Jerry & Karen Moore

Rec: 4/14/16 (52)

Colorado Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

Objections to Permitting Hitch Rack Ranch Quarry
Permit Number M-2016-010
Ms. Amy Eschberger Lead Specialist

Prepared by Jerry P Moore
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Jerry P Moore and Karen B Moore

With three quarries currently in operation within eight miles of the proposed site for the Hitch Rack Ranch Quarry, and the existing quarries operating at well below capacity, the sole purpose for this application is to increase revenue for Transit Mix. If this quarry permit is not approved there will be no negative consequences to ANYONE else.

Impact If Permit is Denied:

- Critical habitat for threatened species not destroyed
- Site of high conservation significance not destroyed
- No additional injuries and fatalities from dramatic increases in truck traffic on 115
- No possible loss of domestic water supplies
- No noise pollution
- No dust pollution
- No loss of ingress and egress control by property owners
- Transit Mix makes less money

Geologic and Hydrologic Reasons for Not Approving Application

Risk to Residents' Ground Water Supply

As an exploration geologist I have spent a significant portion of my forty year career attempting to predict and understand hydrocarbon fault traps as well as fractured reservoirs. Although all of my professional experience dealt with hydrocarbons, I believe my understanding of fractured reservoirs and faults as fluid barriers are applicable to ground water as well.

The only source of household/domestic water in the area is water wells. The primary aquifer is the Pikes Peak Granite, which produces from fractures in the crystalline rock. Other wells have been completed in localized alluvium lenses and in the Fountain Sandstone, but could be expected to be in communication with the primary aquifer. Most of these wells are marginal producers, typically under 10 CFM, with many requiring a cistern to meet normal household needs. This is a fragile water system requiring protection. The Westcliffe earthquake (2008, magnitude 2.5, 48 miles southwest of the proposed quarry location) caused a water well in the area of the proposed quarry location to immediately quit producing and required a new well to be drilled. Although on a larger scale but in the same hydrological environment, the granite removal which took place during the building of the NORAD complex stopped most of the ground water supply to large areas down gradient.

The permit should not be approved for many reasons, but my objections here will be geologic and hydrologic. Because of the complex structural geologic setting and the characteristics of the aquifer system, a quarry operation at this location has a significant possibility of disrupting or diverting ground water and surface water. If this happens it is impossible to predict how it would impact the surrounding domestic water wells.

- The billion-plus years of almost continuous structural deformation and uplift surrounding the Pikes Peak batholith has created an area of fractured rock and a very faulted terrain.
- The proposed area to be quarried is at the intersection of major faults and aquifers in fractured rock.
- The ground water recharge and surface water is funneled through a canyon that narrows to 300 feet when entering the quarry.
- The flow through the quarry is in and below the Little Turkey Creek creekbed and alluvium. Based on Transit Mix coring, this is a highly fractured fault zone. Deadman Creek has the same situation, with drainage through the quarry in a highly faulted creekbed.

- Based on my experience and the information available on Front Range aquifers, with this degree of fracturing and faulting the surface and ground waters are going to be in communication.
    - In the Pikes Peak granite almost all effective permeability and porosity will be provided by fractures. The amount will vary depending upon the amount of stress and weathering. To some degree this should be true for all the aquifers in the quarry site.
- The intersection of the creek bed fault zones and the thrust faults in these fractured rock aquifers should **not** provide an effective aquitard.
    - If the thrust faults are "sealed" it is very doubtful that sealing would be continuous
    - The fault planes are as likely to provide a conduit as a barrier.

In the setting detailed above and with the removal of 393 acres of material with blasting it is ***impossible*** to predict that ground water and surface water flow, and therefore aquifer recharge, will not be significantly altered. These changes could cause the stoppage or reduction of the ground water supply to residents.

