

There are multiple reasons why the Salt Lake County Planning Commission should pass an ordinance prohibiting gravel pit/aggregate mining along the West side of the Wasatch Mountains. The NOI submitted by Mr. Lassley's company, provides numerous examples of the omissions and failures of such an operation and the ability of any such operation to be conducted in a way that is "acceptable" or even "tolerable" to the public interest and public health.

There are a handful of iconic assets, natural and manmade, that define this state, irreplaceable assets that contribute greatly to our quality of life. The Great Salt Lake, Temple Square, and the Wasatch Mountains are every bit as important to Salt Lake City as the World Trade Center was to New York City. But unlike the World Trade Center, once destroyed the Wasatch Mountains cannot be rebuilt, and nothing could ever replace them. We find it shocking that anyone would even suggest digging an enormous open pit mine in Parley's Canyon, that would become nearly one third the size of the current Kennecott open pit mine in the Oquirrh Mountains.

A petition of opposition to this mine has already gathered over 22,000 signatures in just a few weeks, many more are being added every day. That is far more signatures than we have had on any environmental petition in the state in the last 15 years.

Utah Physicians for a Healthy Environment are firmly opposed to this proposal. The Salt Lake Valley is already beset with unhealthy, chronic air pollution from multiple sources and steadily diminishing water resources. Those trends are destined to continue and likely accelerate and both would be aggravated by this proposed mine. More specifically, the additional dust and diesel pollution generated by the mine will only add to the health and quality of life consequences from existing sources of environmental degradation in the Valley. Mt. Aire residents would be particularly exposed. And it seems nearly certain that water quantity and

quality in the area (Parley's creek, Millcreek, groundwater, and two nearby reservoirs) will ultimately be diminished and degraded.

### **Claims of Greater Community Harm Without the Mine are False**

Mr. Lassely's company audaciously claims that if this project is not permitted it will adversely impact the citizens of the state through more traffic, diminished air quality, and higher taxes, presumably because this mine would be closer to the end use of the gravel. There is no evidence for this claim, and it is contrary to empirical evidence and common sense.

The primary areas of future growth, including road building, construction, and concrete use in the Salt Lake Valley will be the Westside, the Northwest Quadrant, and the site of the soon to be abandoned prison in Draper. This proposed mine is not close to any of that, and large, already existing mines are much closer.

There are already about 20 aggregate mines scattered up and down the Wasatch Front. The mine on the north side of Parley's Canyon, that virtually everyone believes was, and is, a mistake, is one of them. There is no shortage of mines close to just about every potential site of large future building projects or road ways.

### **An Approval Order From DAQ Will Not Protect Public Health**

The NOI states that the Lassley mine "will have a Fugitive Dust Control Plan, which will depict the necessary controls that will be implemented to control fugitive dust emission and meet state regulations for the proper maintenance and management of all fugitive dust standards." Unfortunately, in no way will compliance with state standards protect the public.

The combination of diesel exhaust and fugitive dust emissions, including blasting and truck hauling, make all mines major pollution sources.

Under the section of “Air Quality” Lassley’s NOI brushes over the issue almost entirely, stating, “Tree Farm or a Tree Farm subcontractor will obtain a temporary relocation permit for initial operations (first year) and a subsequent air quality approval order (AO) to commence operations at this location. To obtain the AO, the operator will evaluate the impacts imposed by the facility to ensure no detrimental impact to the surrounding public health and air quality will occur and ensure that operations would meet National Ambient Air Quality Standards (NAAQS). NAAQS are developed for criteria pollutants and ensure the health and safety of the public.”

This reveals that Lassley does not understand what the NAAQS are, to what extent they protect public health, nor to what extent the Utah Division of Air Quality (UDAQ) is able to enforce compliance with NAAQS or regulate pollution from mines or any other stationary source.

