



Summer 2022

UPEnvironment



UPDATE: STOP THE ROCKET

Dennis Ferraro · *Citizens for a Safe & Clean Lake Superior*

Over the last 12 months, a clearer picture has emerged of the attempts of a Detroit lobbyist, the Michigan Aerospace Manufacturers Association (MAMA), to promote a plan to construct a heavy industrial, vertical rocket launch site on a pristine stretch of Lake Superior shoreline. The proposed site in Powell Township near Thoneys Point on the Granot Loma estate, which is listed on the National Register of Historic Places, is just ten miles north of Marquette.

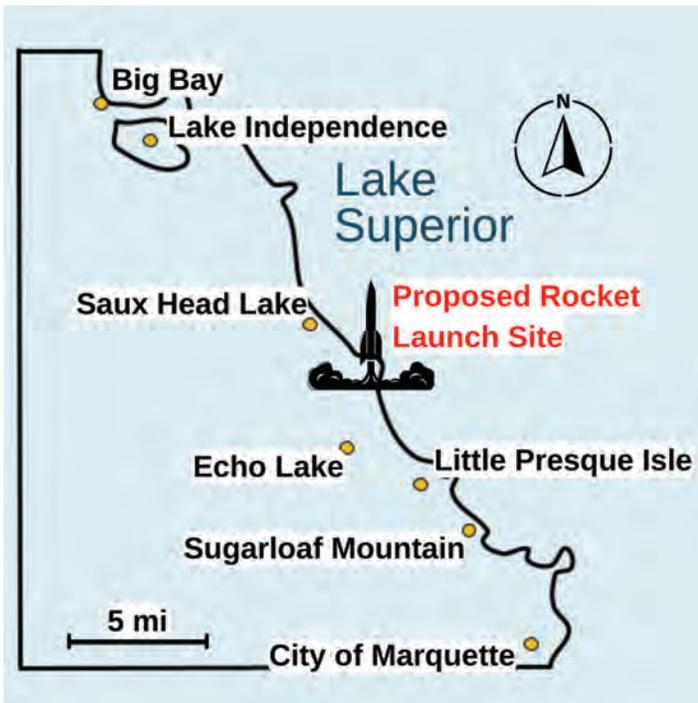
If allowed to go forward, the spaceport would destroy the precious freshwater resources of Lake Superior and its coastal

habitat. Such an intensely industrial use would damage the ecosystem, endanger public safety, adversely impact our regional recreational-based economy, and severely degrade the quality of life for all who come to visit, recreate, work, or reside near Lake Superior's beautiful southern shore. That's why concerned citizens—not just in the immediate area but across the country—have joined together to form Citizens for a Safe & Clean Lake Superior (CSCLS). We know that our lakeshore's coastal ecosystem cannot be separated into anyone's private front- or backyard, but is instead a shared resource which benefits and sustains us all.

In this article we provide an update on current developments. The latest information can be found on our website, stoptherocket.com.

▲ [The proposed rocket launch site.](#)

SUPERIOR WATERSHED PARTNERSHIP AND LAND CONSERVANCY



▲ Location of the proposed rocket launch on the shoreline of Marquette County, relative to Big Bay, the City of Marquette, and popular recreation areas. MAP CREATED BY CAIT STERNBERG

CURRENT STATUS

Based on our best information to date, obtained by Freedom of Information Act (FOIA) requests to the Federal Aviation Administration (FAA) Office of Commercial Space Transportation, it appears that MAMA is currently focusing its efforts on obtaining a site operator’s license for a proposed horizontal rocket launch site at the Oscoda-Wurtsmith airport near Lake Huron in the Lower Peninsula and that it has not yet approached the FAA to begin its licensing application for the proposed vertical launch site at Granot Loma.

This is good news because it allows us more time to raise public awareness and gain more support for our StopTheRocket campaign in Marquette County and beyond. We can share with you now some additional facts.

MAMA’S MISREPRESENTATION OF ECONOMIC BENEFIT

In April 2022, we exposed MAMA’s exaggeration of the so-called “jobs benefit” of this spaceport plan, and its attempt to conceal and suppress an independent economic study that found that spaceports in Michigan will not be economically viable and will not provide significant economic benefit to the UP or anyone in Michigan.

