
PUBLIC COMMENTS RECEIVED FOR THE WOLFDEN ZONING PETITION

ZP 779, Pickett Mountain Mine, T6 R6 WELS

10/06/2020 through 11/20/2020

**Maine Land Use Planning Commission
Maine Department of Agriculture, Conservation and Forestry**

The Maine Land Use Planning Commission is accepting public comment on the zoning petition filed by Wolfden Mt. Chase, LLC. to allow for development of the Pickett Mountain Mine in T6 R6 WELS. Public comments will be accepted until 10 days following the close of the public hearing for the petition. The public hearing has not yet been scheduled. A public notice for the hearing will be issued later this year in accordance with the Commission's Rules of Practice, 01-672 CMR 4.

Written comments received on the Wolfden Zoning Petition for the Pickett Mountain Mine will be posted periodically on the LUPC webpage. Information on changes to the webpage and other notifications to interested persons will be distributed through the Maine GovDelivery system.

For more information on the review process, filing public comments, and signing-up for notifications, visit the LUPC webpage at: https://www.maine.gov/dacf/lupc/projects/wolfden/wolfden_rezoning.html.

From: [Heather S](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden Rezoning Feedback
Date: Thursday, October 08, 2020 6:14:57 AM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning,

I'm writing to encourage the LUPC to to deny rezoning to Wolfden Resources for a metal mine at Pickett Mountain on 528 acres near Mount Chase, not far from Baxter State Park and the Katahdin Woods & Waters National Monument.

This will irreversibly damage and destroy part of the pristine environment that is the bedrock of Maine, including a highly toxic process that has the potential to pollute our environment for centuries to come.

Please protect our resources. They are irreplaceable.

Thank you,
Heather Blanchette Seymour, Pownal

From: [Lindsay Newland Bowker](#)
To: [Loyzim, Melanie](#); [Tartakoff, Daniel](#); [Beyer, Stacie R](#)
Cc: [Beth Ahearn](#)
Subject: Lithium Alert Maine's Statues Will not See Us through
Date: Thursday, October 08, 2020 3:57:04 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Lithium is a principle ore of the "green energy" transition and while Tesla has landed on Nevada for its major investment in direct mining, Maine also has a significant number of existing lithium quarries. Globally the World Bank & IFC and other international quasi-governmental organizations will be throwing a lot of cheap investment capital behind lithium including in the form of "transition Bonds".

I am not sure how competitive Maine's lithium endowment is but lithium is so rare worldwide that any mineable deposit could be significant and an exception to Maine's limited mineral endowment.

Our crazy mining statute, as we see already just trying to make it work for review of a tiny advanced exploration interest in Zinc, would not serve us well at all if one or more of Maine's lithium deposits attracts serious development interest.

I would encourage two concurrent fast tracked expert studies. One to rewrite Maine's metallic mining statute under the direction of mining experts and another to size up Maine's lithium endowment and what kind of interest it may attract in the near term. This should also be under the direction of invited bidders who are expert in lithium markets.

<https://thediggings.com/usa/maine/oxford-me017/mines?commodity=lithium>

The world demand & production right now is very small, < 1M tonnes so event a very small high-quality lithium mine would attract a lot of interest. If, as Tesla plans in Nevada that is packaged with battery manufacture that could be an economic plus plus for Maine if we can devise a sound statute that also provide green mineral production...no local sacrifice zone.

Brine is the major mode in China and is a lower cost method but spodumene is sparking new interest and has a shorter development path

"LITHIUM FROM SPODUMENE

Spodumene is a lithium mineral derived from pegmatite rock. Known for its high lithium content, spodumene is the most widely exploited mineral source of lithium.

Other lithium-bearing pegmatite silicates include lepidolite and petalite.

At one time, spodumene was the primary source of lithium production, but the industry transitioned to extracting lithium from brines because of the significantly lower operating costs. As a result, producers focused on developing brine deposits, while spodumene sources remained largely ignored.

However, exploding demand for lithium is calling for more lithium-bearing resources than ever before. This, in combination with spodumene's high lithium content, has made the exploration for and development of spodumene deposits a highly attractive endeavor. In addition to its high concentration of lithium, lithium extraction from spodumene also typically offers lower capital costs and a shorter time from discovery to production in comparison to brine operations.

EXTRACTING LITHIUM FROM SPODUMENE

The extraction of lithium from spodumene ore requires a number of steps – outlined below. It's important to note that there are many variations on this process and the sequence described here is only one example.

CONCENTRATION AND DRYING

The processing almost always begins with concentration via crushing, grinding and froth flotation, followed by drying in a [rotary dryer](#) to produce a dried lithium concentrate.

CONVERSION TO BETA-PHASE

Dried lithium concentrate is then processed in a [rotary kiln](#) (calciner) to convert the spodumene from alpha to beta phase, in order to make it more amenable to reaction.

SULFURIC ACID DIGESTION

From here, the beta-phase concentrate frequently undergoes sulfuric acid digestion via mixing in a [paddle mixer](#) (aka pugmill mixer). Paddle mixers are often the mixer of choice due to their heavy-duty construction, though care must be taken to choose materials that will be able to withstand the highly corrosive processing environment of sulfuric acid digestion.

ROASTING

After digestion, [acid roasting](#) is a common step. Again, this is typically carried out in a rotary kiln. Some processes may utilize a [rotary cooler](#) following the roasting step in order to reduce the temperature of the material for subsequent handling. Here again, materials of construction must be highly resistant to the corrosive nature of the material being processed.

The resulting material is water soluble lithium sulfate, which goes through a hydrometallurgical process to produce either lithium carbonate or lithium hydroxide.

Lithium can be produced into a variety of grades, referring to the purity of the product, but lithium-ion batteries require an especially high purity lithium, typically more than 99.5%. This can be derived from either of the lithium chemicals that can be produced from the processing of concentrates described above.

While lithium carbonate has largely dominated the market, lithium hydroxide has become the preferred lithium compound for batteries as a result of the advantages it can offer over lithium carbonate – namely, a longer battery life and larger capacity.

NOTEWORTHY SPODUMENE PROJECTS

A number of spodumene projects have been making headlines as of late, with some of the most prominent listed below.

PILGANGOORA LITHIUM-TANTALUM PROJECT

Pilbara Minerals' wholly owned [Pilgangoora Lithium-Tantalum Project](#), located in Western Australia, is being recognized as a globally important source of spodumene, with offtake agreements already in place.

Pilbara Minerals recently announced a [22% increase](#) in the total Measured, Indicated and Inferred Resources at the site. Future drilling is expected to yield further significant increases.

BALD HILL PROJECT

[Dry commissioning](#) is under way at the Bald Hill Project, also in Australia, where spodumene concentrates are expected to be produced soon, with first shipment

of lithium concentrate expected in the first quarter of 2018, according to co-owner [Tawana Resources](#).

THE MANONO PROJECT

The Manono Project in the Democratic Republic of Congo has been making headlines for its potential to be one of the largest lithium-bearing deposits in the world. Australia-based [AVZ Minerals](#), part owner of the project, recently announced their findings of a 295.05m thick intersection of spodumene bearing pegmatite – a highly promising discovery.

THE HIDDEN LAKE PROJECT

The Hidden Lake Project, located within Canada's Yellowknife Lithium Pegmatite Belt, has also been in the news, with promising findings of high grade lithium ores.

Owner 92 Resources recently joined forces with Far Resources on the project. The completion and successful production run of the project's [Dense Media Separation \(DMS\)](#) mini pilot plant was also recently announced.

THE MAVIS LAKE PROJECT

International Lithium Corp. in conjunction with Pioneer Resources Limited recently completed their drilling program at the Mavis Lake project in Ontario. Results are expected to be available soon.

[Pioneer](#) stated earlier in the project that the first drill hole's sample appeared to be about 20m thick and estimated to contain around 35% spodumene.

CONCLUSION

The world's insatiable demand for high purity lithium products to feed the booming battery market is prompting renewed interest in the exploration and development of spodumene deposits, with a number of projects underway."

In addition to our custom equipment, we offer a unique [testing facility](#) where spodumene and other lithium-bearing materials can be tested at both batch and pilot-scale. For more information on our lithium beneficiation capabilities, contact us today!