There will be no official monitoring by local, state, or federal agencies of the air quality of those communities closest to the mine. No determination of compliance with NAAQS in the areas most affected will even be attempted. Currently, and for the foreseeable future, the closest air quality monitor operated by the UDAQ that could determine compliance with NAAQS will be at the Hawthorne Elementary School at least 8 miles away from the mine.

Obtaining a permit from UDAQ will not be dependent on pollution from the mine not causing a violation of the NAAQS. In fact, the director of UDAQ has stated publicly that state law does not allow UDAQ to refuse a permit for the mine, it only allows them the opportunity make them comply with a permit. Those permits offer little protection for the public.

Fugitive dust from mines is notoriously poorly regulated in Utah. Under state law, beyond a permit establishing a limit on production volume, virtually the only dust constraints are that mining operations like gravel pits are required to prevent any dust clouds from leaving their property boundary lines that have an “opacity” denser than 10%, and 20% within the property line. But even from that minimal constraint there are multiple, glaring escape clauses.

Even this inadequate regulation does not apply when wind speeds are greater than 25 mph, which is about one third of the time in Parley’s Canyon. The opacity limit cannot be enforced at night, and because of that use of water for dust suppression routinely does not happen at night or at other times if the mine is not in operation. When it is hot and windy, it is nearly impossible to apply water often enough to control dust adequately. Utah law requires gravel pits to maintain records of compliance with the fugitive dust rule, but the public is denied access to those records. And those records do not reveal whether the mine is meeting the 10% opacity limit.

Lassley’s NOI states, “Trained and certified personnel will conduct Method 9 opacity tests as needed to ensure that opacity is within compliance ranges.” Utah law does not require gravel pits to measure the opacity of dust leaving their property or otherwise show they are meeting the 10% opacity limit. Utah DAQ performs actual opacity measurements only about once every 12 to 18 months. This means that no one – not DAQ, mine employees, or the public – knows whether the gravel pits are in regular compliance with the opacity limit, and therefore, no one is accountable for meeting or enforcing the law. Enforcement of even this weak standard is nearly non-existent as residents living near gravel pits throughout the state can attest.

Furthermore, even if the mine’s dust did not cause a violation of federal NAAQS at any point in the SL Valley or Parley’s Canyon, that would

not indicate that public health is not being harmed. This will be addressed in more detail later.

There are no state or federal requirements for analyzing or regulating what other toxic elements may exist in the dust, such as heavy metals and crystalline silica (this will be further addressed below). These toxic components of dust may present a greater health hazard than common dust particles themselves.

The history of state enforcement of mine pollution is grossly inadequate. Fines are not enough to incentivize compliance with even these weak standards. The largest fine of any gravel pit in the modern history of the state was levied against Geneva in 2008 for \$1.7 million. This was for exceeding their production limit of concrete, asphalt, aggregate, and sulfur dioxide. The fine was a fraction of the monetary value to the company realized by that “overproduction.”<sup>20</sup>

### **Any New Source of Air pollution Will Have Public Health Consequences**

Air pollution, including dust particulate matter, is significantly associated with a list of adverse health outcomes almost as long as the list from smoking cigarettes. Air pollution affects the functioning of all major organs, increasing the risk of heart attacks, heart failure, strokes, neurologic diseases like dementia and impaired cognition, every type of lung disease, impaired fetal development and poor pregnancy outcomes, cancer, and metabolic diseases like type II diabetes. Air pollution accelerates the aging process, shortens the average person’s life span, and causes increased rates of disease related premature death. It even alters genetic function and damages chromosomes and can impair the health of future generations.

Studies specific to people exposed to dust show some startling results. For example, residential populations chronically exposed to dust from such things as the desiccated Aral Sea, Owens Lake, and the Sahara Desert reveal a wide range of poor health outcomes, including shortened life expectancy, high rates of cancer, infectious diseases, respiratory and heart disease, reproductive pathologies, adverse pregnancy outcomes, anemia, birth defects, and infant mortality.<sup>1</sup> Even short term inhalation of the type of particles typical of gravel pit dust are associated with increased hospitalizations for heart disease.<sup>2</sup>

Thousands of medical studies from throughout the world have established several tenets relevant to the pollution from this proposed mine.