Following MAMA’s receipt in December 2019 of a \$2.5-million grant of taxpayer money to promote the novel idea of rocket launching spaceports for Michigan, the

Michigan Economic Development Corporation (MEDC), which administered that grant, required that MAMA hire the IQM Research Institute, an Ann Arbor consulting firm, to independently evaluate whether this idea made economic sense.

In their February 2021 *Michigan Launch Report*, the IQM researchers stated that even though they had been hired to advocate for spaceports in Michigan, their study showed that:

- building spaceports like the one proposed for Granot Loma would not be “self-sustaining nor economically viable,” and that because of existing over-capacity and under-use at the 13 existing licensed US spaceports, launch facilities like the proposed UP site are struggling economically;
- any public investment in such plans is “a very high financial risk”; and
- even launching as many as one rocket per week would not produce any more annual economic benefit for Michigan than opening two fast-food restaurants, and that a realistic revenue projection for all Michigan spaceports would be “below \$1 million” annually.

Though MAMA received this IQM report in February 2021, its CEO failed to disclose it to Marquette County Commissioners when he appeared before them in May 2021 and continued to conceal it from the public when MAMA posted other “studies” on its website in September 2021.

It was only when CSCLS obtained this report by FOIA request to MEDC and then released it to *The New Yorker* magazine that the truth came out.

ENVIRONMENTAL IMPACTS ON LAND AND WATER

As an example of the remarkably high failure rate of rockets of the type planned for Granot Loma, the IQM report pointed out that in 2020 three failed during launch, and that these types of launches pose “significant environmental concerns” and risks “chemical, noise, and safety” impacts.

Independently, we know that in 2018 at Pacific Spaceport Complex in Kodiak, Alaska, two rockets exploded, and toxic kerosene fuel contaminated 230 metric tons of soil, which had to be excavated and decontaminated off-site.

In September 2021, the Firefly Alpha rocket, a model which MAMA plans for use at Granot Loma, exploded on launch at Vandenberg Space Force Base in California, spewing approximately 40 tons of toxic fuel.

On July 6, 2022, at Vandenberg, a Minotaur II+ rocket carrying components of nuclear missiles exploded just 11 seconds after leaving the launch pad, and debris ignited a fire nearby.

Imagine the fire hazards of such explosions over our frequently dry forests, or if exploding over the lake, the resulting contamination of the three million gallons of water per day that a lakeshore filtration plant draws for drinking water for our friends and neighbors in Marquette.

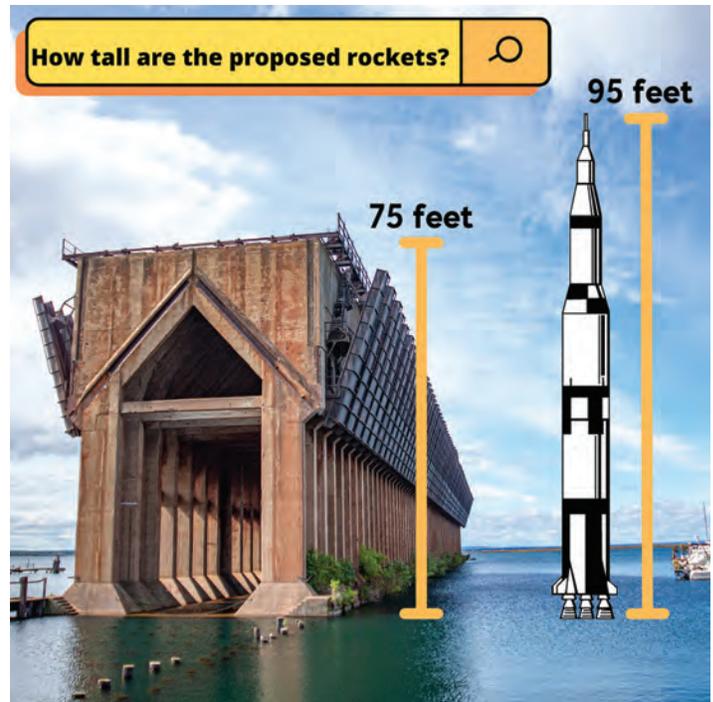
Even with “successful” launches, rocket parts, including first stages, nose cones, and battery packs will fall into and contaminate Lake Superior.