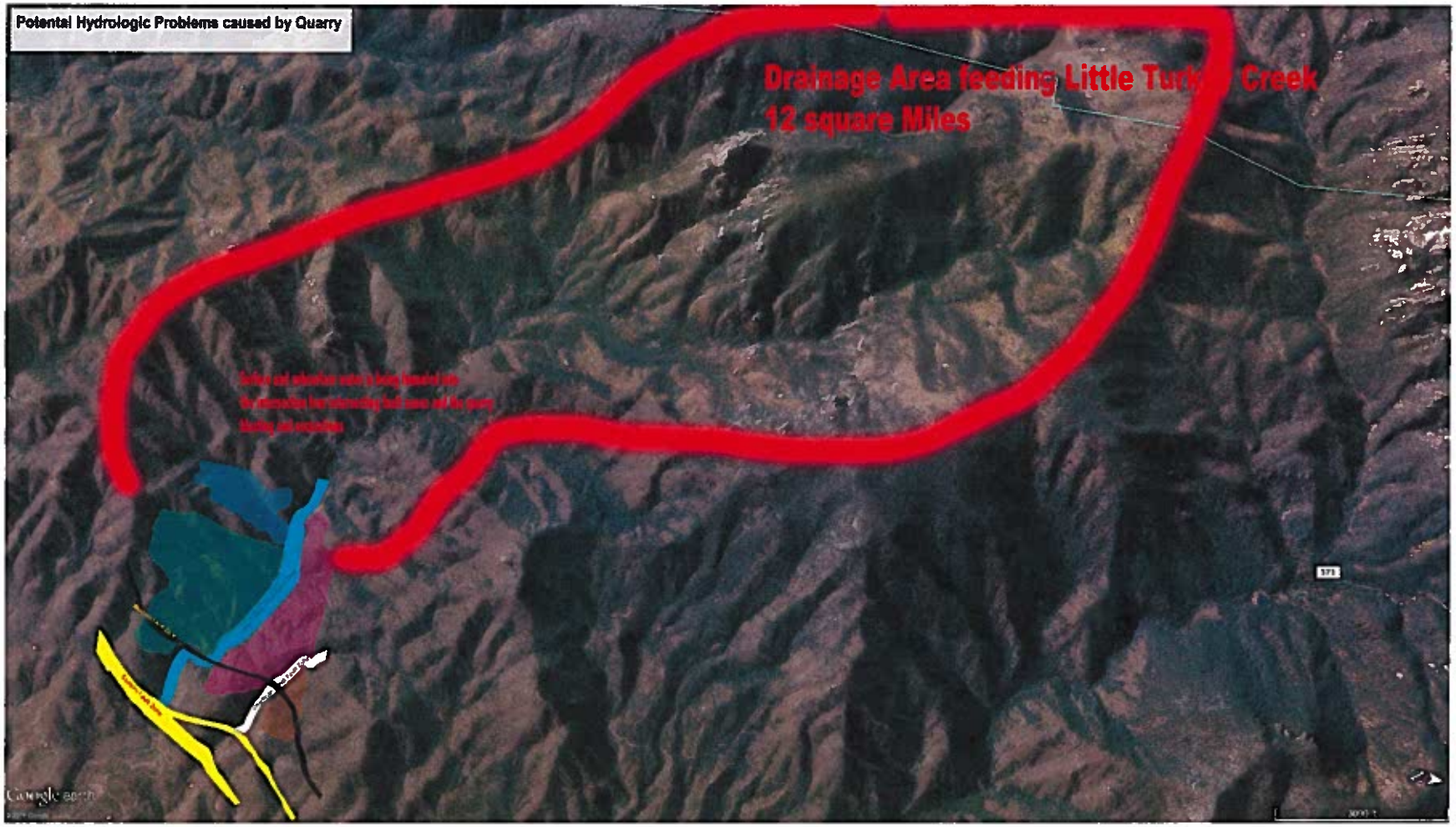


FIGURE A

- Yellow and Black are Thrust Fault System
- Cyan and White are creek fault zones
- Green Cyan Purple Orange are rock removal "pits"

Ground Water Contamination

Disturbing 393 acres provides an entry point for contamination of the surface waters and ground water. Because of fracturing and faulting the surface and ground water are probably in communication to some degree. Any contaminates could easily permeate the localized hydrodynamic system.

