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STATE OF MAINE
LAND USE PLANNING COMMISSION HEARING

In the Matter of
Zoning Petition ZP 779A

Wolfden Mt. Chase, LLC
Application for Zone Change, Pickett Mountain Mine

October 16, 2023

Day 1 of 3 of Testimony and Evidence

BEFORE: Angella D. Clukey, Notary Public, at
Stearns Jr. Sr. High School, 199 State Street,
Millinocket, Maine.

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1 (This hearing was taken before Angella D. Clukey,
2 Notary Public, at the Stearns Jr. Sr. High School,
3 199 State Street, Millinocket, Maine, on Monday,
4 October 16, 2023, beginning at 9:32 a.m.)

5 MR. WORCESTER: Good morning. I now call to
6 order public hearing on the Land Use Planning
7 Commission on Zoning Petition ZP 779A Wolfden
8 Mt. Chase, LLC proposed rezoning to allow for the
9 development of Picket Mountain Mine.

10 My name is Everett Worcester. I'm the current
11 chair of the LUPC and I'll be the hearing officer
12 through this proceeding.

13 Now I'd like to introduce the other
14 commissioners. Leo, would you like to start?

15 MR. TRUDEL: Leo Trudel, Aroostook County.

16 MR. PRAY: Peter Pray, Penobscot County.

17 MS. HILTON: Gwen Hilton, Somerset County.

18 MR. WORCESTER: And this is Stacie Beyer, she's
19 the executive director of the LUPC.

20 MR. ELWELL: Caleb Elwell, Assistant Attorney
21 General, counsel for the Commission.

22 MS. FITZGERALD: Betsy Fitzgerald, Washington
23 County.

24 MR. ELLSWORTH: Perry Ellsworth, Franklin County.

25 MR. WORCESTER: We also have one commissioner

1 who -- Millard Billings, who will be listening. He's
2 not able to communicate.

3 We have a second commissioner who's in transit
4 and won't be able to hear the presentations.

5 We're also short one commissioner. Their term
6 expired and the county commissioners have appointed
7 their replacement, but they haven't gone before the
8 joint standing commission of the legislature.
9 There's a joint standing committee that we all have
10 to pass muster with. So they won't come on board
11 until the legislature meets again.

12 That's the downside of that. The upside is the
13 legislature isn't meeting.

14 The hearing is being held pursuant to provisions
15 of Title 12 Section 684 and Chapter 12 of the
16 Commissions' rules: Mining and Level C Mineral
17 Exploration Activities.

18 The hearing will be conducted in accordance with
19 Chapter 5 of the Commission's Rules for the Conduct
20 of Public Hearings, the State's Administrative
21 Procedures Act, and the five procedural orders issued
22 by the presiding officer in advance of this hearing.

23 This hearing is being held to receive testimony
24 on the proposed rezoning that would allow for the
25 development of Pickett Mountain Mine.

1 This hearing is being recorded and live-streamed.
2 All witnesses at this hearing will be sworn and any
3 documents entered into the record.

4 At this time I ask all persons planning to
5 testify today to please stand and raise your right
6 hand. And since we're in a school situation -- I'm
7 an old-time teacher, so I am not sure that you're
8 prepared for this question, so the answer is yes.

9 Do you affirm that the testimony you are about to
10 give is the whole truth and nothing but the truth?

11 TESTIFIERS: Yes.

12 MR. WORCESTER: Thank you. You may be seated.

13 The hearing will following the hearing schedule
14 as provided in the fourth procedural order.

15 Tim Carr will now give the LUPC staff statement.
16 Tim?

17 MR. CARR: Good morning. Good morning,
18 Chairman Worcester, Commissioners, Executive Director
19 Beyer, Counsel Elwell, my LUPC colleagues, the
20 parties to the hearing, and members of the public.

21 I'm Tim Carr, senior planner with the Land Use
22 Planning Commission, and I'll provide the staff
23 introduction to the public hearing on ZP 779A Wolfden
24 Mt. Chase's rezoning application for the proposed
25 Pickett Mountain Mine.

1 The staff introduction will briefly review the
2 timeline of the application and notices, the parties
3 to the hearing, the schedule and topics of the
4 technical sessions of the hearing, and public
5 comment. And it will end with staff reviewing the
6 administrative record and entering it into the
7 hearing record.

8 To review the timeline at a high level, the
9 rezoning application was filed in January of 2023 and
10 in February was accepted as complete for processing
11 following LUPC rules.

12 In June the LUPC provided additional notices that
13 a public hearing on ZP 779A would be held, including
14 information on filing petitions to intervene.

15 In September the LUPC provided notices of the
16 hearing dates, times and locations, and these notices
17 were published in the Bangor Daily News and the
18 Houlton Pioneer Times, sent to the county governments
19 of Penobscot and Aroostook Counties and state and
20 federal resource agencies.

21 They were sent to persons requesting notice of
22 the project, property owners in the area, and the
23 appropriate state legislators. And additional notice
24 was provided through the LUPC's web page dedicated to
25 the review of the project.

1 There are three parties to the hearing.

2 There's the applicant: Wolfden Mt. Chase, LLC,
3 whose representatives are seated behind me and to
4 your left.

5 There's Intervenor 1, which is HC Haynes, in
6 support of the application's proposal, and its
7 representatives are seated directly behind me.

8 And Intervenor 2, the Penobscot Nation, Houlton
9 Band of Maliseet Indians, Natural Resources Council
10 of Maine, Conversation Law Foundation, and Maine
11 Audubon, in opposition to the application's proposal
12 and whose representatives are seated behind me and to
13 your right.

14 Maine Audubon was granted status in the hearing
15 as an interested person and was consolidated with the
16 original Intervenor 2 group by the presiding officer.

17 You should all have a copy of the detailed
18 hearing schedule, but at a high level, the technical
19 sessions are starting today with an introduction to
20 the project and opening statement by the applicants
21 followed by opening statements from the intervenors.

22 The technical sessions will then follow a
23 party-by-party approach in which each party presents
24 a witness or panel of witnesses for direct testimony
25 followed by cross-examination by one or more other

1 parties as appropriate. Each party is allotted one
2 or more panels of witnesses.

3 The applicant's panels will present today and
4 tomorrow morning. Intervenor 2's panels will present
5 tomorrow and Wednesday morning. And Intervenor 1's
6 panel will also present on Wednesday morning. And
7 the technical sessions will end with the applicant's
8 redirect-examination on Wednesday.

9 The topics chosen for the technical sessions are
10 a subset of the review topics and are: Financial
11 practicability; water and fish resources and aquatic
12 habitats; wildlife resources and habitats, natural
13 character; historical and cultural resources and
14 tribal impacts; and socioeconomics.

15 These six topics were chosen based on their
16 importance to the Commission's review of the
17 application, the level of interest expressed by the
18 parties, the anticipated value of oral testimony on
19 them, and anticipated public interest.

20 Public comment sessions will be held this evening
21 and tomorrow evening here at Stearns Junior/Senior
22 High School in Millinocket and next Monday evening,
23 October 23rd, at the Cross Insurance Center in
24 Bangor.

25 At the start of each session the applicant will

1 briefly describe the rezoning proposal to the
2 Commission, and this will be followed by public
3 testimony in which each speaker's time is limited
4 depending on the total number of speakers. Speakers
5 will be called in the order in which they sign up.

6 Commissioners and staff may ask questions
7 directly to members of the public. The parties may
8 ask questions through the presiding officer.

9 The written comment period for the hearing record
10 closes on November 2nd, and this is followed by a
11 rebuttal period that closes on November 9th.

12 And lastly, in terms of the record for the public
13 hearing, I'll now state that staff hereby enter into
14 the hearing record exhibits representing the
15 administrative record for ZP 779A from January 18,
16 2023, the date the rezoning application was filed,
17 through October 14, 2023, this past Saturday. And
18 that administrative record includes statutes and
19 rules administered by the Commission, the application
20 and additional materials submitted in response to
21 LUPC questions and agency reviews, written public
22 comments, prefiled testimony, and notices.

23 This concludes the staff introduction.

24 Are there any questions from the Commission?

25 Okay. Seeing none, thank you.

1 MR. WORCESTER: Thank you, Tim.

2 Next event is the applicant's project summary and
3 opening statement.

4 MS. BROWNE: Is it on? Oh, great. No red light.
5 Good morning, Mr. Chair, members of the
6 Commission, staff.

7 My is name is Juliette Browne. I'm counsel for
8 the applicant.

9 And on behalf of the entire Wolfden team, I want
10 to express our appreciation to the Commission and to
11 staff for the work they've done in connection with
12 this project leading up to where we are today and
13 certainly the work you will do over the next three
14 days of technical sessions.

15 We're looking forward to presenting the project,
16 answering questions from the intervenors and the
17 Commission, and we're excited to bring this proposal
18 forward. We think it's an opportunity for the state
19 of Maine.

20 I am pretty low tech so although you've got these
21 great screens in front of you, we've provided a few
22 handouts for the Commission that I'm going to refer
23 to in my statement. I'm kind of old school, paper
24 copies.

25 I'm going to begin just with some basics on the

1 project. This is a proposal to rezone 374 acres in
2 T6R6 from MGN to the DPD zone to allow a small
3 state-of-the-art underground mine that will only go
4 forward if and when the applicant demonstrates
5 compliance with the strictest mining regulations in
6 North America.

7 Now, as you can see from this map, the project is
8 located on the edge of the jurisdiction. You can see
9 that T6R6 in the Wolfden parcel touches Hersey, which
10 is an organized town. Mt. Chase and Moro Plantation,
11 which are on either side of T6R6, both have
12 significant primary and secondary locations in them.

13 We included a reference to that map but the map's
14 very hard to read so I didn't provide with the map
15 showing the primary secondary locations.

16 This area is also within, and this map shows, the
17 expedited wind permitting area. Now, you may recall
18 that areas rezoned to the expedited wind permitting
19 area were generally at the edge of the jurisdiction
20 and were deemed more appropriate for large grid scale
21 wind energy development. So T6R6 is in the expedited
22 wind permitting area; Moro Plantation is; Mt. Chase
23 is as well as T7R6.

24 Now, Intervenor 2 sites to the presence of
25 Katahdin Woods and Waters National Monument in Baxter

1 State Park as evidence that this is not an
2 appropriate location for wind power.

3 Did we do the map showing the --?

4 Baxter State Park is more than 22 miles from the
5 project. The Woods and Waters National Monument is
6 more than 8 miles from the project. And importantly,
7 users of those resources will not see or hear the
8 project, nor will users recreating on the Seboeis
9 Trail or users on the scenic byway.

10 And importantly, as you can see from this first
11 map, Wolfdon owns a little more than 7,000 acres, and
12 all except for the small rezone area will remain open
13 for public recreational use, including traditional
14 uses such as fishing and hunting and, importantly,
15 uses including snowmobiling and ATV.

16 Now, snowmobiling and ATV has become an
17 increasingly important component of the economic
18 engine in this region, and you will hear from Terry
19 Hill, a local businesswoman and somebody deeply
20 invested in the wellbeing of her community, about the
21 importance of these two recreational activities to
22 her business, her business growth, and the region
23 more generally. She will also describe why she
24 supports this project and the opportunities she sees
25 that it presents for the region.

1 So that's sort of the basic context of the
2 project and where it's located.

3 I also want to talk a little bit about the
4 regulatory context and the interplay between the LUPC
5 rezoning and the subsequent DEP permitting that will
6 occur. LUPC rezoning presents unique challenges both
7 for you as a decisionmaker as well as for applicants.

8 On the one hand, it is a landscape level
9 decision.

10 On the other hand, you need sufficient
11 information to conclude that the use will not have an
12 undue adverse impact on existing uses and resources.

13 It creates this inherent tension about the level
14 of detail required for rezoning when there will be a
15 subsequent permitting process that looks in great
16 detail at all aspects of the project, and you will
17 hear this tension played out during the next several
18 days of this hearing.

19 For example, the opponents criticize the
20 applicant for not having sufficient detail on a
21 number of technical issues, including plans for
22 managing risks associated with acid rock drainage,
23 insufficient hydro geological modeling, insufficient
24 detail on soils information.

25 We fully agree that this is important

1 information, all of which is required, and will be
2 presented as part of the subsequent phase, which is
3 the DEP permitting phase.

4 And we think that your Chapter 12 rules reinforce
5 this conclusion that the type of detailed information
6 the -- the Intervenor 2 is criticizing the applicant
7 for not presenting is more appropriate for the DEP
8 permitting phase, so I have provided you with a copy
9 of the Chapter 12 basis statement.

10 Chapter 12 is the set of rules that governs the
11 DPD rezoning process for mining projects. And as
12 part of that rulemaking, interested people/persons
13 submit comments on what they think should or should
14 not be included in the rule.

15 And a number of stakeholders, including NRCM and
16 CLF who are intervenors here today, submitted
17 comments stating that additional detail on things
18 like rock chemistry, leachability tests, specific
19 analysis of the risks associated with acid mine
20 drainage from particular types of rock that will be
21 removed from the site.

22 And the Commission responded. So for example
23 I've just flagged a couple of pages. On Page 23 the
24 Commission responded that LUPC does not believe that
25 asking for contamination assessment is appropriate at

1 the rezoning phase and when on to note that the DEP
2 will require a description of the geochemistry of the
3 ore, waste rock, overburden, including
4 characterization of the leachability, reactivity and
5 acid-forming characteristics as part of the DEP
6 permitting process.

7 And I think as you consider the evidence before
8 you, it is important to think about and appreciate
9 the breadth and depth of the Chapter 200 permitting
10 process. So one of the other exhibits you have is a
11 chart that we prepared that just summarizes some
12 aspects of the Chapter 200 process.

13 Importantly, before you can even submit an
14 application to the DEP for a mining permit, you have
15 to conduct two years of baseline surveys. It's a
16 public process; the plan for collecting that data has
17 to be approved by the Department and is subject to
18 public comment.

19 The application requirements require detailed
20 information on many of the issues you will hear
21 discussed during these hearings: Leachability of
22 rocks, potential for acid mine drainage, specific
23 plans for managing the risks associated with acid
24 rock drainage.

25 Now, I will just pause here -- there are a lot of

1 technical issues: Acid rock drainage, leachability.
2 I have asked my witnesses who will be talking about
3 it to dumb it down so that I can understand it.
4 I think they've done a good job at that, but some of
5 it is technical and I apologize in advance for that.
6 And I do encourage you to interrupt technical experts
7 during their presentations if you want clarification
8 because I think that might facilitate understanding
9 by everybody.

10 Now, I'm not suggesting that the application
11 doesn't need to include information on these issues.
12 It does. You will hear from Mr. Ouellette about the
13 mining plan, the proposal for how to manage rock
14 that's removed from the mine and separate rock that
15 is the ore that might be potentially acid-generating
16 and rock that is not potentially acid-generating.

17 You will hear from Mr. Dudek, a geologist, on the
18 substantial information that Wolfden has on the
19 chemistry of the site and the type of rocks that are
20 present there and the ways in which Wolfden believes
21 it can place underground mining infrastructure in
22 rock that is not likely to be acid-generating so they
23 can develop a plan to minimize the potential for acid
24 rock drainage.

25 You will hear from Dr. Finley on specific

1 measures that exist and practices that exist to
2 manage and address the risks associated with acid
3 mine drainage.

4 You will hear from a panel of three experts, each
5 with substantial experience in their respective field
6 disciplines, on the proposal for collecting
7 mine-impacted water, treating that water to
8 background water quality levels, and then
9 reintroducing that water into the environment in an
10 manner that will protect the existing site hydrology.

11 Now, what is not part of the proposal before you
12 is the tailings facility and the processing
13 facilities.

14 Now, the DPD rezoning criteria includes a
15 requirement that the site be the best reasonably
16 available site for the use. So for the mine
17 obviously it's dependent upon this specific location
18 because that's where the resources is present. It's
19 not necessarily the case that the processing in the
20 tailings facility need to be colocated. There
21 certainly are efficiencies of collocating, but it's
22 not required.

23 So Wolfden was asked to evaluate alternatives for
24 the processing facilities and the tailings facilities
25 and whether or not this was the best reasonably

1 available site for it. So one of the things they
2 have done in the last year and a half, two years, is
3 to meet with surrounding communities and look for
4 locations that might be suitable locations for those
5 facilities. Suitable both from a siting standpoint
6 and also located in an area where there was
7 meaningful local support.

8 So they've been able to do that and as a result,
9 those two components are not part of this proposal.
10 And I think it considerably simplifies the proposal
11 that's before you. Those two aspects of the overall
12 project are particularly technical, and this tension
13 that I've referred to about the desire for more
14 detailed information certainly plays out with respect
15 to those facilities.

16 Now, you will hear from the intervenor --
17 Intervenor 2 they're focused on mining failures in
18 the past, including mines that operated in the 1880s,
19 mines that had no environmental management practices
20 in place.

21 We all agree that those historic practices were
22 not particularly environmentally protective. We all
23 agree that acid mine drainage is something that needs
24 to be managed in connection with mining. But the
25 suggestion that some of those historic mines and

1 historic practices are reflective of the risk
2 associated with this project that is before the
3 Commission is disingenuous.

4 There are well-established tools for managing
5 those risks and you will hear about them, but in the
6 prefiled testimony of Intervenor 2, they are largely
7 ignored.