PROPOSED INDUSTRIALIZATION OF THE LAKE SUPERIOR COAST

We have now learned that MAMA plans a 2,800-acre complex featuring multiple launch pads, each of which will require a surrounding 250-acre-controlled area. The required clear-cutting, riparian erosion, and destruction of wetlands will further degrade the surrounding watershed and will destroy critical wildlife and natural community habitats. Multiple companies will launch rockets as large as the 95-foot, 120,000-pound Firefly Alpha rocket.

The noise from these rockets is so extreme that a water suppression system is required to deluge the launch pad to keep rebounding acoustic shock waves from knocking the

▼ The height of the Firefly Alpha rocket compared with that of Marquette’s Iron Ore Dock. GRAPHIC CREATED BY CAIT STERNBERG



rockets over. This will use thousands of gallons of water drawn from lake or fragile groundwater sources, which will be propelled forcefully downward from a huge water tower. We know that many of these rockets will register noise levels at 165 decibels, causing wildlife to lose the ability to

▼ Thoney Point at Granot Loma. CITIZENS FOR A SAFE & CLEAN LAKE SUPERIOR



communicate, hunt, and navigate. Humans, as well as some wildlife, experience hearing damage at 90 decibels and pain at 125 decibels.

In terms of visual pollution, each launch complex will have a minimum of two separate outbuildings, as high as eight stories tall, with each launch pad surrounded by four 150-foot lightning towers. All-night security flood lighting necessary for each of these structures will pollute the dark night sky.

This proposed launch area is surrounded by popular recreation areas such as the Hiawatha Water Trail, trout fishing and hiking on the Little Garlic River at the Donnelly Trailhead and preserve, the North Country Trail, the Noquemanon Trails at Saux Head Lake, the Eagles Nest Coastal Community Forest, the Echo Lake Nature Preserve, and the popular granite overlook at Harlow Lake. These are all places where UP residents and tourists come to recreate, refresh their minds and spirits, and connect with nature.

We cannot squander these precious resources and diminish our quality of life in exchange for a needless, destructive, and non-economically productive plan to industrialize Lake Superior's shoreline.

WHAT YOU CAN DO

Community support for our campaign to protect Lake Superior is steadily growing. Local businesses are distributing StopTheRocket yard signs and bumper stickers. Local artists have donated the proceeds of sales of their artwork, and others have created compelling videos regarding this new threat to our lake. People are writing to government officials to voice their opinions and giving public comment at open meetings.

To show our appreciation for one outstanding individual effort, CSCLS presented our annual "Environmental Excellence Award" and scholarship gift this year to a Northern Michigan University student who started an

online petition in July 2020 opposing the launch plan. That petition now has over 25,000 signatures.

And, inspired by that petition, CSCLS is now initiating a more specific petition on our website, which is directed to local, state, and federal decision-makers asking them to reject this dangerous launch plan.

Please join us now in organizing and mobilizing to protect Lake Superior. You can sign CSCLS's petition, email government decision-makers, and attend county commission meetings to make a public comment.

LEARN MORE

> citizensforasafeandcleanlakesuperior.org

> Read the *New Yorker* article: "The Plan to Make Michigan the Next Space State" (<https://www.newyorker.com/news/us-journal/the-plan-to-make-michigan-the-next-space-state>)

> Watch a short video on YouTube: "A New Threat: Lake Superior Endangered by Rocket Launch Proposal" (<https://www.youtube.com/watch?v=nU4jofvTQ6c&t=12s>)

What will our story be?

Clean water, wildlife, tranquility

Pollution, evacuations, explosions

StopTheRocket.com

CITIZENS FOR A SAFE & CLEAN LAKE SUPERIOR

WATER CELEBRATION ADDRESS

Dr. Al Gedicks, *Executive Secretary of the Wisconsin Resources Protection Council; adapted from remarks at the Water Celebration sponsored by the Coalition to SAVE the Menominee River; July 23, 2022, Marinette, Wisconsin*

Welcome to the Second Annual Water Celebration. We have much to celebrate—there is no sulfide mine next to the Menominee River. If permitted, the proposed Back Forty sulfide mine would be a perpetual pollution machine discharging acid mine drainage to ground- and surface waters in perpetuity.¹ So we have to continue with our opposition because the Gold Resource Corporation has taken over the permitting process after Aquila Resources was forced into bankruptcy.