Lead contamination

- Larsen Well 185659
  - Not potable water source because of lead
  - 1800 feet from North Ridge Excavation
  - Removal of 100,000,000 tons of stone provides opportunity for pyrite in waste rock to oxidize mobilize the lead allowing it to enter and contaminate surface and ground water
- If well 185659 has a sufficient lead levels to contaminate ground water to levels making not potable how can contamination possibly be controlled 1800 feet down gradient where 100,000,000 bank cubic yards of material are going to be removed?

Equipment leaks and spills

- With the proposed 22 pieces of heavy equipment the opportunity for spills and leaks of diesel, motor oil, or hydraulic fluid to contaminate the ground water and surface water are an additional risk to the area's well water quality.

Rockfall Hazards and Ingress/Egress Blockage

- Colorado Geological Survey Rockfall Hazard Information

  - Definition: Rockfall is the falling of a newly detached mass of rock from a cliff or down a very steep slope. Rocks in a rockfall can be of any dimension, from the size of baseballs to houses.

  - Improper utilization of rockfall areas is any use for which occasional, unpredictable, rolling, bounding, or falling of rocks could constitute a threat to life or property.

  - Areas of potential rockfall are subject to constraints similar to those of active rockfall areas. However, if activation can be prevented, such areas could be used safely, but *the cost of protection from the potential hazard can in many cases exceed the economic gain from the change in land use*.

  - Man's activities often cause rocks to fall sooner than they would naturally. Excavations into hill and mountainsides for highways and building frequently aggravate rockfalls. *Vibration from passing trains or blasting can trigger them*, as can changes in surface and ground water conditions. Rockfalls have been attributed to earthquakes and sonic booms.

- Little Turkey Creek Rockfall Hazards

  - Little Turkey Creek canyon has near vertical walls in places and narrows to a few hundred feet. The vertical walls are primarily composed of the highly fractured Pikes Peak Granite and possible unmapped faults. With regular blasting in the quarry acting as a trigger, the rockfall hazard would be greatly increased.

  - The only access to the homes and cabins in the canyon above the proposed quarry site is an unpaved road following the creek bed. With the canyon narrowing, the road is forced to approach the base of the vertical canyon walls. The width and character of the roadbed and the stream do not permit any vehicle traffic to maneuver.

  - The confinement and proximity of the vertical walls would:

    - Make travel dangerous
    - A medical emergency in the canyon could block individuals in the canyon without emergency vehicle access or evacuation.
    - Emergency helicopter service would be difficult and dangerous
    - Map and photos will be provided

Quarry Operations Affecting Access

- With only one road in and out of the canyon normal quarry operations and emergencies would also isolate residents in the canyon
- Resident ingress and egress on a road which the residents own would be completely controlled by quarry operations and decisions
- Currently the residents' access in the canyon is controlled by two security gates. The quarry road would bypass the first security gate, creating an unfavorable security environment for the residents.

Refutation of BBA Water Consultants Executive Summary of Potential Ground and Surface Impacts

Note: Numbered paragraphs below are copied from the BBA Water Consultants report. Underlined items in those paragraphs are items I am addressing in my refutation. My refutations are italicized and underlined immediately following the BBA sections. Refer to Figure B on the following page for the Transit Mix geologic interpretation used by the BBA consultants.

1. The operation of the proposed quarry is not expected to directly affect surface or ground water systems.

   What exactly do "not expected to" and " directly affect" mean? What assurance is that to the property owners?

2. Test drilling at the property performed for Transit Mix did not reveal saturated bedrock conditions within the mining interval and, therefore, mining will probably not impact surface or ground water systems by intercepting ground water.

   The test coring was done using water based mud in a highly fractured zone. This makes the statements about "highly productive aquifer zones not encountered", "no ground water interception ", and "probably not impact surface or ground water systems" a guess based on easily misinterpreted data.

3. Mining operations will be limited to areas 100 feet away and elevations 10 feet above the existing channel of Little Turkey Creek, the primary drainage within the property. Mining will not induce seepage from the creek and will not directly impact flow in the creek. Mining adjacent to Deadman Creek will extend below the elevation of the creek (subject to the 100 foot setback), but the creek is typically dry and saturated conditions therefore do not exist immediately below the streambed. There is not a hydraulic connection between the streambed and the deeper aquifer system and, therefore, mining will not interact with this drainage.