8 Now, Maine has an opportunity to be a leader in
9 responsible mining. There's no dispute that this is
10 a high value metal deposit. There's no dispute that
11 the two most significant metals, zinc and copper, are
12 on the critical materials for minerals list. These
13 are metals and resources that are necessary for
14 everyday life and also for the transition to a clean
15 economy. There's no dispute that Maine has the most
16 stringent mining regulations in North America, so no
17 one can credibly claim we don't need to mine; the
18 only question is whether we do so responsibly in a
19 jurisdiction with strict regulations and local
20 support, or we outsource it to another state or
21 country which lacks regulations often to the
22 detriment of local populations.

23 We respectfully request that the Commission
24 approve this proposal for rezoning to allow Wolfdon
25 to proceed to the second phase which is a detailed,

1 comprehensive permitting process in which it must
2 demonstrate that there will be no adverse impacts to
3 water quality because that's all that Chapter 200
4 allows.

5 Thank you for your time today and the next
6 several days and for the public service that you all
7 provide the state of Maine.

8 MR. WORCESTER: We'll now hear from Intervenor 1
9 with their opening statement, and you have
10 10 minutes.

11 MR. BEAUPAIN: Thank you. Welcome to
12 Millinocket.

13 By coincidence, this is my hometown. I grew up
14 here, practiced law here for over 40 years, and it's
15 certainly nice to see you folks here.

16 My client intervened in this proceeding because
17 it's very concerned about the tremendous economic and
18 population losses that this area has suffered over
19 the last 20 or 30 years.

20 You folks drove by the East Millinocket mill on
21 the way here today. You did not see a paper mill.
22 That mill closed in 2014. You can see that very
23 little has occurred at that site since 2014.

24 When I graduated from Stearns High School in
25 1969 -- I hate to go back quite that far, but --

1 there were 180 kids in my class. Today there's 120
2 in this school in grades 9 through 12.

3 When the -- when I got out of high school, Great
4 Northern was at its peak. 4,000 well-paid blue
5 collar workers. Great Northern was an economic
6 engine of statewide significance. That's gone.

7 We need economic help in this area. We support
8 this project because it can only go forward if a
9 permit is issued under Chapter 200 and you issue
10 certification under your Chapter 13. Both of those
11 can be with conditions.

12 So almost by definition, there can be no adverse
13 impact from the permitted mine if the permit is
14 issued by DEP.

15 We are at the beginning of a long process. The
16 world is not going to end if you change this zoning.
17 The only thing that's going to change is the
18 applicant can proceed with an application under
19 Chapter 200 and certification from you.

20 And once again, DEP, if it finds no adverse
21 impacts or an adverse impact that can be mitigated,
22 can add appropriate conditions to that permit. And
23 as part of your certification process, you can do the
24 same. So approving this zone change doesn't
25 authorize any work at the site. I don't see how it

1 can adversely impact anything.

2 Now, the Katahdin Region has a history of
3 industrial development that precedes Baxter State
4 Park. We had paper mills back as far as 1900 here.
5 Some of us would like to see those again. It's a
6 question for another day whether a paper mill near or
7 in your jurisdiction could even get permitted today
8 under current rules.

9 Now, we certainly know what the economic impact
10 of those paper mills were, and it would be very sad
11 to say that our system today won't even allow them.
12 And what's just as sad is the opponents don't even
13 want the applicant to have the opportunity to go
14 through with the Chapter 200 process. Okay?

15 Well, that's why you want to keep in mind the
16 zone change itself changes nothing. There's no
17 impact on any uses because they don't have the
18 permit. And this is a very specific zone change. It
19 is only for the metallic mining proposal. If it
20 isn't granted, the zoning reverts back. So I don't
21 see what the harm is.

22 Now, you also know this is not the wilderness.
23 When Great Northern was here, they processed
24 800 cords of wood into 800,000 tons of paper a year.
25 That wood came down the Golden Road, that wood came

1 from the project area, it came from a large radius
2 around Millinocket. I don't know how you can go by
3 800,000 cords of wood and think you're in the
4 wilderness.

5 This is private property. When you're -- the
6 statutory changes were made that resulted in your
7 2012 guidance for interpretation of the CLUP, you
8 were dealing with the legislative direction to take
9 the concerns of the local residents and the property
10 owners more into concern than apparently the
11 Commission had been doing in the past.

12 You are our government. We're petitioning you
13 for redress. 250 jobs for 10 years in this area is a
14 huge deal, and if we can have those jobs with a
15 permit with appropriate conditions under Chapter 200,
16 we should have that opportunity. We should not just
17 say no because we're imperilling somebody's idea of
18 the wilderness.

19 Thank you.

20 MR. WORCESTER: Next on the agenda is
21 Intervenor 2's opening statement.

22 MR. BLOOM: Good morning, Commissioners and
23 staff. My name is Aaron Bloom, and I'm speaking to
24 you today on behalf of the Penobscot Nation, the
25 Houlton Band of Maliseet Indians, the Natural

1 Resources Council of Maine, and the Conservation Law
2 Foundation, as well as intervenor -- as well as Maine
3 Audubon as an interested person.

4 Thank you for the time and consideration you've
5 already put into this matter and for the time that
6 you will be continuing to put into it and the
7 consideration you'll be giving it.

8 Commissioners, the area where Wolfden proposes to
9 build this mine is truly spectacular. The Katahdin
10 Region's wild beauty and pristine waters and
11 undeveloped character make it not only a haven for
12 the abundance of fish and wildlife, but also a
13 destination for Mainers and tourists alike to hike,
14 fish, hunt, paddle and ride ATVs and snowmobiles.

15 The region is also culturally significant to
16 Maine's Wabanaki tribes who have historically
17 occupied the area and who still use it for hunting,
18 fishing, guiding and traditional practices.

19 The proposed mine site is immediately surrounded
20 by three state heritage fish waters recognized for
21 their habitat -- extremely good habitat for native
22 brook trout and landlocked salmon, some of the best
23 in the state. And the site is situated at the
24 headwaters of the west branch Mattawamkeag River,
25 which is federally-designated critical habitat for

1 the endangered Atlantic Salmon.

2 In addition, the recently established Katahdin
3 Woods and Water National Monument lies about five
4 minutes from the proposed site. And these features
5 have contributed to significant growth in this
6 region's outdoor economy over the past decade.

7 In order to protect this irreplaceable asset, the
8 LUPC is guided by regulations that impose significant
9 guardrails against the loss of the region's unique
10 natural character and the outdoor economy that it
11 supports.

12 And so although Wolfden has -- you just heard --
13 has encouraged you to say that the Chapter 200
14 regulations for mining permits will take care of
15 everything, this commission first has its own
16 regulations to meet, which require it to consider
17 specific things and require Wolfden to prove and
18 demonstrate with substantial evidence that will meet
19 this commission's actual regulations and standards.

20 And those standards require that the applicant
21 prove, demonstrate with evidence, that it has -- that
22 the project is financially viable, and that Wolfden
23 has the financial resources and support to complete
24 it, number one.

25 Number two, demonstrate that the project will not

1 have undue adverse impacts on natural resources.

2 And three, demonstrate that the project will not
3 be detrimental to the values inherent in the
4 comprehensive land use plan.

5 Wolfden has not met its burden, and we submit
6 that the Commission should deny rezoning.

7 First, Wolfden has not demonstrated that the
8 financial resources it has are sufficient to complete
9 this mining project, nor has it demonstrated that the
10 project is financially viable.

11 Wolfden's financial statements show that the
12 company is skating on thin ice. You will hear that
13 the project is its only lifeline.

14 As of March of this year, Wolfden had lost more
15 than \$41 million since its inception and the company
16 had only \$2.7 million in working capital with no
17 ongoing source of cash flows. And the Pickett
18 Mountain was the company's primary asset.

19 Wolfden's financial statements also show that the
20 company's fortunes are at the whim of unpredictable
21 market forces. Its financial statements state: It
22 is not possible to predict -- and I'm quoting here --
23 whether financing efforts will be successful or if
24 the corporation will obtain profitable levels of
25 operation.

1 As a result, Wolfden's independent financial
2 auditor found, quote: There is significant doubt
3 about the company's ability to continue as a going
4 concern.

5 And not only are Wolfden's finances shaky, but so
6 the Pickett Mountain Project's. Fully 50 percent of
7 the Pickett Mountain mineral resource estimate is
8 made up of what's called inferred resources.
9 Inferred resources are, and I'm quoting now,
10 Wolfden's own consultant, quote: Considered to
11 speculative geologically to have economic
12 considerations applied to them, yet Wolfden's
13 preliminary economic assessment relies on these
14 speculative inferred resources.

15 As a result, the author of that assessment admits
16 quote: There is no guarantee that the economic
17 projections contained in this preliminary economic
18 assessment would be realized.

19 And on top of that uncertainty in cost, there's
20 also -- in revenues, there's also uncertainty and
21 actually underestimation on the project's cost. The
22 economic assessment admits that its cost estimates
23 are only accurate plus or minus 40 percent, and the
24 economic assessment sticks with an unsupported
25 \$13.7 million estimate for a worst-case mining

1 disaster, something that this commission actually
2 wrote to Wolfden and said, appears too low, ask for
3 further justification, which hasn't been provided.

4 Next, Wolfden has failed to demonstrate that the
5 project will not have an undue impact on adverse --
6 on natural resources. Probably the most significant
7 environmental danger posed by mineral mining is acid
8 mine drainage. Acid mine drainage is created when
9 sulfur-bearing rock is exposed to oxygen in water.
10 The result is acidic water, which also can contain
11 elevated levels of heavy -- leached heavy metals such
12 as lead, mercury, zinc, copper and arsenic.

13 And once acid mine drainage starts, it's very
14 difficult to stop.

15 Now, this acidic metal-laden water is toxic to
16 aquatic life and harmful to human health, and it's
17 especially harmful in pristine waters with low
18 hardness and low alkalinity like the state heritage
19 fish waters and streams surrounding the site.

20 Wolfden promises that its acid mine drainage will
21 not be a problem because it will come up with plan to
22 deal with it and it will be part of this next
23 process, but a promise to make a plan fails to -- far
24 short of demonstrating to you at this stage that it
25 will avert this major environmental risk.

1 Wolfden also fails to demonstrate that it will be
2 able to treat all of the mine's water discharges down
3 to pristine natural background levels, which Maine
4 law requires.

5 Nearly three years ago the Commission staff, as
6 well as the Maine Geological Society -- Survey asked
7 Wolfden to provide an example of a comparable mine
8 that can do this, and Wolfden has yet to do -- has
9 yet to provide such an example.

10 Instead, Wolfden has never -- instead, despite
11 the fact that Wolfden has never successfully
12 developed or even operated a mine, Wolfden asked LUPC
13 to trust that it will be able to achieve the levels
14 of water treatment that it promises. Supplying only
15 a deeply flawed computer model to support its
16 assertion.

17 Wolfden also fails to adequately explain how it
18 will deal with the toxic brine that comes out of that
19 water treatment process. That toxic brine contains
20 all of the -- the elements that are removed by the
21 river's osmosis water treatment process, but in more
22 concentrated form.

23 Wolfden says it will mix that toxic brine into
24 cement, mix it with the waste rock from the project
25 and backfill it back into the mine, but what they

1 haven't provided is any information or analysis
2 showing what will happen when that toxic cement is
3 put back underground. Will it leach heavy metals?
4 Will it create acid? And it also hasn't provided you
5 any information as to whether Maine DEP would allow
6 that kind of disposal of the brine. And if DEP
7 doesn't allow it, Wolfden has not said what it's
8 going to do with that toxic brine.

9 So these are questions that it has not
10 demonstrated how it's going to deal with the adverse
11 impacts of its project. In fact, in addition, these
12 risks and uncertainties don't just apply to mine
13 sites; they also apply to the ore processing and
14 tailings facility that Wolfden will be locating at an
15 undisclosed location outside of but very near to
16 LUPC's jurisdiction.

17 And this matters because its -- LUPC's statutes
18 requires it to consider impact not only within the
19 jurisdiction, but in areas adjacent to it.

20 Now, Wolfden has removed its facility from its
21 application, so it has presented no plan for
22 addressing the risks that come from that ore
23 processing facility. Those risk will be significant.

24 Processing ore from -- processing ore requires
25 the use of toxic chemicals. Those chemicals will be

1 part of the water treatment, but they can also leak.
2 The wastewater treatment, again, will have to be
3 treated down to natural background levels. Again,
4 they're provided no example. And again, the water
5 treatment at that ore processing facility will also
6 create a brine, and they don't now have any cement
7 backfill to put it in, so they haven't said anything
8 about what's going to happen to that toxic brine.

9 Finally, the tailings produced by that ore
10 processing and tailings disposal facility will --
11 will be -- will have a potential to create acid
12 drainage. And again, Wolfden has presented no plan
13 for dealing with that acid drainage.

14 Lastly, Wolfden fails to demonstrate that the
15 project will not harm the area's natural character
16 and outdoor recreation economy.

17 The mine will be operating 24/7. Trucks carrying
18 80,000 pounds of ore will be making 55 roundtrips per
19 day, and there will be blasting occurring and mine
20 facilities will be visible from Pleasant Lake and the
21 top of Mt. Chase.

22 What's more, the mine will change Patten from the
23 gateway to Katahdin Woods and Waters National
24 Monument into the gateway to an industrial mining
25 area, posing a serious risk to the area's burgeoning

1 natural resource economy -- or outdoor economy.

2 And while Wolfden claims that it will be lots of
3 jobs to the region, it has made no binding
4 commitments to hire locally, and it is projected that
5 at least for the first two years of mining, it will
6 be hiring -- it will be hiring mine workers from
7 contractors brought in from outside.

8 Further, the mine's work schedule alternating
9 seven days on and off shifts seems tailor-made for an
10 imported workforce potentially from Canada where
11 there are experienced mine workers.

12 In sum, Wolfden has made plenty of promises, but
13 has not met its burden to back those promises up with
14 evidence.

15 Thank you very much.

16 MR. WORCESTER: The next item on the schedule is
17 the applicant's testimony and evidence. That's a
18 50-minute session, and then we'll take a break.

19 Is this presentation centered around the slides?

20 UNKNOWN SPEAKER: Yes.

21 MR. WORCESTER: Do we have a picture?

22 MS. BROWNE: Believe it or not, we spent
23 two hours yesterday to make sure this didn't happen.

24 (A discussion was held off the record.)

25 MR. OUELLETTE: Good morning, Chair Worcester,

1 LUPC commissioners and staff.

2 My name is Jeremy Ouellette. I'm the
3 vice-president of project development for Wolfden
4 Resources. Along with me on our first panel today is
5 Ron Little, the CEO with Wolfden.

6 We've got Brian LeBlanc who's a principal
7 engineer with A-Z Mining and was in charge of
8 developing the preliminary economic assessment for
9 the project.

10 And Sean Fieler who's one of the principal
11 investors with the company.

12 A little bit about the company, Wolfden
13 Resources. So we are an exploration and mineral
14 development company. We have a seasoned management
15 team. I mentioned a little bit about Ron and I.
16 A lot of our experience is related to design,
17 financing, permitting, development and operation of
18 mining operations globally, really.

19 And along with the two of us, we have Don Dudek,
20 our VP of Exploration who is an extremely seasoned
21 professional geologist, specifically with VMS
22 knowledge. That's the type of deposit that we're
23 talking about today.

24 And then also newer to the team within the last
25 year, Leah Page, another professional geologist,

1 extremely intelligent. She's from Bucksport, Maine,
2 and she has opened and is managing our office in
3 Patten, Maine.

4 So a little bit about my background. I'm a
5 16-year professional engineer with a master's in
6 mineral resource engineering. Most recently, my
7 experience has been just across the border a few
8 hours away in New Brunswick, Canada, specifically the
9 Halfmile deposit which is just outside of the town of
10 Miramichi and then the Caribou deposit just outside
11 the town of Bathurst in New Brunswick.

12 I've been on this project now for about five
13 years. A lot has been going on over the last while
14 related to, you know, technical design and
15 communications with communities surrounding us.

16 And I guess getting into Picket itself -- so
17 Picket is a -- it's a polymetallic proposed
18 state-of-the-art small underground deposit, very
19 small footprint. The principal metals involved are
20 zinc, lead, copper and there is a little bit of
21 silver, a little bit of gold.

22 As Ms. Browne had mentioned earlier, the zinc and
23 copper minerals make up a majority of the -- the
24 targeted minerals, which are both on the critical
25 minerals list today.

1 So in terms of location, the project itself is
2 about 9 miles north around along Route 11. And --
3 sorry, I'll be kind of travelling back and forth and
4 pointing at the screen, but we're about 9 miles north
5 along Route 11.

6 Okay. The green box -- the green box indicates
7 our property ownership. It's around 7100 acres.

8 And then the yellow shape in the box represents
9 the location that we are proposing to rezone, roughly
10 374 acres.

11 You can see a red line that travels from
12 Route 11. That's about 4.4 miles off Route 11 to the
13 northwest headed into the property. And that's an
14 existing road. So that's used currently in the
15 logging industry, a very well, you know, designed
16 road. It holds up quite well.