The effort to protect the Menominee River has been going on for over 20 years. How did we get to this point? In July 2009, Aquila Resources President Tom Quigley told the Lake Township Board that his company expected to receive permits for the Back 40 mine in 2010 and begin production in 2012.² Thanks to Ron and Carol Henriksen and the Front 40 Environmental Group, this never happened.

Now, ten years later, Aquila Resources has spent over \$100 million and their mining permits have either been overturned or withdrawn thanks to the combined public education and legal challenges by the Coalition to SAVE the Menominee River, the Menominee Indian Tribe of Wisconsin, and Tom Boerner, a private landowner with property next to the mine site.

Aquila Resources is a bankrupt company. They conducted an unsuccessful public offering to raise funds for the project but had to withdraw the offering in March of 2021.³ Then Aquila tried to sell its assets to 30 other companies. Aquila provided investors with confidential financial records but there were no takers for this financially risky project. The only investor willing to assume the financial risks of the Back Forty project was the Gold Resource Corporation (GORO) of Denver, Colorado.

However, there is a serious question about whether GORO has disclosed the real financial risks of the project to their investors, as required by the Securities Exchange Act of 1934. In March of 2022, GORO's public accounting firm, Plante and Moran, called it quits. The accountants concluded that "the GORO did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2021, because a material weakness in internal control over financial reporting related to the accounting for the Aquila Resources Inc. acquisition existed as of that date."⁴ Accounting firms don't suddenly quit representing a company unless they are concerned that they may be in violation of their own accounting standards. GORO's most recent Securities and Exchange (SEC) Commission report concludes "that our disclosure controls and procedures were not effective as of June 30, 2022 as the material weakness has not yet been fully remediated."⁵

GORO has asserted that they will have all the permits for the Back Forty project in hand by the end of 2023 and begin construction in 2024.⁶ Initial production is expected in 2025.⁷

This prediction is based upon the false narrative that GORO President Allen Palmiere presented to GORO shareholders on September 8, 2021. When Mr. Palmiere was asked about any risk factors that GORO might encounter from organized opposition in Michigan and Wisconsin, he said "The key takeaway on this particular project is that it has, in fact, been fully permitted before."

In fact, the only permit that was fully permitted and effective was the NPDES (National Pollutant Discharge Elimination System) or mine waste discharge permit. The other permits, including the mine permit, the air permit, and the wetlands permit, were being contested by the Coalition, the Menominee Tribe, and Tom Boerner, and therefore not valid permits. Aquila had to withdraw its dam safety permit application twice because the Michigan Department of Environment, Great Lakes and Energy (EGLE) considered the applications incomplete.

Mr. Palmiere assured GORO investors that the Back Forty project "is going to be relatively easy to permit." Palmiere dismissed the serious problems with the wetland permit saying that "it was the way with which the wetlands permit was worded and it was viewed as a conditional permit rather than an unconditional permit."⁸

However, Judge Daniel Pulter's decision to overturn the wetland permit made it perfectly clear that this was not simply a problem of "wording." He ruled that Aquila's permit application failed to disclose the extent of wetland impacts. The scientific testimony in the contested case revealed a consistent pattern of Aquila's manipulation of scientific data to conceal significant negative impacts to wetlands from the proposed mine.

During public hearings on the wetland permit, officials from Michigan's Department of Environmental Quality (DEQ) consistently disrespected citizens who expressed their desire to maintain and protect clean water in the Menominee River. They were told that their opinions didn't count because only scientific information and legal requirements would be considered in the decision-making process. Then the director of the DEQ overruled the agency's own water quality scientists and approved the permit after being told that the permit did not meet the legal requirements of the Clean Water Act.

Had the Coalition, the Menominee Tribe and Tom Boerner not filed a contested case challenge against this blatant disregard for science and the law, there would be an open pit sulfide mine next to the Menominee River today. Never underestimate the power of citizen and tribal activism in protecting our clean water.