   The 100 foot lateral and 10 foot vertical separations are not sufficient aquitards in this structural setting to support the statements that I have highlighted in the above paragraphs. Fractured crystalline rock sitting on highly brecciated faulted creek beds that intersect with a regional thrust fault system make the effectiveness unpredictable. Also, after blasting and removal of 393 acres of granite, it is possible that communication may be created between isolated aquifers if they were not already.

4. The proposed quarry area will maintain existing drainages such that existing precipitation and surface runoff flow paths will be maintained. Surface water present in drainage ways will not be intercepted.

   In this structural setting, where the hydrodynamics of the surface and subsurface are probably connected to some degree, you cannot make statements like the above with any degree of certainty.

5. A seep area with two existing springs within the proposed quarry area will be mined out, but water discharged from the springs will continue to drain to Little Turkey Creek.

   With the blasting in this fractured and faulted area it is impossible to state as fact that the discharge will all continue to drain into Little Turkey Creek.

6. Based on the available geologic information and information provided by Transit Mix, nearby wells in the vicinity of and west of the mine produce water from geologic fault zones associated with the drainages. The proposed quarry will not intersect the drainages and will therefore not directly interact with these fault zones. As stated above, mining is not expected to intercept ground water. For these reasons, mining will have little potential to impact nearby wells.

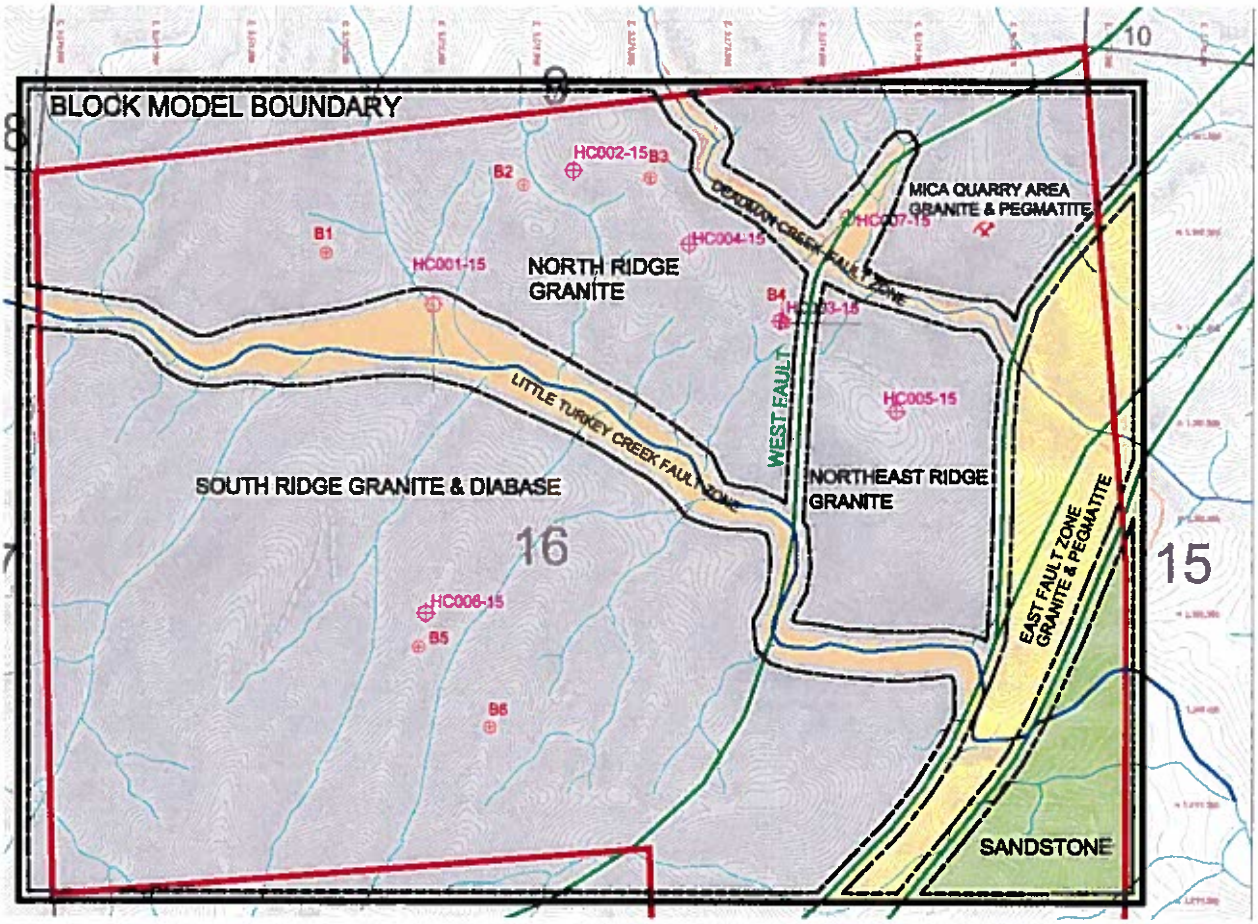
   There is insufficient geologic information to know specifically the source of the water produced by the wells in the vicinity and west of the mine. It is possible that the alluvium, sandstone, crystalline fractured granite, and brecciated fault zone are all connected by fractures and faults.