17 It's not in the slide, but for reference, we're
18 about 22 miles away from Mt. Katahdin.

19 Okay. So this is the layout itself. So for
20 reference, the -- what you saw earlier in the yellow
21 shape is represented on this slide by a dark black
22 line, and that's complete outline for the 374 acres.
23 So within that footprint, you know, obviously we've
24 proposed a lot of infrastructure, and you'll notice
25 that it's broken up into three really -- you know,

1 three sections: Phase 1, Phase 2, and a proposed
2 solar field in green.

3 So I want to start by talking about the portal.
4 The portal is the entrance to underground -- I'll
5 speak to this in a little bit more detail in future
6 slides, but it's a small excavation that daylights on
7 surface roughly 64 feet by 100 feet. And that is,
8 you know, for reference, it's about the size of an
9 industrial garage.

10 And so along with that, we have a series of
11 storage paths which we'll talk about a lot. We have,
12 you know, things like an industrial garage,
13 warehousing, some lay down. We also have a set of
14 offices, fuel storage, and as well our water storage
15 and treatment facilities and water management area.

16 So in Phase 2 -- Phase 2, it's another entrance
17 to underground. It's identified as a shaft as the
18 primary infrastructure there and that's really a
19 smaller opening for vertical development, and the
20 purpose of that is to access deeper minerals later on
21 in the mine life.

22 We're kind of expecting that Phase 2 will take
23 place around Year 3, Year 4 of the general operation.

24 And then on top of that in the green to the north
25 we have a proposed solar field. Altogether those

1 represent about 129 acres of the proposed rezoned
2 374, of which the solar field is just under 50, and
3 the rest is within the Phase 1, Phase 2.

4 So I also wanted to talk a little bit about, you
5 know, the specifics around this infrastructure.
6 We're going to talk a lot about water collection,
7 water treatment and water distribution, but to get
8 into it a little bit here at a high level,
9 essentially this entire area is lined -- double
10 lined. So any potential water that can be
11 contaminated is collected. It's collected and stored
12 to a pretreatment water storage pond. That water
13 storage pond is rated for a 100 -- or, sorry -- 1 in
14 500-year 24-hour storm event. And from there, it
15 runs through a state-of-the-art water treatment plant
16 which is a UFRO ultrafiltration reverse osmosis.

17 We'll speak to that in a lot of detail later on,
18 but essentially, that water treatment plant has to be
19 able to treat water to background or better water
20 quality.

21 And then just to ensure and make sure that the
22 treatment plant did, in fact, work, we discharge from
23 the water treatment plant to a second pond. The
24 second pond is a post water treatment -- post
25 treatment water storage pond. We test the water,

1 ensure that it's achieved the regulation, and then
2 from there we're able to discharge.

3 Now, I say state of the art not because of
4 specifically the mining plant, not specifically
5 because the water treatment plant even though it's a
6 very robust treatment plant, but really how we're
7 managing water back into the environment.

8 So after we've -- only after we've confirmed
9 everything is -- meets the regulation, then we're --
10 what we're proposing to do is to spray, irrigate and
11 snow make. And by doing that, we are replicating the
12 natural precipitation and the natural hydrology that
13 exists out there today.

14 One other bit, speaking of hydrology, you'll
15 notice an additional blue outline, the lighter blue
16 outlines. So those represent maps -- so we did -- we
17 hired a Maine wetlands scientist. They went out and
18 did a wetland delineation survey, and this is the
19 result of that.

20 It's important to know, too, we've purposely
21 avoided all those wetlands and, in fact, including a
22 75-foot offset from any wetlands with our
23 infrastructure.

24 So getting into the mine detail a little bit,
25 I mentioned the portal earlier. On the bottom left

1 here, this is an example of what portal might look
2 like. For scale, that white vehicle there is about
3 the size of a half-ton truck. And you can see sort
4 of the tunneling -- the start of the tunnels for
5 underground in the image as well.

6 So those tunnels represented on the right here,
7 you can see sort of where the portal access would be
8 or the expression on surface. And then essentially
9 we drive a series of 16-foot by 16-foot cross-section
10 tunnels 16 feet at a time and we run them in a -- in
11 a helical or a switchback ramp. And that ramp brings
12 us down to specific elevations.

13 Once we get to desired elevations then we drive
14 similar dimension horizontal drifts that access the
15 deposit itself, which is represented by the orebody
16 here.

17 So after we've developed on two different
18 horizons into the orebody then we drill between those
19 two horizons and then we blast and fragment the rock.
20 Then we use small front-end loaders -- low profile
21 front-end loaders to excavate the material. It loads
22 it into a truck. That truck then drives up onto the
23 surface.

24 Now I mentioned there are 3 pads on the previous
25 slide. As we're developing these tunnels initially,

1 we collect enough data to insure that those tunnels
2 can be developed into inert material or essentially
3 aggregate. So by doing that, we temporarily store
4 the rocks that are excavated from the tunnels onto a
5 lined pad. And as we're excavating the orebody
6 itself, then we can reuse those rocks because they're
7 essentially clean aggregate. We bring them back
8 underground and then we backfill.

9 So for scale the deposit is roughly 4 million
10 tons. We excavate around 4,000 tons at a time, so a
11 small -- you know, a small incremental panel. Before
12 moving to the next one, we backfill that incremental
13 panel and then we excavate beside it.

14 Now, obviously, we do this on a couple of
15 different horizons to make sure -- you know,
16 productivity, but that's essentially how it works.

17 I should mention too that in accessing the
18 deposit, there will be varying grades because it's a
19 geological resource. So we do have two additional
20 pads on the surface. One is a staging pad for ore
21 itself. That's the economic rocks that we're after.
22 That's a staging pad for, you know, around seven days
23 of inventory.

24 And then we do have a low-grade ore storage pad
25 and what that's used for is as we're developing in

1 and we've produced some of that lower grade material,
2 we have a blending strategy, a geological blending
3 strategy, and that keeps things running smooth on
4 downstream facilities.

5 One other thing to mention is we do have a series
6 of infrastructure in the underground components as
7 well, one of those being sumps. And what we do is
8 because as we excavate, those tunnels become
9 atmospheric pressure, essentially, and the
10 groundwater pressure is higher than that. So
11 inherently water seeps into the tunnels, not from the
12 tunnels out into the groundwater.

13 So we collect that water and pump it to surface
14 to our water storage, water treatment, and water
15 management facility.

16 The -- what we've proposed here -- you'll hear
17 this question come up a little bit later on, but what
18 we propose is roughly 30 gallons a minute near the
19 end of the mine is how much water that we're going to
20 be going through -- receiving from seepage. And
21 that's justified by -- essentially it's an
22 extrapolative exercise where there are other mining
23 properties with tunnels with a certain surface area,
24 we calculated the surface area and the amount of
25 water that they were discharging and extrapolated

1 that to the surface area that we have here proposed
2 at Pickett.

3 MR. WORCESTER: I have a question. When you --
4 I thought there was an elevator involved in bringing
5 the ore to the surface. Was I mistaken on that?

6 MR. OUELLETTE: So that's in the Phase 2, and
7 that will be for the deeper rocks.

8 MR. WORCESTER: Okay.

9 MR. OUELLETTE: So in addition to the trucks
10 hauling out materials up the ramp, later on in the
11 mine life in that Year 3, Year 4 while we're
12 accessing the deeper material, we do have a proposed
13 shaft as a secondary conveyance. It's just -- it's a
14 vertical elevator, yeah.

15 MR. WORCESTER: So if you estimated the water
16 volume, you did it by examining some other mining
17 site?

18 MR. OUELLETTE: You got it, yeah. And those
19 mining sites are small underground type of
20 developments, and they're within the same geological
21 region. And specifically they're from the Halfmile
22 and Caribou sites.

23 MR. WORCESTER: They're located in New Brunswick?

24 MR. OUELLETTE: Yeah.

25 MR. WORCESTER: Okay.

1 MR. OUELLETTE: Okay. Thank you.

2 MR. ELLSWORTH: Question.

3 MR. WORCESTER: Okay.

4 MR. ELLSWORTH: Do you -- is this whole system of
5 roads built and you start at the bottom or you're
6 going to start at the top?

7 MR. OUELLETTE: Yeah, thanks -- great question.

8 So going back to the previous slide, so we do
9 develop this -- I won't say it's completely developed
10 before we start into the deposit and I did mention
11 earlier we operate on a couple of different horizons.

12 And what we'll do is, you know, for rough scale,
13 we'll be developing about a third. And then as we're
14 producing from the top third of the deposit, we're
15 continuing development to the deeper -- the deeper
16 portions of the resource.

17 MR. ELLSWORTH: So follow-up question, so you're
18 building debris back in on the upper sections before
19 you've gotten to the bottom section.

20 How is that going to stabilize?

21 MR. OUELLETTE: Correct. So one of the -- you
22 know, one of the most significant disciplines in the
23 mining industry is geotechnical engineering, and the
24 way that we segregate various zones of mining is by
25 leaving a sill pillar. And that sill pillar is a --

1 it's a bridge of rock, essentially, and it's designed
2 specifically to -- to separate levels of operation.

3 Okay?

4 MR. ELLSWORTH: Thank you.

5 MR. OUELLETTE: Thank you.

6 So this is just a couple of cartoons. I won't
7 spend much time on it, but this is just a depiction
8 of the development taking place through the deposit
9 with a horizontal drill, a vertical drill that's
10 drilling between sublevels, and then that's a scoop
11 tram on the bottom that's excavating broken rock.

12 And once again, there's no image showing the
13 backfilling taking place, but this is showing the
14 sequence of which -- so -- an area is excavated and
15 then it's filled with that inert -- or aggregate, and
16 then beside that, it's excavated again.

17 So I should mention, too, after this is all
18 completed, the -- the project fully exhausts the
19 resource then at the final stages of this, we have a
20 couple of years built in for reclamation. And what
21 that includes is making sure that the deposit is
22 backfilled with that inert rock, all of the surface
23 infrastructure is removed, everything is regraded and
24 revegetated, and essentially it's -- it looks the way
25 it looks before development.

1 I wanted to show a couple of examples of where
2 this is taking place, or where it has taken place.
3 So this Flambeau Mine, and this was operated between
4 1993 and '99. And this is an image of what it looked
5 like before the mining operation.

6 Now I want preface this. This isn't the type of
7 mining operation that we're proposing, obviously.
8 This is a much larger, open-pit type of mine, but
9 this is what it looks like, you know, at the peak of
10 operation for open pit. And then this is the -- the
11 reclaimed site afterwards.

12 So once again, the impacted areas were regraded
13 and then everything was revegetated. And I believe
14 this entire area was basically resubmitted for
15 recreational uses.

16 This is another example, Lamfoot. So this was
17 an underground mine. You can see sort of the waste
18 rock piles here and accesses to it. Some of the
19 infrastructure associated to that facility.

20 And this is an image of that after it's been
21 reclaimed. So, once again, regraded, vegetated
22 and -- and brought back to its original state.

23 So in terms of timeline and schedule,
24 obviously -- you know, we're here at the hearing for
25 the Land Use Planning Commission. Pending a

1 favorable decision in this process, we then have to
2 propose a baseline study evaluation for the proposed
3 site.

4 We -- that baseline study evaluation includes
5 public comment as well. And then if that -- you
6 know, when that's agreed to, then there's a minimum
7 of, you know, two years of statistical studies that
8 are taking place with a heavy focus on, you know,
9 water management and then the ecology around air
10 quality, you know, every discipline that you can kind
11 of think of.

12 And parallel to that, the -- you know, Wolfden
13 has to also complete full feasibility studies for the
14 project. Where we've currently done an preliminary
15 economic assessment, we would then move in to
16 parallel to take the baseline studies and the data
17 associated to that and develop a full feasibility,
18 which has a high confidence in a lot of the detailed
19 studies needed to take place and -- including, you
20 know, specifics around metallurgy, water treatment,
21 and all that -- all those other disciplines.

22 So then after the baseline studies have been
23 completed, environmental impact assessments have been
24 completed, feasibility studies have been completed,
25 at that point we're able to apply for a mining permit

1 under the DEP.

2 We suspect that's going to be about a year-long
3 process. And then if that's approved, you know, call
4 it four to five years out from now, if that's all
5 approved, at that point we're able to complete
6 financing, initiate construction, roughly a two-year
7 construction phase, and then 10 to 15 years of
8 operating. We're forecasting 10 years of a steady
9 state operation right now. And then two to
10 three years of reclamation, monitoring into
11 perpetuity after that.

12 So I thought it was really important because
13 there is some experience in the state with -- related
14 mining. Now, it's quite old experience, I suppose.
15 This is a perfect example of that. So Callahan Mine
16 is -- was developed on the coast and -- so along --
17 in Brooksville, Maine.

18 It's a little bit hard to see on the image here,
19 but it was an open pit excavation basically within a
20 coastal estuary. Waste rock from that open pit was
21 stored in an unlined pad and any of the water was
22 able to discharge directly into the estuary adjacent
23 to it, and those piles were adjacent to salt marshes.

24 Tailings from the operation, everything was
25 processed on site. Tailings in the operation were an

1 unlined wet tailings facility, which you can see
2 here. Once again, directly adjacent to that estuary.
3 It ceased operations in 1972. And that number -- or
4 that year is extremely important because that
5 predates, you know, things like the Clean Water Act
6 and the Natural Resources Protection Act.

7 The company walked away from that asset without
8 reclaiming it, and that is now a superfund site. And
9 you know, why am I pointing out, you know, a type of
10 disaster? Because this is exactly the type of
11 scenario that operating under Chapter 200 can't
12 happen. There's no such thing as an open pit in
13 Maine. There's no such thing as developing a mining
14 operation underneath, or obviously replacing water
15 resources. Those types of things just can't happen,
16 specifically, you know, the way that the tailings
17 were managed.

18 Things like walking away can't take place because
19 a worst-case scenario fund is put in place with the
20 DEP prior to -- prior to initiating operations.

21 So this is another example of something similar.
22 This is Blue Hill. Care American Mine. This is in
23 Blue Hill, Maine. This was, in fact, an underground
24 mine. It was developed underneath a freshwater pond
25 between the 1880s in -- sorry, 1880s and 1970s.

1 Waste rock, again, was stored in an unlined pad.

2 There were two dams -- sorry, two streams were dammed
3 for tailing storage and those tailings were allowed
4 to discharge into Carlton Stream.

5 Once again, none of this would be allowed under
6 Chapter 200. So we -- and with our, you know,
7 proposal at Pickett, any of the issues associated to
8 these deposits are dealt with in the proposal. And
9 you know, frankly, I'm quite excited by that.

10 So a couple of other examples. So you know most
11 people have probably seen this, you know, Red River
12 picture. And really what I wanted to point out here
13 is that any amount of, you know, acid-generating
14 material that's generated from the project has to be
15 placed and will be placed on a double-lined pad. We
16 collect all of the water that communicates with it,
17 and then we make sure that it's treated to a Class A
18 standard and we test to ensure that it's achieved
19 that Class A standard prior to being able to
20 discharge it.

21 Here's another example. This one's nearby.
22 Brunswick 12. Now, to -- from scale to size, this is
23 a world class deposit. Not so much in terms of the
24 early stage management. So this was designed without
25 remediating -- without remediation or reclamation

1 considered. Completely opposite of what we're
2 proposing.

3 The water treatment is going to end up taking
4 place into perpetuity because of how this was
5 originally laid out, and our proposal ensures that we
6 don't have to actively reclaim into perpetuity. Of
7 course there's monitoring, and we need to ensure that
8 things take place, but we're able to close down the
9 site without any sort of active treatment and really
10 return it back to the way it looks today.

11 So I want to get into a little bit of the
12 communications that we've been --

13 MS. HILTON: I have a question.

14 MR. OUELLETTE: Sorry, go ahead.

15 MS. HILTON: So you don't have any pictures of,
16 you know, mine sites where it's been successful;
17 you've just shown us a number of sites where there
18 have been problems.

19 So have they been able to do it in the
20 methodology that you're proposing here in a way that
21 shows that it can be environmentally sound?

22 MR. OUELLETTE: Of course.

23 MS. HILTON: Do you have any samples?

24 MR. OUELLETTE: Great question. And thank you.

25 So the purpose of these slides was to really

1 show -- because these types of, I guess, projects are
2 discussed heavily when we're talking about initiating
3 a new project. And we want to address them and kind
4 of identify why Pickett won't be those examples.

5 Along the testimonies, absolutely, we're going to
6 be talking about, you know, different projects that
7 do work and examples of, you know, where this is
8 actually taking place, yeah. So they -- I guess my
9 the answer to the question is they are coming, yeah.

10 MS. HILTON: You are -- I'm sorry.

11 MR. OUELLETTE: Some examples will be coming.
12 Absolutely.

13 MS. HILTON: Okay. I'll look forward to see
14 them.

15 MR. OUELLETTE: So the communications that have
16 been taking place, we wanted to make sure -- you
17 know, especially over the last couple of years, we
18 wanted to make sure that transparency was key, the
19 communities around us had a real clear understanding
20 of what we're proposing, have the opportunity to
21 answer any questions, that sort of thing.

22 This is an initiative that we -- that's still
23 pretty fresh. We've had about three meetings so far,
24 but our Community Advisory Committee, or CAC -- the
25 CAC is developed of a panel of representatives from

1 the communities surrounding the project, and those
2 representatives essentially select a topic that is to
3 be discussed and -- or presented and then discussed
4 with the public. It's open public meetings.