1. Despite the existence of federal clean air standards, there is no safe level of air pollution. Even at very low levels, air pollution, including levels that are “allowed,” or “compliant with EPA standards,” still cause significant harm to public health. In fact, the overwhelming majority of air pollution related deaths occur at levels that are acceptable by the EPA’s standards.<sup>21</sup> Any dust pollution from gravel mining will only add to existing background Wasatch Front levels and further increase the pollution and public health burden to eastside valley residents.

2. While dust pollution from mining and gravel pit operations certainly contains particles large enough to be captured by the upper respiratory tract and don’t represent as much of a health threat as smaller ones, it also contains significant amounts of smaller, more dangerous particles. Furthermore, those smaller particles stay suspended in the atmosphere longer, they disperse more widely, penetrate homes more easily, and are readily inhaled and distributed throughout the body.

3. Toxicity and public health consequences are also related to whatever is attached to those particles, such as chemicals and metals. Dirt and

rock in other areas on the Wasatch Front has been analyzed and found to have higher than normal levels of heavy metals like arsenic, and about four times the typical amount of the alpha emitter, uranium. To our knowledge there has been no soil or rock analysis done of this area for heavy metals and there is no mention of such an analysis in the NOI. Particles in the diesel emissions from the heavy equipment used at the gravel and grading operations are significant sources of toxic chemicals like PAHs (polycyclic aromatic hydrocarbons).

4. Virtually everyone is harmed by air pollution whether or not they have symptoms, but there are substantial genetic and gender differences among individuals affecting their vulnerability to the health consequences. What is “clean enough” air for one person is not “clean enough” for all people.

5. Because of critical developmental windows, small children and babies in utero have much greater risk from pollution than adults. This is just one segment of the population for whom even brief exposure to pollution can have life-long consequences. Because of greater physical activity, higher metabolic rates, and hand to mouth actions, young children will be more exposed than adults via both inhalation and ingestion. Exposure of pregnant women who live nearby will extend the public health consequences to more than one generation because of the damage that diesel exhaust and industrial pollution can do to chromosomes and fetal development.<sup>3,4,5,6,7,8,9,10</sup> If pollution levels are not safe for pregnant mothers, they cannot be considered safe for the community at large. The toxic dust generated will continue for years, but the health consequences will last much longer.

6. Residents of communities near gravel pits may have even greater exposure than gravel pit employees. The mining activity exceeds a 40 hour work week, disturbed raw land surfaces are a perpetual source of dust, and the dust that lands on their yards, driveways, and inside their

homes can be resuspended during a family's daily activity, extending their exposure and magnifying the health risks.

7. Diesel emissions from the heavy equipment involved with the grading project will add significantly to the health hazard to nearby residents. Diesel exhaust is a proven carcinogen, revealed by recent research to be even more toxic than previously thought. A recent landmark study indicates that long term exposure to even low levels of diesel exhaust raises the risk of dying from lung cancer about 50% for residents who live near industrial operations, and about 300% for the workers.<sup>11,12</sup>

8. Crystalline silica (CS) is an additional health threat unique to dust pollution. The amount of CS dust from this area has not been assessed, but other studies in many other locations show wide variability in the percentage of respirable dust particles that are CS, anywhere from 1% to as much as 95%,<sup>13</sup> depending on the type of mining operation and geographic location.