7. *Water demand at the site will be limited to sanitary uses within an office and dust suppression of the quarry roads. The mining plan does not include the exposure of ground water or washing of mined rock product. The currently proposed water source for these water uses is water purchased from Colorado Spring Utilities that will be trucked to the site. Local ground and surface water sources will not be developed for water supply, therefore, there is no potential for depletion to local ground and surface water supplies or water rights.*

   Are they planning to use the property's ground water or not? On page G-16, it states the following, which is in direct contradiction to the above statement:

   > *"Water needs for the operation include dust control on the roads and in the crushing and screening process. Water will be recycled whenever practical. The water usage plan prevents impacts to downstream water rights holders, and the sediment pond outlet works prevent impacts to water quality. The primary source of water will likely be via purchase from Colorado Springs Utilities with water hauled from Colorado Springs and stored on site. The Hitch Rack Ranch owns surface and ground water rights, and Transit Mix is evaluating the potential for future use of these waters. Transit Mix may in the future also install groundwater wells on the property to provide a supplemental water supply. Wells would be installed to prevent impacts to existing nearby water wells."*

Figure B
Transit Mix Geology Interpretation



STATE OF COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

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2 messages

Jerry P Moore <jerrypaulmoore@icloud.com> Thu, Apr 14, 2016 at 7:52 AM
To: amy.eschberger@state.co.us
Cc: Jerry & Karen Moore <jerrypaulmoore@icloud.com>, Jerry & Karen Moore <karenbmoore@icloud.com>

Amy,

Attached is a pdf file stating our objections to the proposed Hitch Rack Ranch Quarry. Please email confirmation you have received this document.

Please contact Jerry if you have any questions.

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15836 Spanish Peak Vw
Colorado Springs, Co, 80926
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Cell 832-875-7030

Objections to Permitting Hitch Rack Ranch Quarry Submitted_Signed.pdf
7350K

Eschberger - DNR, Amy <amy.eschberger@state.co.us> Thu, Apr 14, 2016 at 8:24 AM
To: Jerry P Moore <jerrypaulmoore@icloud.com>

Dear Mr. and Mrs. Moore,

I have received your timely objection and will add it to the permit file. I appreciate your participation in the application review process for the proposed Hitch Rack Ranch Quarry (Permit No. M-2016-010).

Thanks,

Amy Eschberger
Environmental Protection Specialist

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

P 303.866.3567 x8129 | F 303.832.8106 | C 303.945.9014

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Amy.Eschberger@state.co.us | http://www.mining.state.co.us

On Thu, Apr 14, 2016 at 7:52 AM, Jerry P Moore <jerrypaulmoore@icloud.com> wrote:

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