5 The topic that the Community Advisory Committee
6 selects is based on input from the public from the
7 meeting before that. So these discussions have been
8 fantastic, very well attended. Been really happy
9 with that initiative so far and looking forward to
10 keeping it moving on.

11 I want to talk a little bit, too, about, you
12 know, the -- Chapter 200 has been discussed already,
13 but I want to just kind of highlight some of those --
14 the high-level bits from Chapter 200.

15 Super heavy focus on water management and it --
16 specifically water treatment ensuring that anything
17 that's collected has to be treated to achieve, you
18 know, that Class A standard up in T6R6.

19 Underground mining only, which we've discussed
20 already, and then reclamation closure funding in
21 trust essentially eliminates the financial risk on
22 the tax payer if there's some sort of issue that
23 takes place.

24 It's important to know that Chapter 200 was in a
25 big way developed with support of environmental

1 organizations throughout the state. This was
2 developed to make sure that nothing could take place
3 and, in fact, the NRCM stated publically on several
4 occasions that if the Pickett project could achieve
5 the various strict regulations of Chapter 200, albeit
6 without trying to change the regulation which we're
7 really quite comfortable with, that they would indeed
8 support a project taking place.

9 Work to date has indicated, in our opinion, that
10 that is -- that is possible. And essentially
11 indicates the ability to meet those Chapter 200
12 requirements.

13 And just to point out, once again, Chapter 200
14 process involves a comprehensive data gathering and
15 analysis of all of the data over several years.
16 Geochem, hydrogeology are two that are included, but
17 really covers every discipline that's out there, and
18 we have to demonstrate compliance with those
19 highly-protective standards.

20 Now, when you -- when we've been having our
21 conversations with the public members, I guess the
22 understanding on how restrictive and how protective
23 Chapter 200 is goes a long way with the community
24 members kind of taking a little bit more interest in
25 the project I'll say. And what's important to note

1 is that what I've been really happy to see is while
2 discussing with communities, I've noticed that, you
3 know, public members are extremely engaged and
4 already educated when we're getting into these types
5 of discussions.

6 So when we're getting into, you know, the several
7 town meetings that we have, you know, we have
8 countless selectmen meetings, planning board
9 meetings. We've hosted our own meetings, information
10 sessions, on, you know, a wide range. And those are
11 very good question-and-answer period types of
12 meetings because the general population has taken an
13 opportunity to read through Chapter 200 and the rules
14 associated to it.

15 To that end, we've proposed to some of the
16 towns -- well, a few of the towns around the project
17 site -- other resolutions or ordinances basically as
18 a mechanism for a public vote so that Wolfden can
19 have a sense of level of confidence whether we should
20 move forward on, you know, large and significant
21 investments.

22 And of the six towns that have gone to public
23 vote, five of those six have voted overwhelmingly in
24 favor of moving forward. And one of those votes was
25 a 50/50 split exactly, which is really quite

1 interesting. And I think that speaks volumes in, you
2 know, that town specifically wanting more
3 information, which is exactly, you know, what we're
4 proposing for the next level of study.

5 MR. ELLSWORTH: Question.

6 MR. OUELLETTE: Yep.

7 MR. ELLSWORTH: Five of the six. What was the
8 percentage of a difference on those?

9 MR. OUELLETTE: So it varies -- it varies, but
10 three towns voted at roughly 92 percent in favor, and
11 then there was one around 75 percent in favor and
12 one, I think, was around 82 percent.

13 MR. ELLSWORTH: Thank you.

14 MR. OUELLETTE: Yep. Thank you.

15 So we're also able to do -- we've polled the
16 public comments from the Land Use Planning Commission
17 public comment web site, and we're able to
18 geospatially identify where those comments came from.

19 And I will note on this slide that we did omit
20 nine comments, and it's just because they didn't have
21 a location addressed to them. But we're pretty --
22 we're very happy with, you know, the look of the map.

23 So why, though -- why are people interested in
24 the project? And, I guess, what do we bring to the
25 table? So we've discussed the protective nature of

1 the project or the proposal and how we've -- we are
2 confident that we can protect the natural resources
3 around it. But what we also bring to the table is a
4 series of 270-plus jobs, 272 jobs; 233 of those are
5 associated directly to the mining project in T6R6
6 that we're proposing. Extremely high wages. But one
7 of the questions that I often get is, how are you
8 going to find these people? How are you going to
9 find 233 people -- or 270 people?

10 And what we're proposing, because we do have such
11 a long permitting process, we have a better runway
12 and we have a -- we have a training program, a
13 12-week training program that we'd like to propose.

14 We've initiated conversation with educational
15 institutes, been in chats with Region II, Region III
16 vocational schools, Eastern Maine Community College,
17 Northern Maine Community College.

18 Now, they're conversation, of course, but when
19 presenting the 12-week course, we haven't seen any or
20 heard of any real hiccups in being able to implement
21 those. So what that also gives us an opportunity to
22 do is to work with those same institutes, but
23 specifically -- specifically with the students and
24 kind of understand if they'd be interested in this
25 type of employment.

1 Something that's really attractive so far to
2 folks is that the schedule we're proposing is a week
3 on, week off work schedule, ten and a half hour
4 shifts. So theoretically, you've got a very high
5 wage certainly with the respect to the economic
6 region, and you're working about half of the year.

7 So because of that schedule, I'm really -- I feel
8 very confidently that that opens up our workforce
9 pool to the outer extents of the county, and we're
10 able to reach into populous areas or more populous
11 areas like Millinocket, like Presque Isle, like
12 Houlton, and we actually are able to draw from a much
13 larger workforce pool than just, you know,
14 specifically Patten, Maine.

15 In addition to that, we did run socioeconomic
16 reports. An economist out of Yarmouth ran a
17 socioeconomic report, and that will be discussed at
18 length. But essentially it boils down to around 700
19 million of economic output in the economic region.

20 So what do those positions look like, the
21 employment? So of course we need, you know, senior
22 management, a few folks up there; but the guts of the
23 employment is really with the underground workforce.
24 And these are skill sets that exist in the state
25 already.

1 For example, if you can operate a front end
2 loader on surface or in the woods or at a
3 construction site, you can do the same thing
4 underground. And the focus of that training course
5 is really training for the environment that they're
6 going to be working in as opposed to the functions
7 that they're going to be doing. So it's important
8 for folks that are working underground to recognize,
9 you know, different types of hazards for a safe
10 working environment, and there are -- it's similar to
11 working in the woods except there's different
12 management styles.

13 And so that's the real focus of that. And you
14 can see here that that's the majority of those -- of
15 the folks that build up the workforce.

16 So Ms. Browne already talked about the
17 Comprehensive Land Use Plan so I won't spend a lot of
18 time on that slide, but I did want to -- I did want
19 to make a comment on Maine Geological Surveys'
20 evaluation of the project. And to summarize it,
21 essentially, Pickett is a -- you know, it's a very
22 small, compact deposit. It's sort of exactly the
23 type of deposit that was considered when developing
24 the Maine Metallic Minerals Mining Act.

25 And because we're proposing a project that is

1 able -- is very protective of the natural resources
2 around us, suggesting that we absolutely can achieve
3 those Class A standards in terms of water management,
4 we are able to avoid any direct impact to water
5 features that are around the site, habitats, air
6 quality, et cetera.

7 This is really sort of what that was designed
8 for. In fact, they state: Therefore in our view --
9 and I'm quoting -- therefore in our view, it would be
10 more appropriate manage of the metallic mineral
11 deposit to allow it to proceed to permitting process
12 as envisioned by the CLUP and regulated by the
13 Metallic -- sorry, Maine Metallic Materials Mining
14 Act than to have it remain as general management
15 zone.

16 And with that, thank you for your time, and...

17 MR. WORCESTER: Thank you. I think we're
18 scheduled for a 15-minute break.

19 Oh, the time isn't up? I wondered why everybody
20 was up there.

21 MR. FIELER: Good morning. Is this on?

22 Good morning. My name is Sean Fieler. I am the
23 Chief Investment Officer of Equinox Partners.
24 Equinox Partners is a money manager in Stanford,
25 Connecticut. We have value investors. The typical

1 holding period for our investments is 10 years, and
2 I've been with Equinox Partners for 28 years. And
3 for the last 23 years, we've been investing in mining
4 companies. We have a team of three individuals who
5 are dedicated into their work on mines, and we own
6 just under 20 percent of Wolfden.

7 We manage \$600,000,000 and about half of our
8 firm's capital is invested in mining companies.

9 Now, most of the mining companies that we're
10 invested in are in production, unlike Wolfden. These
11 operating companies have financial statements that
12 can be analyzed to determine the quality of their
13 operations; their margins, cash costs return on
14 capital employed can all be derived from their
15 audited financial statements.

16 We do, however, devote a segment of our funds to
17 mining companies that are pre-revenue. The
18 evaluation of pre-revenue mining companies is
19 fundamentally different than the evaluation of mining
20 companies already in production.

21 In the case of pre-revenue mining companies, the
22 future cash flows have to be analyzed based on the
23 merits of the project rather than the company's
24 financial statements. Their financial statements
25 actually tell you almost nothing about the quality of

1 the assets; in fact, literally nothing about the
2 quality of their assets.

3 So -- and that is part of the reason why we
4 invest in pre-revenue mining companies is that the
5 relevant information about these investments cannot
6 be found in their financial statements, so it tends
7 to be an inefficient part of the market where
8 diligent investors can identify misvalued companies,
9 but just reading the financials or doing a screen
10 isn't really going to tell you that much about the
11 particular company in question.

12 So all of that said, there are a few obvious ways
13 to evaluate a deposit of a pre-revenue mining
14 company, most notably grade, size, geometry of the
15 orebody. There are, in addition to the obvious
16 factors, more nuanced factors, many of which would
17 prevent a particular deposit from becoming a mine.
18 So metallurgy, ground conditions, variability in the
19 dimensions or grade of the orebody. The list is
20 very, very, very long.

21 So in addition to analyzing the potential
22 problems with the mining project ourselves, of the
23 most important things that we do as investors is we
24 are -- we partner with managements and their
25 directors and the companies in which we're invested

1 in.

2 And what we're really looking to do in these
3 partnerships is we're looking to partnership with
4 management that have a proven track record of
5 actually advancing ore bodies into mines, and that's
6 not everyone.

7 In the mining space, and in my experience, you
8 basically have two types of management teams. You
9 have management teams that are always trying to put
10 their project in the best possible light, sugarcoat
11 the facts, and often those management teams have,
12 over the course of their career, associated
13 themselves with ore bodies that don't, in fact,
14 eventually become mines, because they're not being
15 forthright with the investment community but what
16 they're actually doing.

17 And then you also have other management teams
18 that are more technical, that are honest with
19 investors in the marketplace about what they're
20 trying to do. And if they find something, you know,
21 whether there's a plus or minus about the mine,
22 they're being clear in terms of the disclosure of
23 what those pluses and minuses are.

24 And so I think that -- that's why Ron Little's
25 leadership here at Wolfden is so important. He's

1 spent his career on ore bodies that have actually
2 become mines. And that, in my experience, is the
3 single best indicator as to whether or not you're
4 dealing with the type of management that's just out
5 there telling a story about something or they're
6 actually working on a project that is actually going
7 to be -- that they're actually able to see through
8 towards production.

9 So I met Ron almost two decades ago in Florida
10 when, at the time, he was shepherding through two
11 projects in West Africa, Essakane and Bomboré, both
12 of which are currently in production. Both Essakane
13 and Bomboré are technical and financial successes.
14 These mines each generate hundreds of millions of
15 dollars every year in revenue and have strong
16 operating margins.

17 And I can speak in some depth in particular about
18 Bomboré, which I recently visited, and of which my
19 firm is still a 10 percent owner. It's a very
20 impressive operation, excellent geology, great
21 financial characteristics, worth hundreds of millions
22 of dollars in the stock market.

23 And this background, I think, is really important
24 here when we're talking about Pickett Mountain
25 because if there was a fatal flaw, if there was

1 something wrong with this project, it wouldn't be
2 people on my side of the table in the investment
3 community; it would be the leadership, and Ron, in
4 particular, would be the first to raise their hand
5 and say, you know what, this doesn't work. You know,
6 we're wasting our time. The economics, the geology,
7 whatever; all the fatal flaws, you know, they prevent
8 this from going ahead.

9 And that's obviously not the case here, which is
10 why we're testifying, trying to get the licensing
11 permitting to be able to progress to the next step
12 here.

13 So given that background in terms of the quality
14 of the project, the next -- what we do and what
15 Equinox Partners has done here is we do an economic
16 analysis. So given the fact that this is viable and
17 this is attractive and it's technically feasible,
18 right, what are the economics of the project from an
19 investment perspective?

20 And so the first point -- the first thing to
21 point out about Pickett Mountain is the high grade of
22 the orebody. At today's prices, each ton of ore at
23 Pickett Mountain has a market value of \$478 per ton,
24 so that's at -- within the portfolio of companies
25 that we're invested in, that would be at the high end

1 in terms of the value of that underground rock.

2 Another way to think about the value of that rock
3 is the mining and processing costs estimated at
4 Pickett Mountain are about \$100 a ton. So it gives
5 you a sense, in terms of the EBITDA margin that this
6 would have in production over 75 percent.

7 So in the mining industry, because it's a
8 capital-intensive business, you have a lot of upfront
9 costs, you typically have relatively high EBITDA
10 margins, north of 40 percent, but north of 70 percent
11 or north of 75 percent, you're really talking about
12 something that is very high grade orebody.

13 And if you benchmark this particular orebody
14 globally, you'll see that there are a number of other
15 operating zinc mines with grades in that 9 percent
16 range. It's further corroboration that in the real
17 world when you're looking out there at other mines
18 that have this kind of grade zinc, that they're
19 profitable and they're actually in the right half of
20 the cost curve of zinc mines globally.

21 And in the case of Pickett Mountain's zinc, it's
22 not just a zinc mine; zinc only accounts for just
23 about half of the revenue of the project. You also
24 have copper, gold, lead and silver, and so you get to
25 that very high value on a per-ton basis.

1 Now, when you look at the financial statements of
2 Wolfden, it's clear that they can't self-fund the
3 development of this project. Right at the last --
4 I think we had the second intervenor made this point.
5 In their Q2 financials, they had \$2.1 million in cash
6 and no revenues, right? So it's a pre-revenue
7 company, obviously there's no revenues.

8 But this is the nature of a pre-mine --
9 pre-revenue mining company. They don't generate
10 positive cash flow until they go into production.
11 And the important thing is to -- to point out is that
12 this is not unique to Wolfden, and it doesn't have
13 anything to do with whether or not the project's
14 going to be financed or not.

15 And it certainly doesn't have anything to do with
16 whether or not it's a going concern. If you think
17 about the going concern, people on my side of this --
18 in my business, we finance these companies as they
19 progress through the permitting process. So you
20 don't put all your money in before they get through
21 this process or the next process; you put enough
22 money -- in this case we're talking about equity
23 investment -- for them to get through this process,
24 and then you finance again and you finance again.
25 You don't put all your money in years in advance in

1 terms of what they need or in advance in terms of the
2 permitting decisions.

3 To give you a real-world comparison for Wolfden,
4 we're invested in another VMS deposit, and this one's
5 in Latin America. It's owned by a company called
6 Adventus Mining. Adventus Mining has a net cash on
7 their balance sheet at the end the second quarter of
8 \$2.8 million, almost the same as Wolfden, and they
9 are fully financed to break ground on a \$235 million
10 capital expenditure in the first half of 2024. And
11 that's typical of the way of these pre-revenue mining
12 companies are financed.

13 So getting into specifics for Adventus, because
14 I think it's relative to some of the concerns raised
15 here this morning, is they raised \$180.5 million from
16 Wheaton Precious Metals through a gold and silver
17 stream as well as equity, and then they raised an
18 additional \$55 million from Trafigura in debt and
19 equity.

20 So the Adventus project is larger than Pickett
21 Mountain. Wolfden will need to raise less capital
22 than Adventus did, but the larger point is that an
23 economically robust project will be financed by the
24 market. The key is not how much cash they have on
25 their balance sheet; really it's the merits of the

1 project that determine the ability to finance a
2 particular mine.

3 Finally, I'd like to say something about the
4 timeline. The most challenging aspect of mine
5 investing for us, and I think for most investors in
6 pre-revenue mining companies, is the delay between
7 the discovery and the final investment decision.

8 The capital is committed at very low valuations
9 because we don't know if and when a project is going
10 to become a mine.

11 The valuations of these companies, like in the
12 case of Wolfden, is incredibly low. In the case of
13 Wolfden, we think it's too low, which is why we're
14 invested.

15 The market is saying there, the equity market is
16 saying given the lack of history of Maine permitting
17 metallic mines, it's difficult for the market to
18 determine if and when this mine will be permitted at
19 all. So when we do that analysis and we come up here
20 and we look at the mine, we look at the economics of
21 the mine, we look at the technical aspects of the
22 mine, we see a very low tonnage, high grade, small
23 footprint mine with dry tack -- with dry stack
24 tailings.

25 And what does that mean in plain English? From

1 my side of the table, that looks like if Maine is
2 going to be in the business of permitting mines, this
3 is the exact type of mine Maine should be permitting.
4 So we're expressing our confidence that Wolfden can
5 meet all of the technical hurdles in this very
6 rigorous jurisdiction to permit metallic mining.
7 They check all the necessary boxes.