On April 7, 2022, five years to the day of the founding meeting of the Coalition to SAVE the Menominee River, three of us—Dale Burie, Lea Jane Burie, and myself—met with Allen Palmiere, the President of GORO, and Kim Perry, GORO's chief financial

officer, at the AmericInn in Menominee, Michigan. It's not very often that the CEO of a mining corporation is willing to engage in face-to-face dialogue with the organized opposition to their project. This certainly never happened when Aquila Resources was promoting the Back Forty project.

GORO wanted to size up their opposition and open up a line of communication that had never happened with Aquila. Also, as a former CEO of Hudbay Minerals, a large Canadian mining company, Mr. Palmiere was well aware of the importance of a social license for mining projects. According to industry consultants, a social license "will soon be akin to a mining licence, without which mining companies will find it impossible to operate."⁹

My first question to Mr. Palmiere concerned his dishonest statement to GORO shareholders that the Back Forty project had been "fully permitted before." I explained that some of the permits were being contested while the dam safety permit was never granted. Mr. Palmiere immediately became agitated and denied that he lied to investors. He also said that the dam safety permit was not required as part of the mine permitting process. As I tried to explain that EGLE was very clear that the dam safety permit was essential, Mr. Palmiere interrupted me as he grew more defensive at my insistence about his ignorance of the permit process. At that point, Kim Perry intervened and said that we need to calm down if we are going to have a dialogue about the project.

After denying that GORO needed a dam safety permit, Mr. Palmiere told us that GORO was not going to have a tailings dam. Instead of a tailings dam, they are planning to do a "dry stack," sometimes called "filtered tailings." Tailings are the waste material left over from the crushing and chemical processing of the gold and zinc ores. Over the life of the mine, the Back Forty project would generate approximately 15 million tons of tailings that will be stored in a dam built using crushed mine-waste rock and soils.¹⁰ The dam is essentially a lake of thick, semi-hardened mud, consisting of water and the solid wastes from the milling process.¹¹ If GORO does a "dry stack," the tailings will have a reduced water content ("filtered") after mill processing. The resulting tailings are like a moist soil and can be stacked in piles and compacted. This would be a much safer alternative to a conventional tailings dam. However, filtered tailings can cost five to ten times more than a conventional dam.¹²

Was GORO serious about a dry stack or were they just trying to counter the strong local opposition to a tailings dam next to the Menominee River? The economics of the Back Forty project suggest that the dry stack is a highly unlikely investment. The capital cost estimate for the low-cost tailings dam and waste rock facility is \$42.6 million. It is the second-most expensive item of the entire \$250 million project.¹³ Five times \$42.6 million is \$213 million; ten times \$42.6 million is \$426 million, far more than the entire cost of the existing Back Forty project. GORO already has been unable to raise the necessary capital for the project.

According to a widely respected investment newsletter, "investors should avoid the Gold Resource's stock until the funding package takes shape."¹⁴ In light of GORO's lack of sufficient funding, we should not be fooled by GORO's claim to invest in a safer tailings design.

Whether dry stacking waste is a workable solution is debatable. Lindsay Newland Bowker, an environmental risk manager who studies accidents at mining dams, thinks the technical hurdles are significant because of the low grades of ore that companies are digging up. Meanwhile, "dried material could still become saturated with water, or become eroded over time. I call it the dry stack myth," Ms. Bowker said. "And I am trying, as a community environmentalist, to get people to stop demanding it."¹⁵ According to Priscilla Nelson, a geotechnical engineer at the Colorado School of Mines, "the best tailings dam is no dam at all."¹⁶

When the proposed Back Forty tailings dam is at its final stage (the dam is not constructed at one time, but is built up as new tailings are deposited in the dam), the facility will cover a total area of 124 acres. The maximum height of the facility at the end of operation will be 138 feet, or 13 stories high.¹⁷ The taller the dam, the greater the catastrophe if it fails. The upstream dam design that was proposed by Aquila in its latest dam safety permit application is the lowest-cost option but the most prone to failure, according to experts. About 76% of failures worldwide are related to upstream dam construction methods.¹⁸ Dams are extremely vulnerable to liquefaction when the tailings behind the dam are saturated with water and "seemingly solid materials suddenly behave like liquids."¹⁹ The liquid mixture erodes the structure of the dam and increases the potential for a rupture. Wet tailings travel farther and faster if they escape, causing more destruction.²⁰ A 2021 study in *Nature*, the world's most prestigious scientific journal, reported that "active upstream facilities report a higher incidence of stability issues (18.3%) than other facility types, and that this elevated risk persists even when these facilities are built in high governance settings."²¹ In other words, having regulatory agencies like EGLE, even with adequate staffing and resources, does not guarantee public safety.