"LITHIUM FROM SPODUMENE

Spodumene is a lithium mineral derived from pegmatite rock. Known for its high lithium content, spodumene is the most widely exploited mineral source of lithium. Other lithium-bearing pegmatite silicates include lepidolite and petalite.

At one time, spodumene was the primary source of lithium production, but the industry transitioned to extracting lithium from brines because of the significantly lower operating costs. As a result, producers focused on developing brine deposits, while spodumene sources remained largely ignored.

However, exploding demand for lithium is calling for more lithium-bearing resources than ever before. This, in combination with spodumene's high lithium content, has made the exploration for and development of spodumene deposits a highly attractive endeavor. In addition to its high concentration of lithium, lithium extraction from spodumene also typically offers lower capital costs and a shorter time from discovery to production in comparison to brine operations.

EXTRACTING LITHIUM FROM SPODUMENE

The extraction of lithium from spodumene ore requires a number of steps – outlined below. It's important to note that there are many variations on this process and the sequence described here is only one example.

CONCENTRATION AND DRYING

The processing almost always begins with concentration via crushing, grinding and froth flotation, followed by drying in a [rotary dryer](#) to produce a dried lithium concentrate.

CONVERSION TO BETA-PHASE

Dried lithium concentrate is then processed in a [rotary kiln](#) (calciner) to convert the spodumene from alpha to beta phase, in order to make it more amenable to

reaction.

SULFURIC ACID DIGESTION

From here, the beta-phase concentrate frequently undergoes sulfuric acid digestion via mixing in a [paddle mixer](#) (aka pugmill mixer). Paddle mixers are often the mixer of choice due to their heavy-duty construction, though care must be taken to choose materials that will be able to withstand the highly corrosive processing environment of sulfuric acid digestion.

ROASTING

After digestion, [acid roasting](#) is a common step. Again, this is typically carried out in a rotary kiln. Some processes may utilize a [rotary cooler](#) following the roasting step in order to reduce the temperature of the material for subsequent handling. Here again, materials of construction must be highly resistant to the corrosive nature of the material being processed.

The resulting material is water soluble lithium sulfate, which goes through a hydrometallurgical process to produce either lithium carbonate or lithium hydroxide.

Lithium can be produced into a variety of grades, referring to the purity of the product, but lithium-ion batteries require an especially high purity lithium, typically more than 99.5%. This can be derived from either of the lithium chemicals that can be produced from the processing of concentrates described above.

While lithium carbonate has largely dominated the market, lithium hydroxide has become the preferred lithium compound for batteries as a result of the advantages it can offer over lithium carbonate – namely, a longer battery life and larger capacity.

NOTEWORTHY SPODUMENE PROJECTS

A number of spodumene projects have been making headlines as of late, with some of the most prominent listed below.

PILGANGOORA LITHIUM-TANTALUM PROJECT

Pilbara Minerals' wholly owned [Pilgangoora Lithium-Tantalum Project](#), located in

Western Australia, is being recognized as a globally important source of spodumene, with offtake agreements already in place.

Pilbara Minerals recently announced a [22% increase](#) in the total Measured, Indicated and Inferred Resources at the site. Future drilling is expected to yield further significant increases.

BALD HILL PROJECT

[Dry commissioning](#) is under way at the Bald Hill Project, also in Australia, where spodumene concentrates are expected to be produced soon, with first shipment of lithium concentrate expected in the first quarter of 2018, according to co-owner [Tawana Resources](#).

THE MANONO PROJECT

The Manono Project in the Democratic Republic of Congo has been making headlines for its potential to be one of the largest lithium-bearing deposits in the world. Australia-based [AVZ Minerals](#), part owner of the project, recently announced their findings of a 295.05m thick intersection of spodumene bearing pegmatite – a highly promising discovery.

THE HIDDEN LAKE PROJECT

The Hidden Lake Project, located within Canada's Yellowknife Lithium Pegmatite Belt, has also been in the news, with promising findings of high grade lithium ores.

Owner 92 Resources recently joined forces with Far Resources on the project. The completion and successful production run of the project's [Dense Media Separation \(DMS\)](#) mini pilot plant was also recently announced.

THE MAVIS LAKE PROJECT

International Lithium Corp. in conjunction with Pioneer Resources Limited recently completed their drilling program at the Mavis Lake project in Ontario. Results are expected to be available soon.

[Pioneer](#) stated earlier in the project that the first drill hole's sample appeared to be about 20m thick and estimated to contain around 35% spodumene.

CONCLUSION

The world's insatiable demand for high purity lithium products to feed the booming battery market is prompting renewed interest in the exploration and development of spodumene deposits, with a number of projects underway.

FEECO is a leader in advanced thermal processing and agglomeration process solutions and custom equipment. We can supply engineered, robust systems for use in spodumene processing and lithium extraction, including [rotary dryers](#), [kilns](#), [coolers](#), and [paddle mixers](#).

In addition to our custom equipment, we offer a unique [testing facility](#) where spodumene and other lithium-bearing materials can be tested at both batch and pilot-scale. For more information on our lithium beneficiation capabilities, contact us today!

About the Authors . . .

a promising confirmed high quality deposit was just written about in a peer reviewed journal

<https://link.springer.com/article/10.1007/s00126-020-00956-y>



The Plumbago North pegmatite, Maine, USA: a new potential lithium resource | SpringerLink

A new spodumene-rich pegmatite was recently discovered on the north side of Plumbago Mountain, Oxford County, Western Maine. The site is about 1.5 km northwest of the famous Dunton gem tourmaline pegmatite. It is an albite-quartz-spodumene pegmatite containing

link.springer.com

The upper portions of the pegmatite contain up to 50 wt% spodumene, which makes it a potentially significant new lithium resource. Preliminary results indicate that Plumbago North Pegmatite contains about 10 Mt of ore with an average Li₂O content of 4.68 wt% which is a higher average lithium

content than any of the ten top spodumene-producing deposits in the world.

Keep NRCM, the Environmental Coalition and all the enviros out of it except for presenting non-NGO generated scientific/industry data on community of origin risks and their successful mitigation.

Wherever good lithium deposits exist in spodumene-producing deposits there will be mining and there will be plenty of financing for development.

Maine must get ready.

Lindsay Newland Bowker, Executive Director

World Mine Tailings Failures

compiler@WorldMineTailingsFailures.org

+1 207 367 5145

From: [Tdc Willies](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Mining in Maine
Date: Saturday, October 10, 2020 2:47:49 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I personally have a lot invested in protecting this state of Maine from the aftereffects of mining.

This place is truly one of the last vestiges of pure and unspoiled vistas and wildlife.

We hunt, we gather, we enjoy the water sources.

Please don't dig it up to make money for a few folks.

Let's keep it for the rest of humanity.

That would be the best thing, in my own eyes.

---Bill Thompson

From: [Jasmine Thompson](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: HELLO
Date: Sunday, October 11, 2020 9:07:16 AM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

My Name name is Jasmine A. Thompson.

I have been a Maine Resident my entire life. I have much respect for the people, animals and land that reside within these lands.

I have read up on how out of state companies time after time try to come here and make some grandiose offering to have a section of our land to infringe upon it.

It is almost exhausting having to protect these lands. We as people need access to clean water. Life should not be all based upon profit. That's now how we keep our communities from being exploited to things not under their control. That is why I'm messaging you and begging of you.

I've worked at a local establishment for over 7 years and have grown to love the Northern community. We are hard working people.

We don't deserve to have our lands torn apart by companies that could care less about our health and well being.

In a world where everyone is becoming sick, I ask you to rethink the proposal being pushed by DEP to lessen our restrictions on mining.

I care, we care...

It's about time we all start coming together and paying mind to what's really important.

Thank-you for your time.

From: [Dennis Pollock](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden
Date: Monday, October 19, 2020 7:14:45 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I totally oppose the disastrous proposal to allow a mine in the Picket Mt area of Maine, an area of native trout and salmon and so close to Mt Katadin and in the headwaters of the Metawamkeg Stream. The company seems to be quite shady financially, and the lakes and streams would be endangered by project. Please don't let the project move forward. Thanks for your work to protect Maine's beauty,

Dennis Pollock
PO Box 295
(459 Pond Road)
Manchester, ME
04351

Sent from my iPhone

From: [Anne Winchester](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Please reject
Date: Tuesday, October 20, 2020 11:46:23 AM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear LUPC,

I grew up in Brunswick, but spent summers in Dexter (where my dad was born). He took my brother and me on many a jeep ride to “secret” brooks, ponds, and bogs. Sometimes we’d wade down a stream catching brookies, and sometimes we’d paddle a pond. While I’m no expert fisherman, going fishing with Dad was part of my (and I’m sure many Maine kids’) heritage. I wouldn’t have missed it for the world.