8 It's also our believe that this project, this
9 mine will provide obvious benefits to the community
10 and the local communities that strongly support the
11 mine. As a New Englander myself, I will say that
12 I am, you know, familiar with the type of environment
13 that Wolfden is operating here. I have a sense in
14 terms of the deep and strongly-held environmental
15 concerns the community has and a really good sense in
16 terms of the team that Ron has put together here and
17 the technical expertise that they bring and their
18 ability to check and meet all those requirements,
19 check all those boxes as you go through the process.
20 And that's -- basically, that's why we're invested.

21 Yes?

22 MS. HILTON: Help me with this. So in this --
23 how do you figure in the expense in the long-term
24 maintenance of this mine once it has closed, you
25 know, and so -- the closure plan?

1 MR. FIELER: So that's part of the --

2 MS. HILTON: Can I -- oh, okay. That's the
3 question. I'm sorry. Do you want me to repeat that?

4 VIDEOGRAPHER: I would say yes, just for the
5 live-stream.

6 MS. HILTON: Okay. So my interest is in how you
7 look at the closure plan, and I realize that money
8 has to be set aside in a trust fund. But in -- like
9 Western Africa or some of the other places you've
10 mentioned, including probably other places in the
11 United States, they don't have regulations that are
12 as stringent as ours, and it seems like that would be
13 an additional consideration for you.

14 MR. FIELER: So it's definitely part of the IRR
15 calculation, the internal rate of return calculation.
16 Closure costs are in that mass of the 37 percent that
17 you would have seen and the feasibility study
18 includes that.

19 I would say globally, the mining industry is --
20 is mainly run out of Canada and Australia, the formal
21 mining industry. Irregardless if you're here in
22 Maine or wherever in Latin America or Africa, closing
23 costs, the standards to which the Canadians and
24 Australians are running these mines globally are
25 incredibly high, so you're not building mines without

1 closure plans. It's just not happening.

2 Where you really have lax environmental
3 enforcement is when you talk -- you're talking about
4 informal mining or artisanal mining, which is not --
5 it has nothing to do with what we're talking about
6 here today. So that would be where you would see
7 those kind of calculations not included.

8 I would say in the IRR calculation, the real
9 factor, the biggest single variable that we have a
10 hard time managing is the time, is the time delay
11 between when they raise the money, when they get this
12 permit, when they get the next permit and when
13 they're able to make a final investment decision and
14 actually go into production.

15 That is far and away, certainly in the case of
16 this particular project, the biggest single factor.

17 MR. WORCESTER: Leo? Use your mic, please.

18 MR. TRUDEL: Yes. Thank you for your
19 presentation.

20 My question is: Currently what is your value --
21 you said you have 20 percent into Wolfden.

22 Can you give a calculation on that?

23 MR. FIELER: I mean, the market cap is
24 infinitesimal. It's \$10 million, so it's -- \$2
25 million is invested.

1 MR. TRUDEL: And what are you willing to put in
2 down the road if this is passed?

3 MR. FIELER: So the way it works for equity
4 investors like us in pre-revenue mining companies is
5 we would tend to participate in the financing going
6 up to the capitalization of the company to go into
7 construction. So similar to the Adventus case. So
8 equity investors like myself are providing the
9 millions, in some case tens of millions of dollars to
10 get up to that point. And at that point when you
11 have the ability to make a construction decision, now
12 you're talking about streams, debt and equity. And
13 usually equity may be some from us, but usually from
14 other providers at that point.

15 So this is more of the kind of nurturing capital
16 along the way is what we're providing.

17 MR. TRUDEL: And I understand that. And
18 I actually understand the calculations. My question
19 is, again: How much are you willing to put in?

20 MR. FIELER: So we have -- we have single
21 investments that are as large in the mining space as
22 \$30,000,000. The largest particular investment we
23 have on a company basis is about \$90,000,000.

24 So here in this case, a lot -- a lot will depend
25 upon how this process goes, what the next phase of

1 the environmental impact assessment says, what the
2 updated feasibility says in terms of cost. All those
3 things would affect the IRR and our appetite to
4 invest in, you know, how much incremental capital in
5 this particular project.

6 MR. TRUDEL: So what you're telling me is you
7 haven't planned that far out?

8 MR. FIELER: What I'm telling you is we do this
9 habitually and you don't make a decision until you
10 have to.

11 MR. TRUDEL: Thank you.

12 MR. WORCESTER: Is the time slot up?

13 Okay. So we -- we need to address a time
14 management problem here.

15 You still have two gentlemen I assume you want to
16 testify.

17 MS. BROWNE: So because of the time restrictions,
18 only Sean and Jeremy are presenting direct
19 presentations, and all of the witnesses are available
20 for cross-examination.

21 MR. WORCESTER: Thank you. I understand.

22 MS. BROWNE: So we had to pick and choose and
23 tried to focus on the most technical issues.

24 MR. BRANN: You're not planning to bring back
25 either Mr. LeBlanc or Mr. Little before further --

1 MS. BROWNE: Correct. This is it.

2 MR. BRANN: Got it.

3 MR. WORCESTER: Am I correct that it's break
4 time? We're taking a 15-minute break.

5 (Whereupon a recess was held at 11:11 a.m. and
6 the hearing was resumed at 11:23 a.m.)

7 MR. WORCESTER: Let me just talk to my fellow
8 commissioners a second.

9 Actually, the way the schedule was set up, we had
10 allocated time for the commissioners to ask their
11 questions, but we're in the -- we've always asked the
12 questions as they come to us, and I don't want to
13 shut that down. Okay?

14 So what we're going to do, rather than take your
15 presentation time away with our questions, we're
16 going to stop the clock if there's interaction.

17 Anyone have any questions on that?

18 MS. HILTON: I have a question on it.

19 MR. WORCESTER: Well, if you're allocated
20 50 minutes, let's say, and somebody here interrupts
21 you with a question, they're going to stop timing so
22 that you have your 50 minutes in the end. Okay?

23 We're learning this process, too.

24 MS. HILTON: So, well, I have some questions
25 about the -- the mining operation. Am I going to

1 have an opportunity to -- I mean, just the logistics,
2 and I kind of felt like at the beginning when
3 somebody had the whole scheme up there that that was
4 a good time to ask it, but I didn't.

5 Are we going to get a chance to ask those
6 questions of any of these folks at some point?

7 MS. BEYER: This would be a -- this would be a
8 good time, you know, when we've got 20 minutes of
9 staff and commission questions after they get done
10 with their cross. That would be a good time while
11 this panel is still here.

12 MS. HILTON: 20 minutes after they're finished?

13 MS. BEYER: Yes, after the cross-examination.

14 MR. BRANN: So just so I understand, which
15 I think is what you're saying is, you'll stop the
16 clock so it's -- people can ask questions, but then
17 you're not getting rid of your own time to ask
18 questions; you'll have that as well, right?

19 MR. WORCESTER: Well, we're probably eating into
20 our own time a little bit.

21 MR. BRANN: As long as it's not my time, you
22 know...

23 MR. WORCESTER: All right.

24 Intervenors, Cross-examination, Intervenor 2.

25 MR. BRANN: Thank you, Mr. Chairman.

1 CROSS-EXAMINATION OF: MR. FIELER

2 BY MR. BRANN:

3 Q Mr. Fieler, my name is Peter Brann. I'm a lawyer
4 from Lewiston, Maine. I'm going to be asking you a
5 few questions.

6 We agreed to do you first so that you'd be able
7 to fly back to Connecticut today so I'm going to --
8 I have a questions for you.

9 A Great.

10 Q All right?

11 So my understanding is you said that Wolfden --
12 Equifax -- Equinox owns 19 percent of Wolfden, and if
13 we -- just to -- so everyone's looking at the right
14 thing, we'll put up from the Hearing Exhibit 21,
15 which is a statement of operations from this year in
16 June of '23.

17 So that's saying that -- that the -- there are a
18 total of about 164 million shares, right?

19 A I'll take your word for it. If that's what it says,
20 that sounds good.

21 Q Okay. And if I do the math, it's about -- Equinox
22 owns about 31 million shares; is that about right?

23 A Whatever the 19-plus percent is.

24 Q All right. And you began -- according to your
25 prefiled testimony, you began buying -- Equinox began

1 buying these in about 2021, fall, correct?

2 A Two years ago, yes.

3 Q And at the time in the fall of 2021, the share price
4 was between 18 and 21 cents; do you recall that?

5 A Sounds about right.

6 MR. WORCESTER: Excuse me. I can't -- maybe you
7 could use the mic?

8 MR. FIELER: Oh, yeah. No, but everything so far
9 sounds accurate. Yes.

10 MR. BRANN: Hold on a second. I think we've got
11 a mic adjustment issue here.

12 (A discussion was held off the record.)

13 BY MR. BRANN:

14 Q Okay. All right. So -- and so if we look at Hearing
15 Exhibit 33, the price varied between 18 and 21 cents
16 during that period of time.

17 So would it be fair to say that --

18 MS. BROWNE: It's very difficult to see these.
19 Do you have a paper copy to hand the witness?

20 MR. BRANN: No.

21 (A discussion was held off the record.)

22 BY MR. BRANN:

23 Q All right. So Equinox bought its 19 percent for
24 about \$6 and a half million; is that right?

25 A I'll take your word for it.

1 Q Okay. And the current share price if we look at
2 Hearing Exhibit No. 22 is a little less than 7 cents;
3 correct?

4 A That sounds right.

5 Q And so the value of your investment has lost
6 two-thirds of the value in the two years you've owned
7 it, correct?

8 A I wish this experience was isolated solely to
9 Wolfden, but yes, this is true in the case of
10 Wolfden.

11 Q Okay. And -- and the share price has lost another 55
12 percent in the last year, correct?

13 A It's been since the summer of 2020, junior mine
14 stocks are down. Wolfden's not alone in this. It's
15 been a difficult market.

16 Q And so that -- and that -- so Equinox has -- and so
17 if your current value, following up on Commissioner
18 Trudel, is about 2 million and you paid about
19 6.8 million --

20 A Yeah.

21 Q -- for the stock. You have millions of dollars at
22 stake in whether or not this rezoning is approved,
23 correct?

24 A Well, we own a couple million dollars' worth of
25 stock, we only 19 plus percent of the company. Yes,

1 obviously we're economically, financially interested
2 in the outcome.

3 Q And so you -- and Equinox touts itself as -- you're
4 here to talk about what investors care about, and you
5 tout yourself as being contrarian, right, that you
6 don't go along with the prevailing wisdom; is that
7 fair in looking at the investments?

8 A Well, we're long-term investors looking to take
9 advantage of rather than be victims of the cycles is
10 the way we put it to our investors.

11 Q All right. So --

12 A So we have a ten-year holding period, so we're not
13 trying to time the quarter of the month or, sadly in
14 this case, it's been -- yeah, obviously a couple
15 years of a tough cycle, but that's not our
16 investment --

17 Q And if we look at Hearing Exhibit No. 23, the
18 LinkedIn page, you say that the firm's fund aims to
19 have low overlap with relevant indices in the
20 prevailing wisdom, correct?

21 A Wolfden would be safe. It's not an index stock.

22 Q And you've -- you have told people you've actually
23 been wrong about the market for the last 10 years,
24 have you -- have you not?

25 A Well, this is our --

1 Q Uh, I -- can you --

2 A -- fourth year --

3 Q Excuse me.

4 A -- of 20-plus percent performance.

5 Q We have a very limited amount of time.

6 A We've had some --

7 Q Is it -- have you said that?

8 A Have I said that? I've certainly been wrong about

9 the junior gold mining stock index --

10 Q All right.

11 A -- for much of the last 15 years.

12 Q Let's listen to a clip --

13 A It's not a gold mine.

14 Q Let's listen to a clip from the -- a podcast called

15 the Contrarian Podcast in 2021.

16 Let's hear it, please? Which is Hearing Exhibit

17 what? Which is Hearing Exhibit 1.

18 (A discussion was held off the record.)

19 (Podcast was played.)

20 BY MR. BRANN:

21 Q Would you say that -- one of the other things that

22 you've said is the most -- one of the most enormous

23 problems facing the mining industry today, including

24 junior miners such as Wofloden, is inflation, correct?

25 A Well, in this particular case, I think it's more

1 permitting, but inflation has been -- certainly
2 coming out of the 2020 inflation has -- there's been
3 significant inflation in the mining industry over the
4 last three years.

5 Q All right. Let's go to an interview that you gave in
6 2022, which is out of hearing Exhibit No. 3, about
7 talking -- with you discussing inflation and the
8 mining sector, please.

9 (Interview was played.)

10 BY MR. BRANN:

11 Q And so -- and you're aware that notwithstanding
12 this -- what you described as horrible inflation
13 affecting the sector, that there was no adjustment of
14 40 to 50 percent in the cost of this project in the
15 updated preliminary economic assessment, right?

16 A So the interview that you're citing there, I think,
17 is from 2022.

18 Q Mm-hum. Correct.

19 A So there was very significant cost inflation in the
20 mining space from the summer of 2020 from COVID,
21 basically, through the December of '22. Cost
22 inflation has really abated quite significantly --

23 Q Excuse me --

24 A -- over the last --

25 Q -- Mr. Fieler, my question was: Are you aware that,

1 notwithstanding whatever inflation there's been,
2 there was no additional money placed on the cost of
3 the building this mine by the expert, Mr. LeBlanc,
4 sitting at the end of the table?

5 A The \$147 million capital cost, I think, was a --
6 I should know this -- 2021 figure?

7 UNIDENTIFIED SPEAKER: 2020.

8 A 2020 figure.

9 BY MR. BRANN:

10 Q And there was no -- let me try it again.

11 A No, it's a 20 --

12 Q There was no adjustment --

13 A It's a 2020 figure.

14 Q Excuse me. Let me finish.

15 There was -- there was -- you're talking, in this
16 2022 interview, that the junior miner sector has seen
17 sometimes these cost blowouts of 40 to 50 percent and
18 yet, in this case, with the updated statement from
19 the expert on what -- on the preliminary economic
20 assessment, there was no increase?

21 A Most of the cost increases, especially the very large
22 capital blowouts that we saw in the 2020 to 2022
23 period had to do with earth works, and a lot of those
24 are much larger tonnage operations than this.

25 So the average tons here a day is how much?

1 UNIDENTIFIED SPEAKER: 1,200.

2 A 1,200 tons a day. So if you're looking at something
3 like the Magino Mine in Ontario where you've had
4 the --

5 BY MR. BRANN:

6 Q No, Mr. Fieler --

7 A -- these big, big cost over -- this is important
8 because it's -- you're asking a technical question.
9 We've had the big cost overruns --

10 Q But I was asking -- excuse me. If I could just --

11 A They've specifically been --

12 (Reporter interjects.)

13 MR. WORCESTER: Gentlemen, we can't -- we can't
14 be talking over each other.

15 A So I can answer the question if you let me answer the
16 question.

17 BY MR. BRANN:

18 Q So the question --

19 A So the big cost overruns --

20 Q No, no. The question was simply: You're aware that
21 there was no change in the cost estimate for this
22 particular project based on inflation?

23 A Can I -- can I answer that question?

24 MS. BROWNE: Could you just clarify that you're
25 talking about the PEA in the document?

1 MR. BRANN: Yes. Correct.

2 MS. BROWNE: I think we can all stipulate that
3 the PEA was not updated in this case.

4 MR. BRANN: All right. Thank you, Ms. Browne.

5 BY MR. BRANN:

6 Q Look, let me go to just another area here.

7 So the only area -- the only areas where these --
8 where mining projects are coming in on budget and on
9 time is West Africa, according to you, correct?

10 A So in West Africa, for a number of years, you've had
11 a disproportionate number of mines come on time, on
12 budget.

13 Q And you have said that's the only place where they're
14 coming on budget -- on time and on budget, right?

15 A As a general rule, yes.

16 Q Okay. And so -- well, let's...

17 All right. In an interview in 2022 -- let's play
18 from Hearing Exhibit No. 3.2. It will go quick.

19 (Video played.)

20 BY MR. BRANN:

21 Q Okay. Your prefiled testimony, you say that the --
22 this project is financially viable because it's
23 technologically straightforward, correct?

24 A It's a -- it's a small tonnage, high grade,
25 technically straightforward mine, yes.

1 Q And you say that there's a -- there's a modest --
2 they have a modest balance sheet notwithstanding the
3 fact that the -- the accountants say there's a
4 substantial question as to whether or not this
5 mine -- whether or not this company has an ability as
6 a going concern?

7 A So, Ron, I know you want to say something here on
8 this.

9 This is the nature of the way junior mining
10 companies are financed, is that investors like me are
11 going to pull together the capital that they need,
12 equity capital, to progress projects through the
13 permitting process, and then when they get to a point
14 where they have the ability to capitalize the actual
15 mine, then us, along with other investors, come
16 through and provide the debt and other equity
17 depending on the economics of the project.

18 Q It's a modest -- you say modest, right?

19 A The current -- like the cash on the balance sheet,
20 the \$2.1 million? Yes, definitely modest --

21 Q All right.

22 A -- but not atypical.

23 MR. BRANN: That's all the questions I have of
24 Mr. Fieler.

25 I'm going to ask a few questions of Mr. Little.

1 CROSS-EXAMINATION OF: MR. LITTLE

2 BY MR. BRANN:

3 Q Mr. Little, you're the CEO of this company?

4 A Good morning. Yes, I am.

5 Q Okay. And the plan here is Wolfden is going to build
6 and operate the green -- the greenest
7 state-of-the-art mine ever; is that one of the --
8 basically what you're saying here?

