

Date: October 12, 2017

**Re: Comments: air quality permit #s 1468061001 & 747461004
Anderson Columbia Co., Inc. Air Permit, Comal County**

Scientific Basis for Comments

HUMAN, WILDLIFE AND ANIMAL HEALTH

1. Edward's limestone contains silica (a); some which is in the crystalline formulation which has the greatest long - term health effect including cancer, according to current research (b).
2. Silica exposure can cause autoimmune diseases such as lupus, scleroderma, and vasculitis. It can also cause silicosis, kidney disease, lung cancer, tuberculosis and other airway diseases. Environmental exposure to silica can occur in workers and bystanders in many industries. (c)
3. A study conducted by scientists at the Johns Hopkins University School of Public Health, found that for every cubic meter of air, an increase of 20 micrograms of airborne particulate matter (that's a scant 70 millionths of an ounce) brought a 1 percent rise in the death rate. Hospital admissions for elderly people exposed to the increased pollution rose between 2 and 4 percent. (d)
4. Experts now believe that more people may die prematurely as a result of exposure to minute particles in the air than die in accidents on the highway. (d)
5. Scientist found as short of time as 6 hours after exposure to dust, signs of inflammation in the lungs which can lead to overly aggressive immune responses that cause inflammatory damage to the lungs. (e)
6. Particles can also become lodged in cardiac muscle, reducing blood flow and affecting heart rhythm." According to one estimate, particulates are responsible for 1 percent of all heart disease fatalities in the United States, or about 10,000 deaths a year. (d)
7. Virtually no one has looked at the effects of airborne particles on wildlife, although many laboratory studies show that inhaled dust can damage both the hearts and lungs of dogs, mice and other animals. (d)

Citations:

- a. J.S. Pitman, Silica in Edwards Limestone, Travis County, Texas. 1959.
- b. <http://npic.orst.edu/factsheets/degen.html>
- c. <http://www.sclero.org/scleroderma/causes/environmental/silica/silicosis.html#overview>
- d. <https://www.nwf.org/.../Particles-and-Air-Pollution.aspx>

PLANT AND WATER HEALTH

1. The alkaline constituents such as oxides of calcium, potassium and sodium are responsible for the alkalization of ecosystem and soil. It is a common air pollutant affecting plants in various ways- deposition on leaves plugs stomatal activity and interrupts light absorption and gaseous diffusion which affects plant health and productivity. (a)
2. Dust from quarry activities has been known to affect biodiversity occurs in diverse in ways, it can disturb plant growth by settling on leaves and hinder photosynthesis thus disrupting food chains. It can also settle in water bodies and cause pollution. (b)

Citations:

- a. <http://www.icontrolpollution.com/articles/impact-of-crushing-and-quarrying-onvegetation-.pdf>
- b. <http://www.quarrylifeaward.com/sites/default/files/media/gh-35-en-impactquarryonwaterresources-finalr.pdf>

IMPACT TO THE EDWARDS AQUIFER KARST AND ITS ENDANGERED SPECIES

1. The 77,000 sq mi area of the Edwards-Trinity aquifer system which extends from SE Oklahoma to W Texas is complexly interrelated and hydraulically connected in some places. (a)
2. If quarrying intersects a phreatic conduit (a conduit in the saturated zone), the water-transporting function of that conduit will be severely impacted by (b):
 - a. Preventing access to water for aquatic communities, changing nutrient flows and light regimes.
 - b. Depleting ground waters by water trickling into the quarry or flowing at a rate of thousands of liters/second.
 - c. Dewatering pits result in additional devastation of species' habitat and water pollution by sedimentation.
 - d. The biodiversity of karst ecosystems is highly restrictive and can easily be destroyed by quarrying activities.
 - e. Man-made sink holes can be created in other areas damaging properties.
 - f. Contaminating the Edwards aquifer water with that of the Trinity which is of lower quality.
3. Water pumped from a quarry is likely to be lost from the local groundwater system; wells, springs, and streams can go dry or have their flows significantly reduced, and the overall direction of ground-water flow may be changed (c).
4. Groundwater quality is commonly affected by quarrying through increased fine sediment concentrations and accidental spillages. (b)
5. Removal of any soil cover allows direct access for pollutants into the aquifer, a problem which may be exacerbated by licensed or illegal tipping of waste following cessation of stone extraction. (c)
6. Changes in the humidity of karst openings, presence of water, and quality of water can all impact karst biota. (b)
8. The removal of stone results in the destruction of habitat including relict and active caves and natural sinkholes (c)

Citations:

- a. https://pubs.usgs.gov/ha/ha730/ch_e/E-text8.html
- b. William H. Langer, Potential Environmental Impacts of Quarrying Stone in Karst— A Literature Review, U.S. Geological Survey Open-File Report 01-0484
- c. Hobbs and Gunn, 1998, The hydrogeological effect of quarrying karstified limestone: options for prediction and mitigation

Comments and requests

1. Due to the magnitude of this proposed quarry operation, an environmental impact statement is requested to include impact to air quality of the entire site; source and fugitive particulate matter, emissions from diesel engines including trucks, impact to existing water quality and quantity of surface and ground water including the expected changes to the area's hydrology from quarrying operations, traffic impact analysis and finally the impact to endangered species (completed by an independent biologist) to be reviewed by US Fish and Wildlife before a permit is issued. Once this assessment is provided agencies' staffs and the public can better ascertain the real impact.
2. Require compliance with the TCEQ's *Technical Guidance on Best Management Practices for Quarry Operations* and allow a review by Edwards Aquifer Authority to comment in regard for water issues especially as it pertains to the integrity of the separation of the Edwards and Trinity aquifers. It is predicted that the 25ft cap over the Edwards is insufficient protection due to the scale of this project.
3. Require closed housing or dry particulate matter collection to reduce source air pollution on air permit.
4. Include a progressive plan for remediation/restoring the site in stages over the life of the quarry.
5. During the interim, issue a moratorium on all such new source air permits until the Commission has completed an investigation that can confirm that the emission releases from the existing quarries in the area are below excepted levels and do not have a direct negative health impact on the residents and by-standers. These studies will assist the Commission to set maximum levels to determine if additional quarries can be permitted in this area without crossing the threshold.
6. The fulfillment of these requests is appropriate as the TCEQ is the agency responsible for ensuring that the implementation of the state's laws meets the intent of the enabling federal laws.