It alarms me to think that the pristine waters of Maine and the wildlife that inhabit them could be put in jeopardy by a mining company with no financial resources, no history of mining, and no plan to filter mining wastes to sufficiently clean standards.

Please stop Wolfden’s crazy plan in its tracks. It is exploitative at best, and more likely disastrous and expensive to Maine and Mainers.

Many thanks for your respectful consideration.
Anne Winchester
Pemaquid

From: [Pam Lombard](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden Petition for rezoning
Date: Tuesday, October 20, 2020 1:30:41 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Ms. Beyer,

I am writing to urge you to deny a petition for rezoning submitted by Wolfden Mt. Chase, LLC. that would allow for development of the Pickett Mountain Mine in T6 R6 WELS. I am concerned that this beautiful area of Maine will be spoiled for tourism and for fish. I am concerned that Wolfden has not demonstrated the financial capacity to clean up its mining wastewater to natural levels, and that taxpayers would potentially be left with an environmental mess and a financial burden if things do not go as planned. Wolfden should be required to demonstrate financial capacity before rezoning is considered, and they have not yet done that.

Thank you.

Pamela Lombard

Hallowell, Maine

From: [Elizabeth Neale Pollock](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Mining
Date: Tuesday, October 20, 2020 7:50:26 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I would like to register my opposition to the Wolfden Mining proposal. It is poorly presented and underfunded, but mostly it is an assault on the precious natural resources of Maine.

Elizabeth Neale Pollock
Manchester, Maine

Sent from my iPhone

From: jranagan@gmail.com
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden"s zoning application
Date: Thursday, October 22, 2020 7:16:08 AM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Wolfden's mining proposal would be a disaster for the Katahdin region. I am asking that you reject their application for rezoning. Mining in this area would be a very bad idea.

Plases send periodic updates on this issue

Thank you.

Joseph A. Ranagan
jranagan@gmail.com

Sent from [Mail](#) for Windows 10

From: [Simmons, Ed](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Rezoning application
Date: Thursday, October 22, 2020 6:53:15 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I am writing to oppose the application of Wolfden to have the Pickard mountain region rezoned in order to allow mining. The area provides excellent brook trout fishing and the proposed mining operation would badly compromise this pristine environment. The last thing we need is further degradation of our northern forests and waters. Please reject Wolfden's rezoning application. Edward Simmons, 252 Sea Meadows Lane, Yarmouth, Maine 04096
We are here to protect your privacy and serve your best interests.

If you have any questions or concerns, please contact us directly. Please direct any trade or account instructions to a live person. If you think you have received an email by mistake, please delete it and notify us of the error.

Email is not a secure method of communication. We cannot warranty and do not accept responsibility or liability for the accuracy or content of email messages or for the presence of viruses, worms or other malicious code-disabling agents.

Hightower Advisors, LLC is a SEC registered investment adviser. Securities are offered through Hightower Securities, LLC - Member FINRA/SIPC. 200 W Madison St. 25th Floor, Chicago, IL, 60606 - 312.962.3800

From: [Sandy S](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Comments on Wolfden's Rezoning application
Date: Friday, October 23, 2020 2:31:34 PM
Attachments: [Wolfden.LUPCcomments10.23.20.docx](#)

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

October 23, 2020
Sent via electronic mail

Dear Members of the Land Use Planning Commission (LUPC):

I am and have been a part-time resident of Sapling Township, Rockwood, Maine for nearly 30 years. I am also an avid hiker, bird watcher, wildlife viewer, mountain biker, and cross-country skier. I have especially enjoyed hiking in the Baxter State Park/Katahdin Woods and Waters National Monument region.

I write to urge you to deny Wolfden Resource's (Wolfden) request to narrow the scope of LUPC's review of its rezoning request, and to ultimately deny the rezoning request itself. Everything about Wolfden's application for rezoning and its conduct during the process should raise red flags and concerns.

The fact that the company has never done any actual mining at any site, and therefore has no experience and no track record should raise red flags.

The fact that Wolfden has avoided answering LUPC staff's questions about technical and financial practicability of this project should raise red flags.

The fact that Wolfden asserts, with no supporting documentation, that it can treat wastewater to be as clean as natural groundwater, should raise red flags, especially given that no other mining company (including those with actual experience) has been able to achieve such a result.

The fact that Wolfden's financial position reveals that, in the event of an environmental disaster (highly likely given the company's inexperience and the conditions in which it would be operating) Wolfden would be financially unable to afford remediation, leaving Maine taxpayers once again to foot the bill for a massive clean up, should raise red flags.

The fact that Wolfden, through the request to narrow LUPC's scope of review, is attempting to bypass LUPC's zoning requirements for mining in order to avoid the scrutiny that exists to protect the health of the Maine environment and its citizens should raise red flags.

Maine is blessed with world-class fishing and other recreational opportunities that draw people from around the world and provide livelihoods to tens of thousands of Maine residents. Please do not allow Wolfden to destroy this with its poorly conceived, pie in the sky proposal.

Thank you for considering my comments. Please add me to the interested parties list to receive periodic updates on the project.

Sandy Scholar
2124 Greenwich St
Falls Church, VA 22043
sandys2pups@gmail.com

From: [Albert Manville](#)
To: [LUPC, Wolfden Rezoning](#)
Cc: [Albert Manville](#); [Sandy Scholar](#)
Subject: Comments on Proposed Wolfden Mine
Date: Friday, October 23, 2020 3:13:45 PM
Attachments: [Comments to LUPC- Wolfden Mine2.docx](#)

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dr. Albert M. Manville, II, Ph.D., C.W.B.
2 Mink Lane
Sapling Township, Rockwood, ME 04478
c/o 2124 Greenwich St.
Falls Church, VA 22043

Maine Land Use Planning Commission (LUPC)
22 State House Station
Augusta, Maine 04333 [Comments to LUPC- Wolfden Mine2.docx]

Re: wolfdenrezoning.LUPC@maine.gov; via electronic mail

Dear Members of the Maine Land Use Planning Commission:

I am a nearly 30-year part-time Maine resident (soon to be full time); an avid brook trout fisherman; a Certified Wildlife Biologist (The Wildlife Society); and retired Senior Wildlife Biologist with the Division of Migratory Bird Management, U.S. Fish & Wildlife Service (USFWS) HQ Office (17 years). I was the USFWS's national lead in charge of addressing the agency's response from impacts to migratory birds caused by human structures and activities — including surface mining. In addition, I am a Senior Lecturer and Adjunct Professor for Johns Hopkins University's (JHU) Advanced Academic Programs (20 years). I led a JHU graduate conservation biology class in Maine, including to Katahdin Woods and Waters National Monument and surrounding areas in 2017, and hope to again teach a conservation biology class at Katahdin and environs in 2022. Additionally, I have had numerous opportunities to investigate impacts to fish, wildlife and their habitats from surface and mountain-top mining misadventures in Alaska, Montana, Pennsylvania, Idaho, Ohio, Virginia, Washington, the provinces of Ontario, Quebec and Alberta (CAN), and elsewhere.

The proposal by Wolfden Resources (Ontario, CAN) to extract copper, zinc, and other toxic metals is at the cost of likely massive environmental degradation, and toxification and contamination of surface and groundwater resources — including outside the proposed drilling site. To suggest that any and all negative impacts will be limited to a 528-acre proposed rezoning area where the mining is to occur is absolutely ludicrous and flies in the face of reality and the scientific evidence. Additionally, this mining blight and subsequent acid drainage will despoil a world-class and currently "intact" brook trout fishery, degrade Federally threatened Canada lynx Critical Habitat, and impact key riparian habitats for American marten, various species of salamanders, landbirds and waterbirds (such as the Common Loon), not to mention many others suites of flora and fauna. Add to these concerns the fact that Wolfden Resources has never extracted any minerals from any of its holdings, suffered its most recent net loss of \$1.4 million (U.S. dollars), has an accumulated deficit of \$32M (USD), and its stock most recently traded at \$0.20/share (Canadian dollars) on the Canadian TSX Venture Exchange does not provide any confidence in this company nor in its capabilities. As a Maine taxpayer, I don't want to become party to a boondoggle and failed mining experiment and have to pay the cleanup and restoration consequences — which based on the massive record can be colossal. Moreover, such a mining misadventure would despoil any future field-class teaching experience for my JHU students.