9 A Yeah, the project is designed to be state of the art
10 according to mining standards.

11 Q I want to talk about Wolfden's experience for just a
12 moment or two.

13 So Wolfden is not operating any mine anywhere in
14 the world; is that correct?

15 A No, nor has it. It's the people who are in it that
16 have.

17 Q And Wolfden is not building any mine anywhere in the
18 world today?

19 A No, it's -- but it's the people in the company that
20 have.

21 Q And Wolfden has never constructed a mine that is
22 similar to the mine that is proposed here, correct?

23 A Nobody has built a mine to this standard anywhere in
24 the world, but we will.

25 Q Okay. And -- and Wolfden has -- just to be clear,

1 has never built or operated a mine, right?

2 A No, but the people here have.

3 Q Okay. Let's -- what I want to do is I want to, for a
4 few minutes, talk a little bit about some of the
5 things that you've been telling investors about this
6 process, this mine.

7 Okay?

8 A Sure.

9 Q All right. And that -- do you recall telling
10 investors that the rezoning is a critical milestone
11 that could put the company into play?

12 A Yes.

13 Q Something you said in 2021?

14 A Yeah, the rezoning is -- as Sean alluded to, it's a
15 critical value item to us. It's the first step in
16 rezoning, and we're trading at a discount because
17 there's the uncertainty about the rezoning.

18 Q All right. Let's play from -- let's play from a
19 inter -- from a presentation you gave in 2021, which
20 is Hearing Exhibit 9.6.

21 (Playing video.)

22 BY MR. BRANN:

23 Q So it's to put the -- it puts the company into play;
24 that is, it becomes -- there's a takeover possibility
25 from -- is one of the possibilities from getting the

1 rezoning, correct?

2 A Yes, the takeover adds a premium to the stock. It
3 doesn't mean we get taken over, but it adds value to
4 the company, and that allows us to then finance the
5 next piece of the operation.

6 Q And Wolfden is willing to sell out and -- instead of
7 building the mine -- if that would be better for
8 shareholders, correct?

9 A No, the statement was related to the value that it
10 adds to the company. As a junior, you have to -- the
11 takeover premium potential keeps a higher share price
12 and it allows to raise the revenue we need to
13 operate.

14 Q All right. Let's listen to another clip, which is
15 what you told investors in 2020, which is Hearing
16 Exhibit 8.1.

17 (Playing video.)

18 BY MR. BRANN:

19 Q You're one of the two largest individual shareholders
20 in this company, correct?

21 A No, I'm probably, you know, one of the tenth or
22 twelfth. I own about -- less than 2 percent.

23 Q And so if the company is -- is taken over, the
24 Commission here is not going to know, when they
25 approve this zoning, who it is who's going to

1 actually develop this mine, correct?

2 A No, they will know. We have to make public
3 statements about something that comes up like that.

4 Q This hearing is what you would -- what you've told
5 investors is a mini mining permit, correct?

6 A Yes. Everything we're doing here at rezoning to our
7 opinion has to be replicated again under Chapter 200
8 but at a much more detailed process.

9 Q Let's listen to the clip from what you told investors
10 in 2021 about this mini mining issue, which is
11 Exhibit 9.3.

12 (Playing video.)

13 BY MR. BRANN:

14 Q All right. And so let me -- let me -- and you've
15 also -- let's put up Hearing Exhibit No. 24, which is
16 a slide from a presentation you gave in 2020, in
17 which you refer to as supportive state regulators.

18 Do you see that?

19 A Yep.

20 Q And -- and so you're telling investors that the state
21 regulators, which presumably including this
22 commission, are supportive; is that --

23 A This was a 2020? I think -- yeah, in my opinion this
24 was here because we had initial chats with both the
25 DEP and the LUPC about the process. And in my

1 opinion, they were practical about what we were told
2 we had to do. So in my -- that is different than
3 other jurisdictions that I have worked in where
4 I didn't get that kind of practicality and up front
5 forthrightness.

6 Q You've also told investors that if you just tick the
7 boxes, you get the permit, correct?

8 A Under the DEP, our opinion is if we follow all of the
9 requirements scientifically and financially, then we
10 would get the permit. That's my impression of the
11 process now.

12 Q And what I want to go to -- let's listen to the clip
13 from 2020 of what you're telling investors about just
14 having to tick the boxes.

15 (Playing video.)

16 BY MR. BRANN:

17 Q And so beyond that the -- furthermore, you've told
18 them that you have -- that the -- that the -- one of
19 the reasons why this process is streamlined is there
20 are no indigenous rights and that you're getting
21 great support from all groups?

22 A No, that's not it at all. The streamlining is the
23 timeline. The benefit I see of Chapter 200 is that
24 they've set a two-year period to do the baseline
25 study and the feasibility study. That's -- before

1 that, there is no certainty in when you'd get the
2 permit.

3 Q All right. Let's listen to a clip from 2019, Hearing
4 Exhibit No. 5.4.

5 (Video was played.)

6 BY MR. BRANN:

7 Q All right. And so let's go further. And so in that
8 in 2020 is when you are implying that you had great
9 support and there are no indigenous rights.

10 Let's listen to the clip from Hearing
11 Exhibit 6.3.

12 (Video was played.)

13 MS. BROWNE: Mr. Brann, is there a question?
14 It's not appropriate just to play clip after clip
15 after clip. If there's a question, please direct the
16 question and then --

17 MR. ELWELL: Excuse me, Ms. Browne. Could you
18 use the microphone if you're making an objection?

19 A Yeah, this is taken out of context.

20 MS. BROWNE: I just -- there should be a question
21 asked as opposed to just playing clips of videos. So
22 I request that you direct a question so he can answer
23 the question.

24 BY MR. BRANN:

25 Q Okay. Do you recall telling investors that there

1 would be very little monitoring necessary after
2 three years?

3 MS. BROWNE: Sorry. Could we back up? Was there
4 a question related to those last two --

5 MR. BRANN: I'm moving on to the next one.

6 BY MR. BRANN:

7 Q Do you recall saying that there would be very little
8 monitoring necessary after three years?

9 A I expect there's probably very little monitoring
10 after we've gone through a period of closure and
11 monitoring. That's the nature of the design.

12 Monitoring is --

13 Q And so -- all right. Well, let's hear what you
14 said -- told investors in 2020. Hearing Exhibit 6.4.

15 (Playing video.)

16 BY MR. BRANN:

17 Q And -- and have you also been telling investors that
18 the DEP is -- is pre-vetting the science, thereby
19 implying that if you get the rezoning, you're good to
20 go?

21 A No. No, the benefit of the process is that the DEP
22 has been working with the LUPC through this so our
23 concern from the beginning was that we have to pass
24 Chapter 200 and LUPC so we've really had the benefit
25 of the DEP overseeing everything we submit so that we

1 at least get feedback of whether this is matching 200
2 at the same time.

3 Q All right. We'll play the clip from 2021. Hearing
4 Exhibit 9.4.

5 MS. BROWNE: Well, I request he be offered an
6 opportunity to respond --

7 (Playing video.)

8 BY MR. BRANN:

9 Q All right. Let's -- I see that there are just a few
10 minutes left here, so I'm going to go ahead to -- one
11 second.

12 A Can I go back and clarify your question on
13 indigenous --

14 Q You're going to have an opportunity on redirect to do
15 all of that, I'm quite sure.

16 The -- let's go ahead to the current financial
17 condition of the company, which is -- we're going
18 to -- from previously filed Levit Exhibit No. 26.1.

19 Just so the Commission can see it, this is from
20 the financial statement from Grant Thornton, one of
21 the ten largest accounting firms in the world.

22 And is that -- no, it was 26.1. Let me...

23 All right. And so there's a substantial doubt as
24 to the continued viability of this company, correct?

25 A Yes, and this statement is actually one we make in

1 our financial statements, and they repeat it, and
2 it's a standard statement for non-revenue company.

3 Q And the -- and at the end of two-thousand twenty --
4 first quarter of 2023, you had \$2.6 million in
5 Canadian, correct, on hand?

6 A Correct.

7 Q And you haven't filed the reports for the end of two
8 thousand -- the end of June of 2023, correct?

9 A No, we have. We're about to now produce the third
10 quarter.

11 Q Okay. All right. Because when I went to look,
12 I didn't see it there.

13 But -- all right. In order to do -- in order to
14 pay for -- so with 2.6 million, you actually got an
15 infusion of \$3 million from selling off the timber
16 rights, correct?

17 A That was back in 2021.

18 Q And so -- and you sold off 3 -- a total of \$5 million
19 worth of --

20 MR. ELWELL: I'm sorry, Mr. Brann. Your
21 cross-examination time is up.

22 MR. BRANN: All right. Okay. Well, it -- let me
23 just say -- we can talk about it later, but it -- we
24 obviously have more questions, especially dealing
25 with -- you know, we have these -- this four panel.

1 They only got to two of themselves with 50 minutes.
2 We have 25 minutes.

3 Obviously, the finances of this company, which
4 is -- and the financial viability of this project are
5 of critical importance.

6 Too -- and significantly, we didn't hear anything
7 in the opening statement, so we have -- you know, it
8 tells us that this is something, as we had explained
9 before, is very important --

10 MS. BROWNE: Object. The counsel is making a
11 speech --

12 MR. WORCESTER: I -- I -- time is up.

13 MR. BRANN: Huh?

14 MR. WORCESTER: Your time is up.

15 MR. BRANN: All right.

16 MR. WORCESTER: Your time is up.

17 MR. BRANN: All right. Let me just say --

18 MR. WORCESTER: Your time is up.

19 MR. BRANN: -- we would like to propose --

20 MR. WORCESTER: Your time is up.

21 MR. BRANN: -- we would propose to be able to
22 bring back the -- not Mr. Fieler, he can go, but the
23 others.

24 MR. WORCESTER: I hear you. Your time is up.

25 MR. BRANN: Okay. We will revisit this.

1 MR. WORCESTER: Staff, do you have questions?

2 MR. TRUDEL: I have one question. And it was
3 stated that you do not own or run another mine, but
4 I have a question in regards to your Snow Lake Flin
5 Flon Greenstone in Manitoba.

6 What -- can you speak to us about that?

7 MR. LITTLE: Are you talking to me? Sorry.

8 MR. TRUDEL: Any of you. I'm looking at your
9 description on your stock page as it pertains to your
10 profile.

11 MR. LITTLE: Oh, I just heard Greenstone
12 Manitoba.

13 MR. TRUDEL: Yes. Do you -- do you or do you not
14 have a project that covers 2.6 thousand hectares of
15 land located in Snow Lake?

16 MR. LITTLE: Yes.

17 MR. TRUDEL: What can you speak of that?

18 MR. LITTLE: So in -- we have two projects in
19 Manitoba. They're both big -- you know focused on
20 nickel sulfide potential. And the one in Snow Lake
21 has about 7 and a half million tons at about
22 1 percent nickel. It's very close to Hudbay's
23 concentrator. So it's a development project as well,
24 and we're trying to see if we can add more resources
25 to that orebody.

1 And the second project in Manitoba is equally
2 about 7 to 8 million tons at about 1 percent nickel
3 equivalent. It's about a hundred miles east of Snow
4 Lake. And it, too, has you know got potential for
5 expansion.

6 So to us, that's another -- another core asset
7 package within Wolfden. We look at Wolfden as having
8 a large nickel asset package in Manitoba. We look at
9 Maine as having the Pickett Mountain as their
10 cornerstone and Silver project down near Pembroke as
11 a long-term potential project. And then we have
12 another package of assets in New Brunswick.

13 MR. TRUDEL: Didn't you say that you did not have
14 any other operating mines or ventures at this point
15 in time?

16 MR. LITTLE: Correct. Yeah, Wolfden doesn't have
17 any operating mines. Yeah.

18 My comment was -- is there a problem?

19 Well, I'll just finish off. My comments all
20 along through that questioning was, within Wolfden we
21 have a lot of development and construction and
22 operating experience. The counsel was alluding to
23 the fact that Wolfden doesn't, but all of these
24 companies, particularly juniors, are made up of
25 people that have a lot of experience, particularly in

1 operation and construction and development.

2 Does that answer your question?

3 MR. TRUDEL: Again, it's my understanding that
4 you said you did not have any other operations at
5 this time.

6 MR. LITTLE: Oh. Well, I -- my -- the question
7 I heard from Peter was that do we have any operating
8 mines at Wolfden? So I was saying, no, we don't have
9 any operating mines. I thought that's what the
10 question was. I've got a deaf left ear and maybe
11 I didn't hear clearly, but Wolfden doesn't have any
12 operating mines, but we do have other projects.

13 MR. TRUDEL: Thank you.

14 MR. LITTLE: Thank you for the clarification.
15 I'm glad you asked the question.

16 MR. WORCESTER: Anyone else have -- Betsy?

17 MS. FITZGERALD: So I guess I'm confused.
18 Wolfden doesn't have any other projects -- you have
19 projects, but you don't have any other mines?

20 MR. LITTLE: Wolfden is an explorer development
21 company, and all of our projects are either in
22 exploration or development stage. We don't have any
23 operating mines.

24 I think counsel here was trying to make the --
25 make the point that we don't have an operating mine

1 in Wolfden and trying to make the point that we don't
2 have operating experience in Wolfden.

3 And I'm trying to qualify that we have a lot of
4 operating experience in other companies, but not
5 within Wolfden. Wolfden was formed in 2012. Jeremy
6 and I and Don have been working in other companies
7 before we joined Wolfden in the last five years.

8 So we're bringing a lot of experience, but
9 Wolfden has projects and we're trying to develop
10 projects like Pickett Mountain, but we don't have an
11 operating mine with revenue in Wolfden currently.

12 Does that clarify it?

13 MS. FITZGERALD: Yes, it -- kinda, sorta.

14 So that means that you would -- you're thinking
15 to develop Pickett Mountain?

16 MR. LITTLE: Correct.

17 MS. FITZGERALD: But then somebody else is going
18 to do the work?

19 MR. LITTLE: No. No. I mean, we've got all the
20 experience to build this mine. You know, counsel has
21 made a show and a comment of me talking about a
22 takeover premium.

23 The junior mining sector is -- you know, we're
24 trying to attract investors. Most investors that
25 come into a junior space are there because we will

1 either get through permitting and have a good market
2 to build the project ourselves, or during that
3 process another company comes along and says, let's
4 merge with you or let's take you over because you've
5 done all the work to get to building and now we'd
6 like to come and partner with you to build it.

7 So that -- that is part of the finance ability of
8 a junior company is that potential for a takeover
9 because normally when junior companies are taken
10 over, there's a premium on the stock, and that's what
11 attracts investors like Sean and others in there.

12 MS. FITZGERALD: Thank you.

13 MR. LITTLE: You're welcome. Thank you for the
14 question.

15 MR. WORCESTER: Perry? You have to hold it down.
16 Keep your finger on the button.

17 MR. ELLSWORTH: All right. So what -- what I'm
18 hearing, and I just want to clarify, there's been
19 three questions here pertaining to pretty much the
20 same thing, is that this could be the first mine that
21 Wolfden actually is going to operate themselves
22 unless someone else steps in?

23 MR. LITTLE: Yeah. Our two options are this team
24 is going to build it or somebody takes us over.

25 And I was trying to make the statement that we

1 have done this before in other companies, right?

2 I think everybody's focused on what is Wolfden,
3 but it's the people who are in it have a lot of
4 experience at building and operating mines.

5 MR. ELLSWORTH: Thank you.

6 MR. LITTLE: You're welcome. Thank you for the
7 question.

8 MR. WORCESTER: Leo?

9 MR. TRUDEL: I like that concept of
10 clarification.

11 Could I characterize this as you're all -- you
12 have a lot of experience doing these things before,
13 and you're like entrepreneurs who have started
14 businesses and, for whatever reason, your -- maybe
15 they didn't do as well as you wanted them to, but
16 you're doing it over again and over again and over
17 again; and hopefully -- maybe in the past you've sold
18 some, maybe in the past some have failed, and
19 maybe... we don't know what the next maybe is.

20 Am I pretty close in my characterization?

21 MR. LITTLE: In all due respect, I would say not
22 even close.

23 My track record has been on building several
24 mines. I've got into -- started a company named
25 Orezone over 25 years ago in West Africa. Before we

1 were bought out, I was able to buy out our major
2 company as a partner, which was the fourth largest
3 gold company in the world.

4 We -- I raised over 200 million to buy out their
5 40 percent interest. And once we consolidated into
6 100 percent, another company came along and then
7 bought out Orezone.

8 As part of that, I spun out Orezone No. 2,
9 started out with several million in value and a good
10 asset still in West Africa. After about 10 years,
11 that valuation went up to about 400 million, and it
12 is now still building another mine. It's just
13 finished building that mine about a year and a half
14 ago, and that's what Sean was talking about in his
15 investment.

16 MR. FIELER: Maybe if I could just say something
17 about Ron. I mean, it's a big part of the reason why
18 we're invested is his past success. And
19 extraordinarily successful.