The 2019 Brazilian tailings dam failure released 3 billion gallons of sludgy mine waste that killed over 270 people in Brazil's deadliest-ever mining accident. According to the *Wall Street Journal*, "A wall of mining waste crashed into Vale's crowded lunchroom, below the dam, and engulfed a nearby hotel and homes, traveling as fast as 50 miles an hour."²² The contaminated waste polluted 200 miles of the Paraopeba River, making it useless as a water supply for the state and unsuitable for aquatic life.²³ Brazilian prosecutors said that the dam had shown a critical structural weakness since at least 2017 and that Vale, the dam's owner, had been fully aware of its safety problems.²⁴

The upstream tailings dam design has been banned in Brazil, Chile, Peru and Ecuador.²⁵ Furthermore, the American International Group, a major insurance company in the mining

liability business, has cut back the vast majority of its insurance for tailings dams.²⁶ EGLE has received over 600 letters opposing the upstream dam design thanks to the Coalition's "Call to Action" on its website.²⁷

Imagine such a gigantic pile of toxic tailings a few hundred feet from the banks of the Menominee River. Any kind of extreme weather event (heavy rainfall, tornado, hurricane) could easily destroy the dam and send a river of toxic sludge directly into the Menominee River and eventually into Lake Michigan, affecting the drinking water for 10 million people.²⁸ Let me remind you that on June 15, 2022, 13 tornadoes hit Wisconsin. Two of the most serious tornadoes touched down in Marinette County. One of them had winds estimated at 112 miles per hour and destroyed the Silver Cliff Volunteer Fire Department firehouse. The tornado was on the ground for 1.9 miles and had a damage path that was 275 yards wide. In addition to damaging buildings, the tornado flattened or uprooted hundreds of trees in a forest.²⁹ If such a tornado struck a tailings dam next to the Menominee River, all the toxic waste would flow directly into the river, contaminating the drinking water for millions of people. In the event of widespread flooding with heavy, sandy mud that destroys everything in its path, Michigan's Dam Safety Program would be "hard pressed to act adequately."³⁰ Permitting a tailings dam next to the Menominee River is INSANE!

As the United Nations Environmental Program has noted, "Despite good intentions . . . large storage facilities, built to contain mine tailings, can leak or collapse. These incidents are even more probable due to climate change effects. When they occur, they can destroy entire communities and livelihoods and remain the biggest environmental disaster threat related to mining."³¹ A recent review of tailings dam failures concludes that "keeping the tailings pond safe and stable is the most challenging task in the entire mining process."³²

As the richest ore deposits are exhausted, mining companies must extract larger deposits with ever-declining grades of ore by digging larger and deeper pits, creating record volumes of waste.³³ To contain larger volumes of waste requires the construction of gigantic earthen tailings dams with increasing risks of failure. The rock-to-metal ratio indicates how much ore and waste rock must be mined, moved, and processed to produce a refined unit of a mineral commodity. According to this new measurement, "gold was found to have the highest ratio of about 3,000,000-to-1, which means for every three metric tons of ore and waste rock moved and processed, only one gram of gold is produced."³⁴ We also know that gold mines released nearly 1 ton of CO₂ (carbon dioxide) equivalent for every ounce of gold that was produced in 2019.³⁵ Increasing CO₂ releases from gold mining exacerbates extreme weather events that pose a growing threat to tailings dam safety. Heavy rain has been implicated in 25% of global and 35% of European tailings dam failures.³⁶

If GORO proceeds with the Back Forty permitting process, it

will be up to citizens and tribal members like those gathered here today to expose these inconvenient facts and mobilize a broad coalition to protect the Menominee River and Menominee Nation sacred sites from an ecologically destructive mining project.

Thank you.

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