The EPA has not set a National Ambient Air Quality Standard (NAAQS) for CS, however they do offer a "benchmark" of 3 ug/m<sup>3</sup>, but the EPA admitted they did not factor in people with existing lung disease, children, or pregnant mothers, and assumed that the public's exposure would be less than in the workplace, something that is not likely true for Parley's Canyon residents who live near the grading operations. Only a few states have established a "benchmark" level for ambient levels of CS and Utah is not one of them. Those state levels range from New York, the most strict at 0.06 ug/m<sup>3</sup>, to 3 ug/m<sup>3</sup> in California, the same as the EPA. Studies from California recorded air samples from monitors downwind of gravel pit operations with concentrations of crystalline silica ranging from 9.4 to 62.4 ug/m<sup>3</sup>, many times greater than everyone one of those benchmarks, and orders of magnitude greater than the most strict of New York's.<sup>14</sup>

The age of silica particles matters. Crystalline silica is particularly high in industrial settings, like mining operations that expose freshly fractured solid rock (e.g., crushing, grinding, blasting, cutting),<sup>15</sup> which is precisely the nature of proposed gravel pit operations in Parley's Canyon. Dust from newly fractured rock, is composed of microscopic particles that have sharper edges compared to "weathered" material, and inhalation of those particles can do more damage to the lungs.

By virtue of their close proximity, nearby residents are subjected to the same higher risk, industrial type of silica as gravel pit employees. While chronic silicosis is usually thought of as an occupational disease, significant rates of non-occupational silicosis have been documented in residents exposed to chronic dust exposure.<sup>16</sup>

### **Water Contamination Likely**

In addition to the possibility of contaminating ground water below the mine, chronic, persistent mining dust will settle on top of the water in reservoirs northeast of the proposed mine site. Numerous studies have proven that wildfire pollution contaminates surface waters, including streams, lakes, and reservoirs with sediments, algae-promoting nutrients, and heavy metals. There is every reason to suspect similar contamination is possible with persistent fugitive mining dust settling on top of, and washing into reservoirs and Parley's Creek and Millcreek.

The NOI states, "There are no deleterious or acid forming materials, nor shall any of these materials be left on site. If this type of material becomes present, Tree Farm will take preventive actions to mitigate impacts." Acid mine drainage is likely wherever there are pyrite or copper ores. There is nothing in the NOI that indicates whether any analysis has been done for the presence of those minerals in the rock that

is planned for mining. That the proposal dismisses the issue with “Tree Farm will take preventive actions to mitigate impacts” if “this type of material becomes present” speaks to the inadequacy of the NOI.

The NOI states, “There will be ‘about feet’ in vertical separation between the quarrying activities and the potential to encounter groundwater.” The actual depth of the groundwater that is at risk has been left out of the NOI. In other words, the NOI does not actually address the possibility of contaminating ground water.

### **Parley’s Canyon Vegetation Will be Degraded Beyond the Mine**

Fugitive dust will settle throughout Parley’s Canyon having an effect far beyond the Lassley’s property in harming the vegetation, acutely and chronically.

“Dust may affect photosynthesis, respiration, transpiration and allow the penetration of phytotoxic gaseous pollutants.”<sup>17</sup> “Long-term depositions change the photochemistry leading to retarded leaf growth.”<sup>18</sup> “Dust deposition on leaf surfaces reduces synthesis of chlorophyll-a.”<sup>19</sup> Chemical dust suppressants like magnesium chloride can migrate through soil via precipitation. This will add further stress to plants and trees that are already likely to be damaged or killed by the mine’s fugitive dust, increasing the ecological consequences of the mine far beyond Lassley’s property. The impact is greater during summer months, exactly the time when dust suppressants are used.

### **Lassley’s Reclamation Proposal Cannot be Considered a Serious Proposal**

Lassley admits that there will be no reclamation until the life of the mine has ended, presumably in 100 years, and offers \$3,144,000 as a reclamation bond “for a worst case scenario.” This is a tiny fraction of what actual reclamation would cost now, and obviously much more so in 100 years. Certainly this is not to be taken seriously by any government entity. The mine’s walls will have steps of nearly 70 degrees. The NOI says that 6 inches of top soil will be spread over the mine’s scars and then seeded. No vegetation will adhere to slopes that steep, nor will 6 inches of top soil.

We urge the SL County Planning Commission to recommend any and all ordinances that will prevent new mines of any type along the Wasatch Front.

Sincerely,

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