Does the Groundwater Study need to account for these additional phases of mining? How long are the different phases expected to take?
14. Page 17, Section 5.1 Mining Plan – Phases 1 -3 - Why does the Groundwater Study only simulate conditions associated with the end of Phase 3 mining (e.g., maybe 6 years after the proposed mine is in operation)? The reader would like to see the results during all phases.
15. Page 17, Section 5.1 Mining Plan – Phases 1 -3 states “Although the Plantorium Greenhouse and Nursery did not respond to Telesto’s questionnaire, we know that they have an irrigation well used to water their greenhouse plants. The Plantorium is inside the five-foot impact zone. These three wells may require mitigation.”
- a. Only the Plantorium’s three wells were mentioned as requiring mitigation in this section. Scanning through Appendix A, it appears that there are approximately 29 other owners at residences within the five-foot drawdown impact zone (most have active wells). The applicant should describe in detail how they will mitigate the negative impacts of their proposed operations to wells.
  - b. Neighbor’s trees have been impacted by other mining operations. The Groundwater Study should evaluate the impact to trees of reducing the groundwater by five feet or more. Negatively impacting the health of the trees in Laporte is one of the neighbors’ top concerns.
16. Page 17, Section 5.2 Mining Plan – Phases 4 -5 states” The same wells are predicted to be impacted during the Phase 4 mining period as during the Phase 3 mining period”
- a. Report needs to describe all the impacted wells, not just a few impacted wells.
  - b. Laporte has many shallow wells (some of which are within 600 feet of the site) that could be adversely impacted by the dewatering. Will the applicant monitor these wells before the mining and at least quarterly throughout the proposed mining operation?
  - c. Will the applicant share with the county and the neighbors all monitoring results?
17. Page 17, Section 5.3 Mine Plan – Reclamation states that “the perturbation in the groundwater is essentially zero. This is because the drains supply adequate hydraulic capacity to mimic pre-mining aquifer conditions”
- a. More description is needed regarding the reclamation phase. Other documents state that the pits will be lined after mining is completed. What happens if the perimeter drain becomes clogged? Who is responsible for maintaining the perimeter drain? Houses in Laporte that are near reclaimed mine sites with lined pits have been negatively impacted by the water table rising.
  - b. The applicant should have included in the report the impacts to the groundwater output from the model.

18. Page 18 states “Due to the perimeter drain’s ability to mimic the pre-mining groundwater hydraulics, no increased water levels are predicted up-gradient of the mining area. Thus, there are no concerns for flooded basements in neighboring structures.”
  - a. What happens if the applicant’s prediction is wrong and mounding of groundwater does occur? The applicant should include the mitigation that they would take.
  - b. The applicant has been told multiple times, that the neighbors do not have basements that could flood. Instead the neighbors have crawl spaces with furnaces. There is no room for predictions to be wrong since the water table is so high.
19. Page 21, Section 7.1.4 Data Collection states “LRM proposes, with neighbors permission, to monitor elevations in these neighboring wells semi-annually prior to and throughout mine dewatering.”
  - a. Will these elevations be determined by a professional?
  - b. Will these measured elevations hold the same weight in modeling as the monitoring well data?
20. Page 22, Section 8.0 Conclusions states “LRM is committed to maintaining communication with neighbors, and has taken steps to share the results of this study with adjacent well owners as practical.”
  - a. LRM did not maintain communication and provide well owners the results of their well measurements as promised in the questionnaire letter.
  - b. LRM has not agreed to provide the Laporte community with extra copies of the printed application (the Timberline Application provided two printed copies to post in Laporte businesses).
21. Page 21. Section 7.1.5 Water Quality section states “Groundwater quality is not expected to be impacted by mining at the Site. Thus no formal groundwater quality monitoring is recommended”.
  - a. Even though the applicant does not expect to impact the quality of groundwater, the Department of Health and Environment’s review of the sketch plan in January 2017 stated: “This poses a public health concern given the removal of the natural buffer/filtration substances above the groundwater table, and the potential exposure of groundwater to contaminants including those associated with sand/gravel mining and batch plant operations.” The applicant should include additional analysis of the impacts to groundwater quality.
22. The Groundwater Study does not include
  - a. Contain how high the groundwater is in relation to the elevation of the land.
  - b. Monitoring measures that will be taken to verify the accuracy of estimated draw downs
  - c. A description of the actions that will be taken if groundwater flooding occurs (which properties will be addressed and which will be ignored); some statements from LRM have indicated that LRM will only address those impacted structures within 200 feet)
  - d. A description of mitigation procedures that may be taken if a neighbor (without a well) complains (e.g., vegetation/tree(s) dying, ponds drying up)
  - e. Procedures to follow for processing citizen’s complaints regarding groundwater
  - f. A simulation of the scenario of a concurrent operation (i.e., Timberline/Hawkeye)
  - g. Figure 19 that is referenced in the study
  - h. Appendix F, Miscellaneous Calculations and Model Documentation, contains twelve occurrences of “See next page”. However, the appendix is missing the next page.
23. Timberline’s Groundwater Study had the following information that was not present in the applicant’s Groundwater Study or any other parts of the applicant’s application that would be useful for the community to know:
  - a. Estimated amount of sand and gravel resources on proposed site
  - b. Quality of resources on proposed site

- c. The estimated rate of mining (e.g., between 500,000-750,000 tons per year depending on market conditions) – this will help the community to understand how many years they may be impacted by.
24. Recommend defining all acronyms used in report (e.g., SEO) so that reviewers can understand/verify information in report and figures.

## **II. My Personal Perspective**

Having formal documentation to show the water level in my well was promised by Telesto and never provided. When Telesto measured my well, I mentioned that our crawl space was approximately 4.5 feet deep and any rise in the ground water would cause my crawl space to flood and destroy my furnace. I am very sensitive to noise, and therefore do not want to be forced to use a pump to mitigate rising groundwater. However, the Groundwater Study stated that there will be no mounding of water to the west of the site, and instead the water table will be decreased by over five feet. This information, causes me to worry about my trees and also many other trees in Laporte. I find it very difficult to write about the impacts of my trees and other Laporte trees dying, because there are too many negative impacts to even begin describing. I have not had time to perform research regarding whether studies exist to evaluate the impacts of sand/gravel mining to trees – what happens to trees if the groundwater is reduced by five feet or when the natural top soil filtration is removed.

### III. Summary of Groundwater Concerns Mentioned in Citizen Letters

The below table shows the number of citizen letters that were written from January 2017 to April 2017 that included groundwater concerns. The last three columns show how three of the six review criteria used to approve a special review application have not been met.

<b>Citizen Comments Regarding Negative Groundwater Impacts</b>	<b>Number of Comments</b>	<b>A. Compatible with existing uses and in Harmony with Neighborhood</b>	<b>B. Consistent with the LaPorte Area Plan</b>	<b>D. Will Not Result in Substantial Adverse Impact on Vicinity Property</b>
Negative water impacts (water pollution)	64		No	No
Water table lowers to east (impacts wells, trees)	43	No	No	
Polluted water runoff from cement crushing	36		No	
Water intensive operation	34		No	
Negatively impacts trees (water table changes/crusher vibration)	33	No	No	No
Water table raises to west of site (impacts crawl spaces, furnaces)	13	No	No	No
Impacts Irrigation (water quality)	11		No	
Causes unreasonable offsite impacts	10	No	No	No