Under Maine's new mining law and its amended permit conditions, Wolfden has promised in its permit application only a limited amount of groundwater contamination within the mined area, and has said there will be no contamination of groundwater outside the immediate area. Talk is cheap. Wolfden has provided no viable and scientifically valid protocols or techniques on how they propose to minimize/prevent surface and groundwater contamination, and the mining contamination record is massive with failed efforts, unkept promises, failed economic improvements, and a massive cleanup expense left to taxpayers who have been forced to foot the bill.

My recommendation is a simple one: please do NOT approve this rezoning application request.

Respectfully submitted,

Albert M. Manville, II, Ph.D., Certified Wildlife Biologist (CWB), The Wildlife Society; Senior Lecturer and Adjunct Professor, Krieger School of Arts and Sciences, Advanced Academic Programs, Johns Hopkins University, Wash DC

Campus (20 years); Sole Proprietor, Wildlife and Habitat Conservation Solutions LLC (registered w/
VA State Corporation Commission); and retired Senior Wildlife Biologist, Division of Migratory Bird Management, U.S. Fish &
Wildlife Service, Wash. DC HQ Office (17 years)
amanville634@gmail.com; amanvil1@jhu.edu

From: [Linda Woods](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden Mine
Date: Friday, October 23, 2020 6:53:53 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Greetings,

I have studied the Wolfden proposal to create a metal mine (for zinc, lead and copper) near Mount Chase in Aroostook County. Nothing that I have read makes me think this proposal is credible. Wolfden does not have either the financial stability or the experience to complete this project.

Additionally the presence of this mine would have an adverse effect on Baxter State Park and the Katahdin Woods and Waters National Monument. I have been to these places as well as to Mount Chase. Such a pristine area is an economic driver for this region.

LUPC should reject Wolfden's application for rezoning because protecting Maine's environment is important.

Thank you,
Linda Woods,
Waterville

"We need to dismantle the systems that exploit people and planet, and the core part of that is the fight for justice every single day. We must be unified as a movement for justice--racial justice, environmental justice, economic justice, social justice--everywhere as long as it takes." Annie Leonard, Executive Director, Greenpeace USA

From: [Cheryl Mills](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Proposed metal mine
Date: Tuesday, November 10, 2020 11:31:36 AM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I urge you to reject Wolfden's application for rezoning at Pickett Mountain because the company has no prospects of being able to operate its proposed mine without seriously damaging Maine's environment. My concern is for the environment, the health of area residents and for the economy as many local businesses rely on clean, healthy water resources. The proposed mining would be very risky.

I also urge you to respect the rights and concerns of the area tribes.

Thank you,
Cheryl Dearman Mills
Wells, Maine

From: [Leigh Escobedo](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: No mine
Date: Tuesday, November 10, 2020 12:56:16 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Please do not allow mining in Maine! The outcomes are toxic! Maine must develop economic projects that are healthy! Tourism is big! And many are moving to Maine for the lifestyle. Tax bases will increase and more will enjoy the outdoors! Maine must realize that toxic mills and mining are yesterday. I was born in Maine, went to UMO and USM. I go to Big Lake to my camps every summer! Covid and climate change are harsh lessons regarding our need to take better care of our natural resources!

Thank you! Leigh Escobedo

Sent from my iPhone

From: maddie@wazi.com
To: [LUPC, Wolfden Rezoning](#)
Subject: Concerned Citizen, Wolfden Resources" metal mine
Date: Tuesday, November 10, 2020 4:52:46 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

To Whom it May Concern,

I am deeply troubled at the notion of Wolfden Resources rezoning the area at Pickett Mountain for a metal mine. Not only does this plan jeopardize one of the last places on earth with naturally occurring Atlantic salmon and brook trout, but it does not have the financial sustainability to provide the necessary regulations to ensure safe disposal of toxic chemicals. One of Maine's most valuable resources is it's forward thinking and action surrounding environmental protections. We have, in so many ways, lead the charge on standing up against pollution, creating sustainable solutions to environmental pitfalls, and holding large corporations accountable for their environmental impact. I hope we keep this tradition alive by not permitting Wolfden to create a mine they cannot regulate to Maine's mining standards.

Sincerely,
Madeline Acosta
Bridgton, ME

From: [Joan Ray](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden mine
Date: Wednesday, November 11, 2020 9:12:54 AM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

To Whom it May Concern:

I am writing to express my disapproval of the Wolfden Mine proposal. While it will create a few jobs, it will (not might, but WILL) cause irreparable damage to one of the most pristine and special places in the state. There is absolutely no way to repair the damage from mining, even if there are no toxic spills or other hazardous waste disasters associated with the mine. This area is prime salmon and brook trout habitat, and used by moose, bear, deer and other native animals. A mine will put all of these at risk, not just now but forever. It will also destroy any recreational potential in the area.

Please, deny the rezoning of this area, and stop the Wolfden Mine.

Thank you,

Joan Ray
Bremen, ME



November 12, 2020

Re: Opposition to ZP 779

Dear Ms. Beyer,

On behalf of over 90 registered Maine guides, sporting camp and lodge owners, and their supporters, we are writing to express our opposition to LUPC Zoning Petition (ZP) 779 – Wolfden Mt. Chase, LLC's (Wolfden) rezoning request to allow a metallic mineral mine near Mount Chase and respectfully request that you deny the rezoning petition. The mission of the Maine Wilderness Guides Organization (MWGO) is to provide a unified voice for the profession of wilderness guiding while maintaining the highest professional, educational, and stewardship standards for the conservation of remote woods and waters. We are dedicated to the protection of habitat and natural resources in the areas we guide in for our livelihoods, our clients, the fish and game we pursue, and for future generations.

First and foremost, Wolfden's proposed mine is a threat to our businesses and the natural resources upon which we depend. Because of our focus on healthy habitat, abundant fish and wildlife populations, and access to wild areas, we are deeply concerned about the potential environmental, economic, and social impacts Wolfden's proposed mine would have. We are concerned that the project will cause significant ecological harm to the forests and waterways that our members use for guiding. We are heavily reliant upon undeveloped, scenic, quiet natural habitats and wildlife encounters that distinguish Maine's North Woods and attract customers to keep our businesses alive. The proposed mine would degrade the quality and character of the places we have counted on for decades to take clients and would negatively affect numerous recreational opportunities in the area.

Specifically, the site of the proposed mine is upstream from the West Branch Mattawamkeag River, which flows into the Mattawamkeag River and eventually the Penobscot River. Guides use the rivers in this watershed frequently, including in the Katahdin Woods and Waters National Monument. Notably, these rivers are habitat for native brook trout, landlocked salmon, and federally endangered sea-run Atlantic salmon, thanks to a multi-year dam removal effort and newly restored fish access. Runoff from the mine would drain to these waterways that are important to guiding businesses as well as native fish and could cause undue harm if the wastewater is insufficiently treated. Without businesses like guides, lodges, and sporting camps, there would be fewer reasons for tourists to recreate and stay overnight in Maine's North Woods, cutting off vital economic activity to a region with few other robust, longstanding industries or job opportunities.

Furthermore, Wolfden has not demonstrated that it has the financial resources or technical capacity to safely construct and operate its proposed mine, nor has the company demonstrated complete understanding of Maine's mining laws. Mining is a highly technical business and can be dangerous, requiring a lot of capital and expertise that Wolfden has not proven it has. Small errors can result in water pollution, creating toxic conditions for fish, wildlife, and people. For example, highly acidic water coming off a mine site could deplete the condition of waterways and kill off fish, wildlife, and other

organisms. Mines continue to do this for decades after they are closed, and there have been many instances where the company that made the profit does not have the resources to address the pollution. In fact, Wolfden is claiming without detailed evidence that they will be able to discharge used and treated wastewater to groundwater without negative impacts, yet they have failed to provide an example of another mine that does this. Maine taxpayers are still paying to clean up the Callahan Mine in Brooksville, which closed in 1972. Maine cannot afford another disaster like this, especially not in such a sensitive region of the state near outstanding wild brook trout resources and so close to valuable recreational areas like upper and lower Shin Pond, Baxter State Park, and the Katahdin Woods and Waters National Monument.