20 You're talking about two mines that are
21 generating hundreds of millions of dollars of revenue
22 every year today. Long life assets, highly economic
23 assets. Ron has an incredibly enviable and unique
24 track record as an entrepreneur in this space. And
25 now he's doing it again.

1 The reason why he can do it again, and the reason
2 why people like me will come up here and sit at this
3 table and do this testimony is because of his past
4 record. Because he's that good.

5 MR. LITTLE: Thank you. I'd also like to qualify
6 that our team has got that kind of capability.

7 Jeremy's come from building mines in the Atlantic
8 region with Trevali. He came to us because the
9 project was so attractive on a financial basis, and
10 that's why he's working with us because of his track
11 record in the same kind of rocks.

12 Don Dudek has got five more years of experience
13 with me and met him in West Africa. So his
14 presentation should speak for itself.

15 And then the group of consultants that you're
16 about to see are really some of the best in the
17 world.

18 So I think the problem here is that you look at a
19 small market cap company and think we're bunch of
20 over promoters, but in reality, it's companies like
21 us that come to jurisdictions like this with the
22 highest risk of permitting because the major
23 companies don't have the time to do it or the
24 patience to do it.

25 And then maybe after five years we get through

1 all this permitting hurdle, a major might come along
2 and take advantage of a bad market, a weak stock
3 price, and then say, hey, guys, we're going to bid
4 for the company.

5 At the end of the day the shareholders own the
6 company, not us. So when a takeover happens, it's up
7 in the investors to make a vote, not what we want to
8 do.

9 So in reality, we're all engineers and geologists
10 that want to build this mine, but we're still a
11 victim of where the market is the day we get the
12 permit and we're ready to go. If it's a bad market
13 and our shares are down, that's often when the
14 takeover happens.

15 So very few junior companies make it all the way
16 through to production unless it's a small mine like
17 this. This -- being a small mine is not a really
18 attractive asset to a major company.

19 MR. TRUDEL: You're not just engineers, you're
20 all businessmen, correct?

21 MR. LITTLE: Sorry?

22 MR. TRUDEL: I said, you're not just engineers;
23 you're all businessmen, correct?

24 MR. LITTLE: We're all professionals, either
25 engineers or geologists, around this table, yeah.

1 MR. TRUDEL: Again, I would characterize you as a
2 penny stock company, that's what you are, and if we
3 invested in a hundred different penny stocks, there's
4 a very good chance we'd have a couple of home runs
5 and we'd have a number that fail.

6 MR. LITTLE: Well, I mean, I can't change your
7 impression of us. I mean, that's -- the business is
8 what it is, but your point about us being
9 professionals -- we are engineers and geologists, and
10 we're here because we honestly think we can build a
11 mine of highest quality.

12 As I mentioned before, nobody has built a mine at
13 this level because the requirements have never been
14 that high, so there is nothing to compare. But the
15 engineers will show you that this is only a -- a
16 slight increase to high level standards out there in
17 the world, and we -- because of the financial
18 viability of the project, we can meet that high level
19 standard.

20 So I don't think that's an over promote or an
21 overstatement. We're here because we want to do
22 this. And I mean, this is something I've never had
23 to do in the world before, is face a commission like
24 this, and even on just rezoning, and alls we want to
25 do is get to the next level of study work to show you

1 how good it can be.

2 MR. FIELER: Maybe there's just one other
3 relevant point here is that if you look at the
4 shareholder registry, right, you have Kinross, which
5 is a billion-plus-dollar company in the share
6 registry. You also have Altius, which is a royalty
7 company.

8 These are not the typical shareholders you're
9 going to find in a company that is -- doesn't have
10 substantial expertise or isn't on the right path.

11 You have some -- you have a very interesting
12 shareholder registry here that I think speaks to the
13 expertise that you have in this management team, and
14 you have a new jurisdiction, which is why the
15 valuation is so low.

16 MR. OUELLETTE: If I could just -- sorry, I'm
17 Jeremy Ouellette, and again, I'm the vice-president
18 of product development of the company.

19 MR. ELWELL: Excuse me, Mr. Ouellette. I think
20 another commissioner has a question and then I think
21 we're going to move on to a different line of
22 questioning.

23 MS. HILTON: Can I ask -- I think I'm asking you
24 this question. Where in Western Africa are the mines
25 that you're talking about you've got experience with?

1 MR. LITTLE: Burkina Faso.

2 MS. HILTON: And do you -- are the regulations in
3 Burkina Faso anywhere close to -- as stringent as
4 ours are?

5 MR. LITTLE: I can't comment on the exact...

6 These are -- these are open pits, so there's a
7 big difference. They're gold deposits, not base
8 metal, so we're dealing with cyanide.

9 We're not -- there's the water treatment level is
10 not the same as here; however, I'd also qualify that
11 we were Canadians designing an operation in Burkina.
12 We also took it to Canadian and World Bank standards
13 when we thought our standards were higher than those
14 in Burkina Faso.

15 MS. HILTON: So is Burkina Faso, where the mine
16 is, similar to Maine?

17 MR. LITTLE: No, it's -- it's Sahara. It's
18 desert-like conditions over there. Yeah, there's not
19 much wetlands. We avoid rivers and drainage, but
20 there's really no wetlands to speak of over there.

21 MS. HILTON: Okay. Thank you.

22 MR. LITTLE: Thank you for your question.

23 MS. HILTON: So lighting, which is our --
24 actually, we will get to that in the next phase,
25 won't we?

1 Okay. Why don't -- I want to...

2 How have you taken into consideration climate
3 change? I mean, I -- with respect to the amount of
4 volatile storms, the amount of water that we get, the
5 possibility of forest fires similar as to what we've
6 seen in Canada?

7 I mean, how do you figure that into all of this?

8 MR. OUELLETTE: So we actually have some
9 testimony that's coming up that discusses that, and
10 so there has been an evaluation and consideration of
11 climate change.

12 And I guess the quick answer is, we've considered
13 that through a very contingent style of designs.
14 There's -- yeah, the designs have a lot of
15 contingency built into them.

16 MS. HILTON: Okay. I'll wait to hear more.

17 There was a comment actually at the beginning
18 about -- that you could not see this mine site from
19 either Baxter State Park or Katahdin Woods and
20 Waters.

21 Baxter State Park has the highest mountain in
22 Maine, Mt. Katahdin.

23 Will you be able to see the site from there?

24 MR. OUELLETTE: No, not from Mt. Katahdin. And
25 we do have a viewshed analysis that was completed and

1 no, you won't be able to see it from Mt. Katahdin.

2 MS. HILTON: And then also on the diagram that
3 you showed of the operations, there is -- between
4 Phase 1 and Phase 2, it looks like maybe there's a
5 road there.

6 I -- what's going to be happening to the material
7 that comes out of Phase 2? Is it going to be hauled
8 underground, or is it going to be hauled aboveground
9 up to the areas in Phase 1?

10 MR. OUELLETTE: So between Phase 1 and Phase 2
11 there is an existing road. And so the way that the
12 project is envisioned is there will be material
13 transport along that existing road between the two.

14 Now, there is also a program that's proposed, and
15 I guess it's not directly pointed out in our
16 testimony. Essentially a management plan for that
17 exact activity, the communication between Phase 1 and
18 Phase 2 locations.

19 MS. HILTON: Okay. All right.

20 And another topic. So you haven't included
21 anything here about the ore processing facility.

22 MR. OUELLETTE: Correct.

23 MS. HILTON: Right? Because it's going to be at
24 another location. But you have taken into
25 consideration the cost of that facility; am I correct

1 or not?

2 MR. OUELLETTE: The preliminary economic
3 assessment certainly includes all of the costs
4 associated to the overall project, including the
5 concentrator and tailings.

6 MS. HILTON: Okay. So if you don't know where
7 it's located and you've got these trucks -- what are
8 they, 80,000 pound trucks hauling ore?

9 MR. OUELLETTE: Correct.

10 MS. HILTON: There's quite a cost involved in
11 doing that, right? Ongoing cost for the next
12 10 years or how long you're going to be operating
13 this.

14 How can you -- how can you figure out all your
15 numbers or are your numbers not that detailed with --
16 financial -- financially?

17 MR. OUELLETTE: So we -- we did do evaluations
18 and sensitivity analysis. So a big part of economic
19 assessment is to run sensitivities on various things.

20 Operating cost is a significant portion of that,
21 so when you're considering cost versus revenue, a lot
22 of the discussion around operating cost today, but
23 also, you know, inflationary, you know, revenues as
24 well because of metal prices.

25 But absolutely we run sensitivities on all of the

1 costs, which would have included costs related to
2 hauling it further away and that sort of stuff. So
3 I guess in our preliminary economic assessment we've
4 considered significant inflation of costs within
5 those sensitivities and it's still a very robust
6 economic project.

7 MS. HILTON: And that includes consideration for
8 the processing facility?

9 MR. OUELLETTE: You got it, yeah.

10 MS. HILTON: Okay. You -- I mean, you must know
11 where you're going to put this or have a pretty good
12 idea where you're going to put it, right?

13 MR. OUELLETTE: So we certainly do have some --
14 some options there, and there has been a lot of
15 considerations on where that might be. And
16 Ms. Browne had spoke to that a little bit earlier on,
17 but there's this -- this really tough balance between
18 getting enough information and being able to make a
19 decision.

20 And when we're looking at alternatives
21 assessments for the concentrator and tailings
22 locations, obviously one was in T6R6 and various
23 other, you know, locations were built into that
24 alternatives assessment.

25 And even though the project, the mine, has to be

1 in T6R6 because it's associated to the deposit, that
2 doesn't necessarily translate directly to the
3 concentrator and tailings. So we really feel that we
4 have to -- we have to get all of the data throughout
5 the Chapter 200 process in order to really define the
6 exact location. But to answer your question, we
7 certainly do have some proposed locations -- or not
8 proposed, I suppose, but we have some locations that
9 we feel will work based on a high level desktop study
10 that certainly need a lot of field study to back up
11 and make a firm recommendation on where we'd like to
12 put that.

13 MS. HILTON: Are you going to put it in UT?

14 MR. OUELLETTE: I think it's unlikely.

15 MS. HILTON: Are you going to put it adjacent to
16 the UT?

17 MR. OUELLETTE: There is one option that is near
18 the UT. There's other options that are a bit further
19 away. Again, we've operated on a sensitivity basis
20 analysis as well.

21 So you know, economics are a big part of that
22 selection. And -- but also with that, the nature of
23 the natural resources in these different areas is an
24 extremely important driver.

25 And we've done sort of some field investigations

1 of them, but there's a lot of work that has to go
2 into it before we can really make the decision where
3 we think is most appropriate and make that
4 recommendation.

5 MS. HILTON: So you're assuming that's not
6 important to our decision for the rezoning,
7 apparently, because you're not telling us where it's
8 going to be or if it's going to be adjacent to the UT
9 or -- I mean, I -- it seems like we need to know
10 that.

11 MR. OUELLETTE: Yeah, I think it's important,
12 certainly, to make a decision that there is a -- you
13 know, a proposed concentrator and tailings facility
14 and that's why we kind of mentioned it in -- in
15 various disciplines, you know, of the report.

16 And again, you know, coming back to sort of the
17 process involved over the next few years, we do feel
18 that it's important for the recommendation on
19 location there is an accurate one. And the amount of
20 data collection required for that, it just -- it just
21 can't take place within -- within the limits of the
22 rezoning. And all that information is requested
23 under Chapter 200 specifically.

24 And I think it's worth pointing out that, you
25 know, that it's not a small endeavor. I guess the

1 studies associated are, you know, in the ballpark of
2 15 to \$20 million worth of expenditures. And it's --
3 it's really tough for the company to make the
4 decision to press forward if we're not even sure that
5 the mining component of it can be rezoned.

6 MR. WORCESTER: I'm going to have to interrupt
7 you, Gwen --

8 MS. HILTON: That's fine.

9 MR. WORCESTER: It's past quitting time.

10 We're going to end the morning session.

11 Thank you all. We begin again at 1:15.

12 MR. OUELLETTE: Thank you.

13 (Whereupon a recess was held at 12:18 p.m. and
14 the hearing was resumed at 1:16 p.m. this date.)

15 MR. WORCESTER: Just to let you know, somebody is
16 supposed to turn the heat off again so we get rid of
17 the noise. I have mixed emotions about that. I was
18 just about freezing this morning.

19 The other thing -- the staff was having some
20 problems this morning keeping track of the exhibits,
21 especially the ones that were on the video. So keep
22 that in mind. When you're going to show a video,
23 make sure they understand how it's marked because we
24 have to enter all of this into the record and so we
25 need some way of tracing it.

1 The other thing you may have noticed that we've
2 done belatedly is to try to get you all to make name
3 tags so when you come up, I'm not sure -- I hope my
4 fellow commissioners' eyes are better than mine, but
5 at least it's an attempt to figure out who you all
6 are. And maybe before you speak the first time, you
7 can just introduce yourself and that will help us as
8 well.

9 I believe the afternoon session starts with the
10 applicant with their second panel. So we're ready to
11 proceed whenever you are.

12 MR. DUDEK: Good afternoon, commissioners, LUPC
13 support, and ladies and gentlemen of the audience.

14 My name is Don Dudek, I'm a geologist. I've been
15 practicing for more than 40 years. I have
16 professional standing in Canada for 30-plus years.

17 This particular type of deposit I'm very familiar
18 with -- with, I don't know, maybe 15 years of
19 experience in this particular model.

20 And so today what I'm going to do is I'm going to
21 describe the geological setting so that you can
22 better understand what we're talking about today and
23 then the technical -- other technical groups will
24 take off after that.

25 And the other thing I want you to understand,

1 the -- what I'm talking about today is the result of
2 45 years of work already, over 200 core holes, and
3 I'll show you what that means. So there's a lot of
4 data and a lot of information that goes into these
5 presentations.

6 First slide. This is the general geological
7 setting extending from Newfoundland in the right down
8 to Vermont in the southwest or lower left. This is a
9 thousand miles.

10 The Pickett Mountain Deposit lies in the center
11 left of this image and it's a modest size, but a
12 fairly high grade massive sulfide deposit.

13 And when I'm saying massive, it's not huge
14 massive, it just means that the rock is mostly
15 sulfide minerals.

16 Big deposits within the group, Bathurst,
17 Brunswick, 128 million tons, Buchans, 16 million
18 tons. So you get an idea that this package of rocks,
19 again, which passes through New Foundland,
20 New Brunswick, Maine, Vermont, and continues to the
21 southeast, is a prolific metal belt.

22 A bit of a close-up of the geology. And the
23 reason for this is I want to set the stage for some
24 of the subsequent slides. So the Pickett Mountain
25 Deposit is the star in the middle of the image. It's

1 hosted in the yellow rocks. It's overlain by the
2 purple rocks and it's underlain by the gray rocks.

3 So its time sequence in how these things are
4 formed. This is a stratigraphic section, and so
5 we're looking at just a narrow part of the
6 stratigraphy the Shin Brook Formation. Basal
7 sediments which are in the gray. That next package
8 there which is orange and yellow and some reds, that
9 is our target stratigraphy, and that is -- let's call
10 it a volcanic arc that developed on the sea floor
11 about 450 million years ago.

12 Above it, it's like somebody did a switch, the
13 geology changed, totally different rocks, totally
14 different setting. And so the Pickett Mountain
15 Deposit sits at the transition between, let's say, a
16 volcanic arc chain and later boring rocks for my
17 purposes.

18 We're looking at mining the red within this
19 image. The little dashed lines that you see on the
20 left of the color part of the section, that reflects
21 the alteration, but it also reflects that the
22 alteration is not complete within the stratigraphy.
23 And I'll tell you what that means as well.

24 And then we have one smaller zone that's a bit
25 lower in the stratigraphy. And we may or may not do

1 something with that. We don't have enough
2 information.

3 A bit about massive sulfide. So these deposits
4 form on or near the sea floor during active
5 volcanism. So you've got to -- you have to have
6 energy to create these things so really it's a hot
7 spring that pushes up to the base of the ocean floor.
8 Black smokers, people are seen these in the news, and
9 the sulfides precipitate at the sea water rock
10 interface. And they literally inflate, they grow,
11 you know, just like a cucumber would kind of thing.

12 And so you need super heated sea water, and one
13 of the factors why this deposit somewhat unique is
14 the connection between the heat engine and the
15 deposits are visual and close. And I'll talk to you
16 about -- I'll present that as well.

17 This deposit formed about 450 million years ago,
18 and so it's a long time. And it formed because the
19 European plate and the North America plate collided
20 and then they moved apart and eventually the Atlantic
21 ocean was formed, but it's this collision process
22 that created it.

23 Now, one of the other things that we'll talk
24 about -- in the cross section I showed you, the
25 geology was like layer cake, pancake, so that's how

1 it's developed initially.

2 But because of collision, because of time, the
3 rocks have been rotated so it can go from flat in the
4 left-hand side to the red massive sulfide will be our
5 target to almost vertical or vertical to the right.
6 So this again is just a -- the collision of the
7 geological plates rotating the geology, and you'll
8 see this on the data subsequent.

9 So this is a section through the west zone of the
10 Pickett Mountain Deposit. You're looking to the
11 northeast. This is a vertical section. The target
12 horizon for us is the red line that's near vertical
13 through the middle of the image. Rocks to the left
14 are the host felsic rocks. So these are quartz-rich
15 rocks. Rocks to the right are -- again, the switch
16 has been thrown; it's a different package of rocks.
17 It's again, geologically or economically boring.

