

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
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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.