For these reasons, we respectfully request that the LUPC deny ZP 779. Guiding is more than just a job for MWGO members; it is a way of life that has become part of Maine's culture that the proposed Wolfden mine could jeopardize. Thank you for considering our views.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jeanne Christie". The signature is fluid and cursive, with a prominent initial "J".

Jeanne Christie, President
Board of Directors

From: [Becky Noyes](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden Mine
Date: Tuesday, November 17, 2020 10:14:17 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello!

My name is Becky Noyes and I am a long time resident of the Patten/Sherman area. I moved to Silver Ridge (just outside of Sherman) with my family when I was in 3rd grade, met the love of my life while attending Katahdin Middle/High School (even if I didn't realize it at the time), went to college in the Bangor area only to return back to the area I've always loved once I graduated! I now own a beautiful home with my husband in Patten for nearing 8 years now! My love and connection to this area run deeply, even when the area can be a difficult place to live.

I have always loved our area! The mountain of course being the centerpiece, but the beautiful lakes, forest, rivers, fields and endless trails on which to explore! You just cannot beat the peace and tranquility that our area provides. Nothing calms the soul more than taking a kayak out at sunset and listening to the haunting loon call echoing across the water. The sweet smell of woodsmoke with the scents of freshly roasted hot dogs. Watching the fish jump and the eagles fly. Observing a moose munching on some choice reeds. The thought of any of these things being threatened by any sort of pollution makes my blood boil and the thought of a mining company just wanting to rush into our area to make a quick buck sends me into a bit of a rage to be quite honest.

I attended one of the early meetings the Wolfden company presented to the area a few years ago. They had little to no answers about the measures they would do to protect the environment from the process of mining. They only promised that it would bring jobs to the area, but even that felt vague. We had asked how they intended to protect the water table as there are no mines in the world that have managed to do that. They just shrugged and said they would truck the rocks off-site for all the refining process. I had turned to my husband right then and there and said there was no way they were going to do that due to the crazy amount of extra money it would cost to haul rock to their facility out of state. Here they are, just a few years later, already going back on their word with discussion/fights about putting in a water treatment facility and then even the potential of just dumping the water right into the lake below the mountain! This is crazy!

Most of the people of this area have wells, myself included, and no amount of profit is worth potentially poisoning our water and making the area unliveable! Poisoning the people of this area, the fish, the wildlife, and even the crops we grow upon this land! They all need clean water! The low pollution is a huge reason why people live here, it's why I want to continue to live here and I know I'm not the only one that feels this way.

I mean, you can't even have a septic tank by lake, so I really don't understand how Maine could even begin to consider a mining operation with such a high risk of polluting our water with all sorts of chemicals. So please, reject their rezoning proposal. For one, these guys really have no plan and for two, it's just not good for Maine, it's environment, or it's people.

Thank you for your time,

Becky Noyes

Patten, Maine

StateofMynd42@gmail.com

From: [Jacquelyn Cressy](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Mining approval
Date: Thursday, November 19, 2020 1:07:39 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Stacie R. Beyer
Planning Manager
Land Use Planning Commission
22 State House Station
Augusta, ME 04333-0022

Dear Ms Beyer:

I am writing to express my deep concern regarding the proposed rezoning application currently under consideration by the LUPC from Wolfden Mt. Chase LLC. This proposal has to do with land on Pickett Mountain in the T6-R6 unorganized territory and, if approved, would enable a mining proposal to go forward for further permitting.

I write as a concerned citizen who deeply values the environment of Maine. The potential for damage to that environment is extensive, affecting water quality and the abundant fresh-water fisheries. Even done properly—and my understanding is that Wolfden does not have the necessary expertise to do it properly—mining represents serious threats to the local ecology. The application you have before you does not really acknowledge the ecological value of this land.

As noted by the Natural Resources Council of Maine, “mining the type of deposit Wolfden owns, called a massive sulfide deposit, is one of the most dangerous industrial activities in the world. In Maine, metal deposits often contain high levels of sulfur and dangerous heavy metals, such as lead and arsenic. When sulfur in mining waste and ore reacts with water and air, it creates sulfuric acid, which in turn causes toxic metals to leach into the environment. The acid and toxic metals can contaminate ground and surface water and harm fish, wildlife, and people.”

It is vital that the Land Use Planning Commission uses all the resources at its command to investigate the company and its application, to insure that this beautiful area is not damaged.

Thank you for your attention.

Jacquelyn Cressy
7 Franklin Lane
Topsham, ME 04086
207-381-7766
rivendellhousebnb@mac.com

"When we try to pick out anything by itself, we find it hitched to everything else in the

universe."
John Muir

From: [marlutz](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: Wolfden Mine Proposal
Date: Thursday, November 19, 2020 3:43:21 PM

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I urge you to reject Wolfden's application for rezoning because the company has no prospects of being able to operate its proposed mine without seriously damaging Maine's environment.

Thank you for your consideration,
Margarethe lutz

Sent from my iPhone

From: [Nick Bennett](#)
To: [LUPC, Wolfden Rezoning](#)
Subject: White paper on Wolfden rezoning petition
Date: Friday, November 20, 2020 2:50:05 PM
Attachments: [image001.png](#)
[CSP2 Wolfden Report Final 18Nov2020f.pdf](#)

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Stacie:

I have attached a briefing paper for LUPC staff and commissioners on Wolfden's rezoning petition. The [Center for Science in Public Participation](#), which specializes in providing information on mining, prepared the paper.

Please let me know if you have questions. If LUPC staff would be interested in setting up a teleconference with staff from the Center for Science in Public Participation to ask them questions directly, we can arrange that.

I hope you have a good and safe Thanksgiving holiday!

Sincerely,

Nick Bennett

Staff Scientist and Healthy Waters Director
3 Wade Street, Augusta, Maine 04330
Direct: (207) 430-0116



Natural Resources
Council of Maine
Protecting the Nature
of Maine – join us!

[NRCM is committed to a more inclusive Maine.](#)

EVALUATION OF THE SELECTED TECHNICAL AND ECONOMIC COMPONENTS OF WOLFDEN RESOURCES' PROPOSED PICKETT MOUNTAIN PROJECT

Prepared by Stu Levit, MS, JD
The Center for Science in Public Participation
November 2020

Executive Summary

Wolfden Resources LLC has submitted a rezoning petition to Maine's Land Use Planning Commission (LUPC) that is speculative and does not contain evidence that would support the company's claim that a mine can be operated at the Pickett Mountain location in a manner that would be safe for Maine's environment, people, or economy. The following are the major problems with the petition:

- Wolfden provides no evidence it can treat process or contact wastewater to natural background levels of contaminants. The Center for Science in Public Participation is unaware of any mine that can do this, and Wolfden has provided no example of such a mine despite LUPC staff and others asking it to do so.
- Wolfden provides no site-specific information to justify its water balance calculations, which are based on other companies' experiences at other mines. Wolfden bases its plans for subsurface waste rock disposal, water treatment volumes, and the amount of water needed for ore processing on these water balance calculations from other sites. If these water balance calculations are incorrect, which seems very likely, then Wolfden's plans for these activities are also incorrect and unsupported.
- Wolfden falsely claims that compacted dry stacked tailings will be impervious to infiltration from rain or snow melt. They will not be impervious, and Wolfden's petition should explain how the company plans to deal with runoff from dry stacked tailings when they are not covered.
- Wolfden lacks financial and technical capacity to develop a mine. The company has never successfully operated a mine and has not generated any positive earnings from a mining operation. The Pickett Mountain site would be a high-risk testing ground for a company with no demonstrated prior experience.
- Wolfden's claims about creating jobs are overstated, unsubstantiated, and contradictory. The company promises local jobs but has provided neither a description of how it will achieve its employment claims nor provided guarantees it would hire local workers. The application commits to hiring from various towns within a one-hour drive of the site, but during its "virtual site visit" for the Commission staff, it described that everyone working at the site would live on-site. The latter suggests Wolfden would transport and house out-of-state workers on-site rather than hiring a local workforce.

Introduction

The following comments were prepared by Stu Levit of the Center for Science in Public Participation¹ on behalf of the Natural Resources Council of Maine (NRCM).² The comments seek to identify concerns that should be considered by the Land Use Planning Commission (LUPC) during its review of Wolfden Resource Corporation's³ (Wolfden) proposed Pickett Mountain Mine rezoning application.⁴

Wolfden's LUPC application is long on proposals and promises but short on detail necessary to assess the company's plans. It is one thing to promise results — it is another thing to demonstrate that those results are achievable. Wolfden has failed to do the latter.

Wolfden's LUPC application does not demonstrate that the mine is viable, or that the company is capable and its plan is realistic. Rather, the application draws on suggestions that are mostly unsupported by sufficient detail to allow expert review, promises that are unsupported, site data that are significantly lacking, and examples that are of uncertain applicability or value. In sum, these features make it impossible to conclude that the company has the plan, expertise, support, or financial capacity to achieve its mining goals, protect Maine's environment, and protect Maine's taxpayers from paying the costs from a failed mine.

A fundamental problem with Wolfden's LUPC application is that Wolfden, a small/junior company, seeks permits for something that is very complex and for which it (Wolfden) has no actual experience or financial capacity to undertake. That it may seek to sell the whole project to another company simply underscores the importance of these deficiencies. It does not have any demonstrated technical or financial ability to mine – and yet it is promising technical and financial capabilities it clearly lacks. The company's October 13, 2020, site tour⁵ underscores and demonstrates this as it repeats unsupported promises, without basis in science, existing mine examples, or reasonable financial probability. As such, the company is selling ideas that it has no experience with to the LUPC.⁶

Based on the review below, Wolfden's LUPC application does not support the mine's technical or economic feasibility — especially in light of the overall demonstrated quantity and quality of ore, Wolfden's impossible water quality claims, and Wolfden's lack of technical and financial capacity to implement its “plan.”

¹ See www.CSP2.org.

² <https://www.nrcm.org/>.

³ <https://www.wolfdenresources.com/>.

⁴ See https://www.maine.gov/dacf/lupc/projects/wolfden/wolfden_rezoning.html.

⁵ The video of the tour is available at:

<https://www.youtube.com/watch?reload=9&v=SPPJomT79v8&feature=youtu.be>. The YouTube page cites the date of October 13, 2020. The LUPC's meeting minutes from its October 14, 2020 meeting, which discusses the video, is available at: https://www.maine.gov/dacf/lupc/agenda_items/101420/Wolfden.mp3.

Examples of comments are responded to below.

⁶ Wolfden has a total of four properties but has not produced or seen production on any of its properties. See <https://bangordailynews.com/2020/10/19/news/aroostook/proposed-mine-near-baxter-state-park-is-first-real-test-of-maines-new-mining-law/?order=7>. The article goes on to describe the “messy and financially shaky” nature of Wolfden's financial background.

Water Quality

One of the promises Wolfden makes in its LUPC application is that it will treat water to background (pre-mining) quality levels prior to water discharge.⁷ This would be unprecedented in a major mine with onsite ore processing. All mines degrade water quality within the mine permit boundary or outside of that boundary, or both; some of it is predicted/permitted and some violates applicable permits. Wolfden's promises to meet background levels are suspect, and the company has not provided an example of a similar mine that can do so. In researching Wolfden's claim, no major hard rock mines with onsite processing were discovered to achieve wastewater discharges at natural background levels in groundwater.

The mine proposes that *"...waste rock will be mined separately and segregated from the mill feed, temporarily staged and then returned underground as backfill on an on-going basis. This manages and mitigates potential leaching and environmental release of metals from this waste rock material."*⁸ This plan to dispose of waste rock in mined-out underground workings is not objectionable on its face, but the company must demonstrate that it won't begin producing acid or leaching contaminants while it is being mined and staged. If the material has acid-producing potential, then any wetting/drying cycles could begin acid production. The same applies for the waste rock to leach other contaminants, such as heavy metals. The company must demonstrate clearly through testing that there is no risk from formation of acid mine drainage and subsequent contamination to ground water (especially water that is hydrologically connected to surface water) — or that reasonably foreseeable future groundwater uses will not be impaired — or more likely, precluded — by mine contamination.

If material to be backfilled into the mine workings could create acid mine drainage and leach contaminants, then it is very important to calculate the time it will take for the workings to become filled with water and thereby submerge the backfilled materials, creating a reducing environment. Depending on the hydrologic connectivity between the pit workings and the newly created groundwater flows, it may take years, decades, or longer to fill. Similarly, if there could be a fluctuating water level (whether seasonally or during filling over time) then the acid generation or contaminant leaching in the wet/dry zone could be enhanced or at least not stopped. These are important considerations before significant mine planning should commence because the results may determine that materials should not be disposed underground and allow for weighing the costs/benefits of surface versus underground disposal. Independent of backfilling, these considerations are important to determine whether the underground post-mine rock faces could leach contaminants and create acid mine drainage, creating long-term or permanent threats to surface and ground water resources.

Wolfden's proposal is to use groundwater as a sink for the mine's discharges. Examples abound of mines' failures to treat water successfully due to operational failures, design flaw, and human error. If Wolfden fails to treat its wastewater adequately, which is a major concern given treatment's high cost and the unprecedented promise to treat to background levels, then the resulting pollution in the groundwater would be exceptionally difficult to treat, extract, or detect.

⁷ See e.g. Wolfden LUPC application at p. 186 and 198.

⁸ Id. at p. 201.

This adds yet another level of unpredictability to the plan, particularly for a company without major mine experience.

The proposed water balances in the petition also appear to be very roughly estimated based on other mines' experiences. For example, Wolfden's LUPC petition states that, "Although engineering/hydrologic studies have not been conducted to quantify flow rates required to keep the working areas of the mine in a dewatered state, it is currently estimated based on similar site experience and the likelihood of low transmissivity bedrock at depth, that these 'seepage' flows are likely to be on the order of 30 gallons per minute (gpm) long term."⁹ This projected 30 gpm flow rate is speculative and a significant leap upon which to predicate any kind of regulatory decision — including land use. As a relevant example, the Pogo Mine in Alaska, in 2003 had an initial mine water flow estimated to be 30 gpm.¹⁰ By 2012 that estimate had increased to 180 gpm¹¹ and by 2020 the actual number was 400 gpm.¹²

If the amount is significantly higher, then the mine may need to discharge additional water requiring additional treatment or causing additional contamination — and potentially impacting ground and surface water flows. If the amount is significantly lower, then the mine may need to consume additional surface and ground water in its processes potentially impacting existing uses of surface waters. This also means that the company cannot estimate or predict the time it will take any wastes disposed in the underground workings to become inundated by groundwater (recharge following cessation of pumping mine workings). This could significantly impact contaminant releases from rock faces or deposited waste rock.

Tailings Disposal

The company proposes to dispose of tailings by "dry stack" methods meaning that tailings will be placed in a stack on the ground surface.¹³ Wolfden's LUPC application also states that, "The solid filter cake will be placed underground in the mine"¹⁴ although such disposal is prohibited in Maine.

The company describes its tailings disposal as a new technology¹⁵ but also identifies a mine in Peru as employing that method to demonstrate the technology's feasibility (albeit in a very different environment than that proposed by Wolfden in Maine).¹⁶ In fact, dry-stacked tailings are not a new technology and are required in Maine under Chapter 200. The LUPC should not credit Wolfden with employing a new technology in considering the rezoning petition.

⁹ Wolfden LUPC application at p. 200.

¹⁰ Final Pogo Gold Mine Environmental Impact Statement, Environmental Protection Agency, Region 10, Michael Baker Jr., Inc., September 2003. Pogo Mine documents are available at: <http://dnr.alaska.gov/mlw/mining/largemine/pogo/>.

¹¹ 2012 Pogo Plan of Operations, Northern Star Resources.

¹² 2020 Pogo Plan of Operations, June 24, 2020. It should be noted that a 2012 underground seepage flow analysis estimated that the inflow rate could increase up to 650 gpm.

¹³ See Wolfden LUPC application at p. 203.

¹⁴ Wolfden LUPC application at p. 206.

¹⁵ Effectiveness must be gauged on a site-specific basis and Wolfden's information is not sufficient for the LUPC or any entity to evaluate the technology and its employment in Penobscot County.

¹⁶ Wolfden LUPC application at p. 203-204.

The LUPC application also states that, “Once compacted, these tailings will not be subject to infiltration of water and intrusion of atmospheric oxygen which will mitigate the oxidation of sulfide minerals.”¹⁷ However, even if the tailings are compacted, rainwater can infiltrate them and begin the process of leaching and/or acid generation. Once started, acid is very difficult to control. Without additional details about how the company will manage stacked tailings before they are covered, it is difficult to be certain they will successfully protect water quality. There are also concerns that both synthetic and compacted clay (or other compacted material) liners can and do fail.

Wolfden’s plan is deficient because it does not actually plan tailings management and disposal but proposes simple, generalized goals that fail to provide details about the site, design, and operations necessary to ensure acid mine drainage and other contaminants do not cause surface and ground water contamination. The LUPC petition includes descriptions of technologies but does not actually propose how they will be employed, instead simply concluding that they will be employed and are sufficient to effectively control acid mine drainage and contaminant problems.¹⁸

As for details of tailings disposal closure, the descriptions can be confusing — if not conflicting. For example, Wolfden’s proposal for a wetland cap above the tailings (that must be kept dry) is very strange and unlikely to succeed.¹⁹ It would also likely violate Chapter 200 requirements for dry stack disposal.

In sum, Wolfden has not provided adequate information that it can manage a dry stack tailings facility in compliance with Chapter 200. Even in a rezoning process, this is troubling and does not provide confidence or meet the burden of demonstrating that Wolfden would be able to protect Maine’s environment.

Financial Capacity

Wolfden’s assertions of its financial capacity to complete the project are not supported by evidence. It is concerning that its description of capacity is couched in vague language, such as stating that success in of the LUPC rezoning petition would “de-risk” the project and improve investor comfort, that its shareholders “could be interested in a partnership,” and that other larger mining companies continue to follow Wolfden’s efforts and may also be interested in joining the project.²⁰ These are highly speculative statements, not evidence of the actual capacity to complete a billion-dollar project safely.

Wolfden’s primary asset is its 100% ownership of the Pickett Mountain Project. It also has unquantified interest in three potential Canadian mineral sites. Its 52-week high/low stock value has been CAN \$0.07-0.32 (US \$0.05-.24) and its market capitalization on 13Nov2020 was

¹⁷ Id.

¹⁸ See e.g. the discussion of infiltration plans at LUPC application at p.193. The mine’s discussion includes conceptual aspirations but acknowledges that an actual design is not available or considered at this time.

¹⁹ LUPC application at p. 193.

²⁰ Id. at p. 133.

approximately CAN \$26 million (approx. US \$20 million).²¹ Its earnings are reported as zero/loss; since at least 2018, forward projections indicate no income or earnings.²²

The LUPC petition and other available materials, such as on the company’s website, lack evidence that the company and the mine plan are viable. Instead, the company seems to be saying that if Kinross and Altius (larger mining companies) see value, then they may invest or partner on this project. That they have not invested should make clear to the LUPC that these large companies do not see the Pickett Mountain mine as an attractive investment. Wolfden’s claim that its project financing “will be based on a financial model...that will evolve further with more” information suggests that it has little idea of how it will actually finance this project.²³ If Wolfden knew how it would finance the project, it would say so. The publicly available materials do not support that the project financing or financial model demonstrate the project’s viability.

The September 2020 Preliminary Economic Assessment (PEA)²⁴ seeks to estimate the currently known economic prospects of the project. It is not an actual predictor and is based on whatever information was available at the time of its publication. The Wolfden PEA identifies that it is “*preliminary in nature which includes inferred resources within the economic analysis that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.*”²⁵ Disclaimers are reasonable in a preliminary assessment — but in this case, the exceedingly speculative nature of the estimated geological reserves is problematic because it precludes the ability to demonstrate that the ore reserves can support the project. Wolfden’s assertions in the PEA are hyperbolic and are not evidence of financial practicability.²⁶

The information available from Wolfden does not demonstrate that the mine is technically feasible or financially viable.²⁷ The company’s reserves are speculative, and its corporate capital is inadequate to support any kind of financial surety necessary to protect the site.

²¹ <https://finance.yahoo.com/quote/WLF.V/>.

²² Id.

²³ Id.

²⁴ <http://www.wolfdenresources.com/wp-content/uploads/2020/10/Wolfden-Pickett-Mt-PEA-Technical-ReportSept2020.pdf>.

²⁵ Wolfden PEA release at p.6; available at: <https://www.wolfdenresources.com/wp-content/uploads/2020/09/WLFSept14-2020.pdf>. Note that Wolfden’s September 24, 2020 release of information. This appears to be a Wolfden press release, not the independent PEA report, cited above.

²⁶ See <https://www.wolfdenresources.com/wp-content/uploads/2020/09/WLFSept14-2020.pdf>.

²⁷ In its September 8, 2020 letter to Wolfden, the LUPC staff wrote that:

“Staff believe that whether a project is technically feasible and financially practicable is a particularly important consideration for a custom zone, such as a D-PD subdistrict, that will be specifically established for a single, large-scale development project. A project that is not technically feasible and financially practicable raises concerns regarding whether the project is a well-planned or high-quality development, and therefore satisfies the requirements of 01-672 C.M.R. ch. 12, § 4(B)(1)(a) or 4(C)(1)(p).”

https://www.maine.gov/dacf/lupc/projects/wolfden/comm_mtg/WolfdenPetition_CommPkt_September2020.pdf#page=4. This report similarly focuses on technical feasibility and financial practicability and concludes that neither the company nor the project satisfy the LUPC’s requirements to rezone.

The history of mining documents a series of booms and busts where mineral prices fluctuate and with them the success and survival of mining companies. No mine or company is too big or too important to fail. This raises the importance of closely watching mining companies' financial positions. Wolfden financial position is poor and its proposal is, as the company describes itself, "high risk."²⁸

The relatively small size of Wolfden's deposit (about four million tons²⁹) further complicates its chances for success. Wolfden asserts that the percentages of ore are "the highest grade undeveloped VMS deposit in America."³⁰ However, Wolfden also identifies on its website that the classification of the ore is indicated and inferred, the lowest classes of reserves. Given the small deposit size and poor classification of reserves, it would be difficult to justify mine investment/development.

Employment/Jobs

Wolfden states that the project will provide substantial socioeconomic benefits at local, regional, state, and national levels. Mining companies often tout jobs, especially high-paying jobs, to entice regulators and the public with promises of economic benefits and revival of local economies.³¹ But high-paying jobs do not always go to local or regional people and instead jobs that do appear may be low-pay compared to the general promises made by mining companies.

Prior to any rezoning or permitting, the mining company should be required to identify the specific jobs that will be created, and the training level(s) required by each (either each position or each "class" of positions, sufficient to assess the mine's actual employment footprint). The company should also be required to identify where those jobs will be sourced — notably how the company will ensure that it sources local or regional employees. Wolfden provides examples of some other mines' programs, which is not the same as committing to what Wolfden would do in Maine. The LUPC should also consider the ramifications if Wolfden fails to hire or train a significant local workforce, as is the case with many job-promising companies.

Wolfden has also proposed that it will undertake a jobs training program to help train locals or others for good mine jobs. Ironically, the mine describes that many people involved with the mine will live more than an hour's drive from the mine³² — and that a jobs training program it references had limited success because it required people to drive more than an hour.³³ It is unclear just what kind and quality of job prospects an approved mine would offer to local and regional residents in this area.

²⁸ "Ron Little, CEO of Wolfden Resources, acknowledged that Wolfden is a high-risk, high-reward type of company." <https://bangordailynews.com/2020/10/19/news/aroostook/proposed-mine-near-baxter-state-park-is-first-real-test-of-maines-new-mining-law/?order=7>.

²⁹ <http://www.wolfdenresources.com/wp-content/uploads/2020/11/WolfdenPickettMtNov12020.pdf>.

³⁰ <https://www.wolfdenresources.com/wp-content/uploads/2020/10/WolfdenPickettMtOct12020.pdf#page=4>.

³¹ Wolfden goes so far as to tout 50% of its employees adding additional income of \$44 million by remaining in the mining industry for the remainder of their careers and future generations taking an interest in the mining industry. LUPC application at p. 183. Wolfden presents no basis for its claims and therefore they are simple speculation.

³² LUPC application at p. 184.

³³ Id.

The LUPC application describes many job benefits, including the potential for Wolfden employees to become fly-in/fly-out employees at other mines.³⁴ But Wolfden makes neither material commitments to achieve employment or training objectives nor establishes measurable goals for local employment with appropriate penalties if it fails to meet them. These are necessary to protect local communities from Wolfden simply hiring trained miners from outside of the area for high-paying jobs and hiring locals for the low-paying, untrained positions.

Finally, Wolfden cites four operating mines to support its jobs and economic claims.³⁵ But Wolfden proposes to operate for only 10 years and as described, has not identified any concrete employment plan or promises. In contrast, three of the four mines it cites have operating lives significantly longer than Wolfden's. They all have significantly different histories, locations, and other factors making them not comparable to Wolfden's proposed Pickett Mountain mine. For example, Red Dog started in 1989 and is expected to last through 2031.³⁶ The Meliadine mine has a 15-year mine life and its employment is directly controlled by an agreement with the Kivalliq Inuit Association to ensure benefits accrue to the local and indigenous peoples.³⁷ The Schefferville mine originally started production in the 1950s³⁸ and its 2018 issues with local indigenous communities, including a blockade, do not especially evidence indigenous training programs.³⁹ Musselwhite mine is a fly-in, fly-out operation with an expected mine life of more than 30-years.⁴⁰ It employs more than 700 employees and contractors.⁴¹ Wolfden's claims about job benefits should thus be viewed skeptically.

Review of Virtual Site Visit Video

The video from Wolfden's virtual site visit⁴² was reviewed. During this virtual site visit, Wolfden made statements that appear to be at odds with the LUPC application or lack supporting evidence. In particular, the following items warrant responses:

Wolfden Statement: At approximately 2:15 the company states that water will be treated to at or better than existing water quality — then continues to state that they don't actually know the water quality because they did not have sufficient background information.

Response: This lack of adequate background information renders Wolfden's promises to be, at best, unsupported or unsupportable.

Wolfden Statement: At approximately 2:40, Wolfden states that the mine would have to discharge back into the ground water because it will be using water from precipitation that typically hits the ground and infiltrates and goes into groundwater.

³⁴ Id. at p. 182.

³⁵ Id.

³⁶ <https://www.teck.com/operations/united-states/operations/red-dog/>.

³⁷ <https://www.agnicoeagle.com/English/operations/operations/meliadine/default.aspx>.

³⁸ <https://ceo.ca/@marketwired/earth-alive-reports-exceptional-performance-results>.

³⁹ <https://www.cbc.ca/news/canada/newfoundland-labrador/tata-steel-blockade-schefferville-1.4768769>.

⁴⁰ <https://miningdataonline.com/property/63/Musselwhite-Mine.aspx>.

⁴¹ <https://www.cbc.ca/news/canada/thunder-bay/musselwhite-mine-fire-1.5080262>.

⁴² <https://www.youtube.com/watch?reload=9&v=SPPJomT79v8&feature=youtu.be>.

Response: This is, at best, misleading if not nonsensical. Maine law (Title 38 Section 464(4)(A)(1))⁴³ prohibits discharge to small surface waters, and no waterbodies near Wolfden’s proposed site are of sufficient size to allow surface discharge. Therefore, discharge to groundwater is the mine’s alternative. Wolfden’s LUPC application fails to demonstrate that it can adequately treat water to background, as promised, and therefore such discharge is of concern.

Wolfden Statement: At approximately 5:20 Wolfden states that it can really prove the concept of its dry stack tailings facility “as we go.”

Response: While the idea of individual tailings “cells” has merits, the mine should be required to demonstrate (using widely accepted methods and information) all major mine concepts *before* any rezoning or permitting occur. This burden of proving its technologies should rely on widely accepted technical methods and plans and apply them to the proposed environment (geology, groundwater, earthquake zone, etc.).

Wolfden Statement: At approximately 6:40 Wolfden describes that its proposed tailings will be a material like wet flour and, after compacting, will not allow any infiltration.

Response: This notion that compacted tailings will somehow deflect (or pool) water instead of rehydrating the tailings is unsupported and should be demonstrated using data and examples.

Wolfden Statement: At approximately 8:15 Wolfden describes that using organic material salvaged from the pre-mined site for post-mine reclamation will ensure successful post-closure revegetation that mimics the pre-mine vegetation.

Response: This claim is unsupported. Myriad complications, such as loss of organic material during a decade of storage, loss of seed viability (if seed exists in the salvaged material), loss of offshoot viability, and loss of soil microbes would likely render the material of limited revegetative value. Further, the mine does not describe how it will establish an ecosystem of shrubs and small trees that will not evolve into larger trees that will penetrate/puncture or impair liners. Additionally, there is no description of how weeds, which favor disturbed ground, will not proliferate. The mine fails to identify an actual revegetation plan that promotes such important features as soil horizons, plant basal and aerial coverage, plant alpha and beta diversity, site maintenance, and any promised timeframes to achieve these goals and the ramifications of failing to meet them.

Wolfden Statement: At approximately 13:07 Wolfden describes that ultimately all employees will be housed on-site so there is no remote housing.

Response: This is at odds with the LUPC application statements that the mine will employ a local workforce, and people will commute an hour or more to get to work. This actually suggests that the mine would fly-in/fly-out employees from outside of the area rather than local residents.

Wolfden Statement: At approximately 9:35 Wolfden states that there will be, “No impact to wetlands...that have been delineated.”

⁴³ <http://legislature.maine.gov/legis/statutes/38/title38sec464.html>.

Response: Based on the LUPC application and Wolfden’s website information, it appears that Wolfden has not actually completed any major wetland delineation studies. Therefore, the statement is meaningless and misleading.

Wolfden Statement: At approximately 17:45 Wolfden states that all runoff from the tailings will be recycled for use in the concentrator and that therefore the mine does not have to treat all of the water.

Response: The LUPC application does not provide a technical water balance — making it difficult or impossible to make claims about the surface or ground flows and how they will be managed (including discharge, treatment, recycling, etc.).

Wolfden Statement: At approximately 20:45 Wolfden begins a discussion about discharge to groundwater/“septic fields” to support its claims that all water will be treated to background water quality and therefore the risks to water quality are very well controlled.

Response: The LUPC Application does not contain sufficient evidence to support these claims. As stated above, it provides no examples of other mine that can treat wastewater to natural background levels of contaminants in groundwater. Therefore, these claims should not be relied upon for any rezoning decision.

Wolfden Statement: At approximately 22:20 the LUPC asks about the size of the disposal areas where wastewater will be discharged. Wolfden states that the design for these is largely conceptual, and there is much work to be done to fill in information gaps.

Response: Wolfden should be required to provide site background information, plan details, and supportable results to allow a meaningful evaluation of its proposed conceptual plan discharge of wastewater to groundwater. Wolfden fails to provide significant information necessary to support and demonstrate its claims and conceptual plan.

Conclusion

In its March 2020 deficiency letter to Wolfden, the LUPC noted that, “The purpose of the D-PD subdistrict is to allow for large scale, well-planned development,” proposals for which the Commission will consider “provided they can be shown to be of high quality and not detrimental to other values” of the Commission’s jurisdictional area.”⁴⁴

Beyond the obvious financial and technical problems identified in this report, it should be considered that post-mining lands are difficult to use for most purposes after mining and reclamation are complete. Even at an underground mine, such as that proposed by Wolfden, post-mine land use can be limited by disposal areas and hazardous contaminants; the requirement for regular monitoring that may last for decades or longer; and the requirement that large areas must remain undisturbed in order to preserve the integrity of liners and other safeguards against contaminant release. Further, groundwater at the site is reasonably likely to be permanently quantitatively altered, qualitatively impaired, and potentially unavailable/unusable.

⁴⁴ March 6, 2020 LUPC letter to J. Ouellette/Wolfden, *citing* 01-672 C.M.R ch. I0, §10(H)(I). The LUPC letter is available at: https://www.maine.gov/dacf/lupc/projects/wolfden/hearing_record/4.5_2020-03-06_LUPC_Letter_AdInfo_Request.pdf.

As discussed above, Wolfden’s LUPC application does not support the mine’s technical or economic feasibility – especially in light of the overall demonstrated quantity and quality of ore, Wolfden’s seemingly impossible water quality claims, and Wolfden’s lack of technical and financial capacity to implement its “plan.” The burden is on the mining proponent to demonstrate the viability of its claim, and Wolfden’s application and supporting information do not achieve this burden.