18 The stippling pattern that you see in the -- to
19 the left of the sulfide or footwall, as we sometimes
20 refer to it, is the alteration. And really that's
21 the remnant representation of the hot springs that
22 have pushed up through the rock package and created
23 the massive sulfide deposit.

24 The orangey unit is the subvolcanic intrusion.
25 So this is a magma that pushed up into the yellow

1 rocks, probably contributed to the formation of the
2 yellow rocks, but it also drove the mineralizing
3 system that created the deposits we see today.

4 So when I look at something like this, when I see
5 the alteration -- and again, we can document this
6 visually -- there's 200 holes, 220,000 feet of drill
7 core that have been described inch by inch for this
8 area. So visually we can see the alteration and how
9 the rocks are affected by the hydrothermal fluids.
10 And chemically we can see that as well to back up
11 that observation.

12 So some of the sampling that's been done, ABA
13 sampling, acid-based accounting, and this is to get
14 an impression of whether or not the rocks would be
15 acid-generating or not. So the stippled rocks to the
16 left of the massive sulfide horizon or ore zone
17 probably would be acid generating.

18 And I have some samples up here in the front if
19 someone wants to take a look at it of both footwall
20 or left side rocks that could be acid generating and
21 rocks that they look boring, there's no sulfides in
22 them, there's probably not.

23 I have an example of the sulfide zone itself so
24 you can see what it looks like. In this particular
25 case, that sample runs 55 percent zinc equivalent.

1 There's so much economic sulfide within the rock,
2 there's not much room for anything else like pyrite,
3 iron sulfides.

4 The rocks to the right, again, different package
5 of rocks, no sulfides, a lot more calcium. They are
6 probably more acid neutralizing.

7 And so, again, this -- the details of the Pickett
8 Mountain Deposit and how it figures out are really
9 important. This is a section about 1,500 feet to the
10 east. This is through the east zone. And what's
11 important in this image is that in the footwall
12 felsic volcanics, the yellow, or to the left, there's
13 no stipple. There's virtually no alteration in these
14 rocks. And so what I'm not seeing is I'm not seeing
15 sulfides, I'm not seeing the minerals broken down,
16 changed chemically from what they were originally.
17 And so more sort of boring rock. There's a little
18 bit, but nothing material.

19 Again, to the right, no sulfides, no
20 mineralization. Exploration-wise or economically,
21 boring rocks.

22 One other point I didn't make before is the HW
23 which is that blue horizon. This is the debris flow.
24 And the reason for bringing this up is that this
25 thing was from another volcano somewhere off to the

1 side. Earthquake or something triggered a landslide.
2 The landslide covered the deposit and preserved the
3 deposit through time. So it's an important component
4 to the overall story is that preserves what we see
5 today.

6 I made the point about, you know, logging the
7 drill core inch by inch, 220,000 feet, and it's a big
8 job and it's a lot of data. But we've also collected
9 over 1800 liquid geochemical samples. So these
10 measure major oxides, these measure trace elements.
11 So we use this data in two forms. In this particular
12 image, it demarcates the difference between the
13 different rock types and we're using zircon and
14 titanium, but we also use it to document alterations
15 both on a sectional basis and in a 3D image. So we
16 can understand in three dimensions how the alteration
17 has affected the rocks around. And on a high level,
18 I can say, well, in my opinion, that kind of stuff
19 will be potentially acid generating, that kind of
20 stuff will not.

21 And one of the reasons for making that kind of
22 statement is that then we can plan our geological
23 infrastructure, underground infrastructure, mine
24 infrastructure based on those high level
25 observations, but obviously you have to do additional

1 sampling and you need to document this thoroughly,
2 but on a first pass basis some things appear easier
3 than others to work with.

4 MS. FITZGERALD: Can I --

5 MR. DUDEK: Yes.

6 MS. FITZGERALD: Can I interrupt you for a
7 second? You said three -- the slide you just had,
8 the three-dimensional? Help me out there. I see
9 two.

10 MR. DUDEK: The data is collected from three
11 dimension, so if I was to give you an isometric net,
12 you'd see the scattering of points in three
13 dimensions.

14 So here this is just a 2D representation of the
15 data.

16 MS. FITZGERALD: Okay. Thank you.

17 MR. DUDEK: Yep. This is the -- the Pickett
18 Mountain Deposit so the west zone to the left, east
19 zone to the right. It's about 3,000 feet along
20 strike and about a half mile to depth. This is color
21 coded grade times width. And so the hotter the color
22 the higher the grade. The hotter the color, the more
23 metal-rich it is, generally.

24 And so when you get -- let's say there's
25 45 percent zinc equivalent over four meters, there's

1 just not much room for anything else in that rock
2 other than the economic sulfides. So there would be
3 very little pyrite.

4 In the lower grade portions more in the east
5 zone, there's more pyrite and so those rocks would be
6 more -- have more potential for acid mine drainage
7 ARD. But the major point, the west zone, is quite
8 metal-rich. It's almost twice the grade of the east
9 zone. And again, I think the east zone is a false
10 slice of the Maine zone.

11 I wanted to bring this up when I was talking with
12 someone earlier. So this particular image is core --
13 well, maybe I'll step back one more point here.

14 Those stripes that you see on there, here, those
15 are the core holes. So if you're -- weren't sure
16 what they were, that's where we gather our
17 information from. And so they're like small little
18 tubes of information, and then we build a geological
19 story from that.

20 So the brownish color, or light tan color in this
21 image, that's mostly zinc mineralization. This
22 particular intercept is 45 percent zinc equivalent
23 over about 15 to 20 feet. There's about 30 percent
24 zinc about 10 percent lead, really no copper, and
25 there's really no pyrite. So this is in the footwall

1 of the massive sulfide. This is not part of the
2 zone, but this is just part of the mineralization
3 that we see.

4 It is important to note that the zinc
5 mineralization is really, really pale-colored. That
6 means it's iron-deficient, and overall this is sort
7 of an iron-deficient system. And again, it
8 contributes to its unique character.

9 One of the comments that we've gotten is that the
10 Halfmile Deposit in New Brunswick is very different
11 than the Pickett. That Halfmile is hosted by mafic
12 volcanic rocks and Pickett is by felsic; and because
13 it's in the felsics, it's bad, but Halfmile is good.

14 The point with Halfmile, it's 100 percent hosted
15 by felsic rocks. It's in the same belt of geology as
16 the Pickett Mountain Deposit and all the other major
17 deposits within the belt. And, in fact, Halfmile is
18 totally encased in the felsics whereas Pickett is at
19 the felsic/mafic boundary.

20 Where that's important from an acid-generating
21 potential idea is that the hanging wall rocks or the
22 rocks above the Pickett Deposit stratigraphically are
23 more likely to be neutralizing, they're more calcium
24 rich, they're buffering compared to the rocks below
25 especially in the alteration zones.

1 This is a bit of a section. So the red line on
2 the section is the Halfmile Deposit. The pink, the
3 orange, and the yellow are all felsic volcanic rocks
4 so you can see Halfmile is well within the felsic
5 volcanic rock package.

6 The gray are sulfidic sediments so they would be
7 quite altered, probably metal enriched. And then the
8 mafic rocks are off to the right.

9 If we were to compare Pickett, Pickett would be
10 at the contact between the green to the right and the
11 yellow. That's where Pickett would sit. So not a
12 lot of difference, but again, the nuance and details
13 of the deposit are important.

14 So from a high level, and again this is from a
15 geologist's point of view, the rocks in the lower
16 north side of the west zone contain some disseminated
17 sulfide and stringer sulfide mineralization so
18 there's a potential to generate acid if exposed to
19 air and water.

20 The rocks on the south side of the west zone,
21 which are to the right, the hanging wall, they're a
22 different rock package. They're not part of the same
23 alteration system. There is no alteration, there is
24 no sulfides. And so the likelihood of them
25 potentially producing acid are very low. And again,

1 we have the chemistry to support that and the visual
2 observations.

3 The east zone, because it is probably a slab
4 that's been dislocated into another area, both above
5 and below do not show any appreciable sulfide
6 enrichment, in fact very little, with none above and
7 just a bit below. And so there's limited to no
8 potential for acid generation.

9 And again, this speaks to where we can put
10 underground infrastructure, the drips, the declines,
11 all of the stuff. Which rock comes to surface? It
12 appears that we can choose, based on the rock
13 character, what's possible.

14 So in summary, and I think this is really
15 important, is each geological site has its own
16 uniqueness. The Pickett site, and again I've looked
17 at hundreds of massive sulfides. The Pickett site is
18 an easier one compared to others based on the
19 alteration of the footwall, the low iron content of
20 the sulfides, the alterations associated with it and
21 where it sits stratigraphically. So it gives us
22 optionality.

23 Anyways, that -- that's my presentation.

24 Thank you.

25 MR. WORCESTER: Anyone have any questions? Okay.

1 MR. DUDEK: Come on, there's got to be a
2 question.

3 MR. WORCESTER: They're sometimes slow after
4 lunch.

5 DR. FINLEY: Good afternoon. My name is Jim
6 Finley. I'm a principal geochemist with Stantec
7 Consulting Services. I have a Ph.D. in geochemistry
8 and I've worked in the hard rock mining industry for
9 27 years.

10 So I have conducted geochemical characterization
11 programs, worked at pretty much all phases of the
12 mine life from Greenfield's development, like Pickett
13 Mountain, all the way through closure.

14 A lot of the work I've done has been associated
15 with dealing with historical mining issues that have
16 resulted in impacts and challenges in managing rock.
17 So I have a lot of experience with that as well.

18 With that in mind, I just want to start by saying
19 based on the available information, and really what
20 Mr. Dudek just presented in terms of the geology of
21 this specific deposit, and it's very important to
22 understand that it is the details about the deposit
23 that dictate and influence what potential effects of
24 the mining could be from the standpoint of acid rock
25 drainage.

1 But based on available information, I believe
2 conditions are sufficiently favorable that they can
3 manage this mine development in such a way to limit,
4 minimize the potential for acid rock drainage.

5 And let me just walk you through why I feel that
6 way, some of the information.

7 But first I want to set the table, which is to
8 say: What is acid rock drainage? We've talked about
9 it, you've seen pictures. Pictures are always quick
10 remarkable in terms of what they convey.

11 Unfortunately, with iron, when iron is in the --
12 in the system, it takes a very tiny bit of iron to
13 make a really red color. And so it's not necessarily
14 a good metric in and of itself. It's a great
15 indicator, but it doesn't tell you the entire story.

16 But acid rock drainage developed as a consequence
17 of exposure of rock that contains a specific mineral,
18 pyrite, to atmosphere and water.

19 So in the underground scenario, there's maybe
20 water, because there could be groundwater, but
21 there's no oxygen. And really in terms of
22 influencing the potential for development of acid
23 rock drainage, it's this triangle in the lower left
24 corner just like the fire triangle that influences
25 whether or not acid rock drainage can occur.

1 Okay. So you pull a rock to the surface, very
2 hard to halt it from being exposed to the atmosphere,
3 right, we're surrounded by oxygen. It's going to
4 happen.

5 A little bit easier to manage water, but not that
6 much easier. So when you bring rock to the surface
7 that contains sulfides, and pyrite in particular,
8 it's hard to -- to prevent acid rock drainage from
9 occurring. It's possible to manage it and it's
10 possible to limit the magnitude of development. It's
11 hard to stop it completely. So that's an important
12 thing to remember as well.

13 The other aspect is, once you bring it to the
14 surface, there are other things that can influence
15 this reaction. And what's shown here, again in the
16 triangle in the lower left, bacteria can have a huge
17 influence on acid rock drainage development. It
18 turns out that there are some bugs who really like
19 that chemical reaction to supply energy for their
20 life, and they can enhance the speed at which the
21 reaction occurs orders of magnitude. So that's also
22 part of that detail that has to be accounted for.

23 So it's -- I guess the takeaway from this is, we
24 know that there will be some rock that comes out of
25 this mine that has the potential to generate acid.

1 What we also know is that -- and I'll talk about this
2 a little bit more -- is that through the course of
3 the development of the mine, not only from where they
4 are now but through Chapter 200 process, and should
5 that be successful, they open the mine, they will not
6 stop doing geochemical characterization work. They
7 will not stop understanding what the system really
8 looks like in detail because that ultimately is
9 really what influences whether or not acid rock
10 drainage is an issue in the long term.

11 I'm also going to introduce some words because
12 it's a lot easier sometimes to talk in acronyms than
13 to say these words all the time. I've already talked
14 about acid rock drainage and I use that had term on
15 purpose. And the industry and international groups
16 as a whole has actually used that had term on purpose
17 and that is to say when these deposits are exposed to
18 the surface, they oxidize. In fact, Pickett Mountain
19 has outcrops that clearly show there's oxidization
20 that's occurred. So acid rock drainage is a natural
21 process.

22 In Colorado where I'm from, we have iron fens
23 which are expressions of this natural oxidation
24 process that has occurred. When it's associated with
25 a mine working, it's acid mine drainage, that's the

1 distinction.

2 Now potentially, acid-generating rock -- and we
3 have to get to a place where we classify rock
4 materials in their geochemical properties.

5 Potentially acid-generating rock is rock that has the
6 potential to generate acid. That -- it's actually
7 self-defined.

8 Rock that does not meet that, and we'll talk
9 about how you measure that in just a minute, but rock
10 that is not is non-potentially acid generating.

11 So there's -- the next category is rock. Some
12 people call it waste rock, some people call it mine
13 rock. And this is rock that in -- now we're talking
14 in terms of whether it's ore or not, it has an
15 economic value or not. Mine rock or waste rock has
16 no economic value. That doesn't say anything about
17 the geochemical characteristics of the rock; it just
18 doesn't have economic value in the context of what
19 the target minerals are.

20 Ore is what it is. That's the material that can
21 be milled and extracted for the metals of interest.
22 In an underground mine like this, you leave behind
23 mine walls. And both Dr. Maest and I talk about mine
24 walls and the picture on the right shows an example
25 of an underground mine and everything -- the floor,

1 even the walls and the top are all part of this mine
2 wall.

3 So not only do you have material that may be
4 taken out and placed on the surface that you have to
5 think about, you also have to think about the mine
6 walls. And the reason is because the humidity in
7 mine workings in an underground mine is about
8 100 percent.

9 So you have plenty of water. And not only that,
10 you have atmosphere because they have to put
11 ventilation in, in order to sustain people to work in
12 the underground, right? So there's a period of time
13 where there's oxygenation in the subsurface.

14 Temporary storage pile, some people call them
15 waste rock piles. In different types of mines, the
16 waste rock pile may be on the surface forever. These
17 are call temporary stock piles because they actually
18 run a deficit in terms of space comparing how much
19 waste rock they remove versus how much ore. So they
20 actually have space to put things back underground.

21 And one of the things about putting things back
22 underground is that at some point in time, they will
23 no longer be exposed to oxygen because the mining
24 activity will lower the water level of the
25 groundwater system to support mining, but once

1 mining's finished, the groundwater's going to come
2 back up and submerge everything that's been buried.

3 And we'll talk about -- there's details
4 associated with that, and I'll touch on that.

5 So we have to distinguish between PAG rock and
6 non-PAG rock, and we have to do -- there are
7 standard -- industry standard geochemical tests to do
8 that.

9 You heard Mr. Dudek talk about acid base
10 accounting. And really what that is is it's a test
11 to just say how much potential acidity do I have
12 associated with a sample, and how much potential
13 neutralizing capacity do I have? And it's just a
14 balance between those two. And I'll show some of the
15 data associated with that.

16 But that's just a -- that doesn't say anything
17 about time because one of the details that's very
18 important in this consideration, and certainly for
19 Pickett Mountain Mine, is the time. How much time
20 does it take before you get this reaction occurring?
21 How much time before you may see acid rock drainage?
22 It doesn't happen overnight. Some rocks are
23 incredibly reactive and can react within a matter of
24 months. But other rocks may not react for years even
25 though they classify as PAG in the acid-based

1 accounting test.

2 So we run another set of tests which is referred
3 to as humidity cell testing. And the intent is to
4 subject the rock material to conditions that enhance
5 sulfide oxidation to the maximum amount. So lots of
6 air, lots of moisture, and then we look at it over a
7 period of time. And that gives us a lot of
8 information about how the -- the rock reacts, how the
9 sulfide minerals react, what kind of constituents
10 come out of those, what metals may leach from that
11 material, and how long does that reaction take before
12 it occurs?

13 Again, it's important in the context of Pickett
14 Mountain because when you pull rock out of the
15 ground, put it in the temporary piles, and it is
16 temporary, they're going to put it back underground.
17 So that's important.

18 Okay. I'm going to have to step up my pace,
19 aren't I? These -- this is very much schematics, but
20 I wanted to give you a sense of several things: One
21 is that in almost all metal ore deposits, you not
22 only have the ore, which is shown in the orange, but
23 you have a halo -- an alterations halo around it, and
24 Mr. Dudek referred to the alteration that he's
25 observed based on the drilling and his understanding

1 of the geology of the Pickett site, right?

2 So this halo can be really huge in some kinds of
3 metal deposits, porphyry ore -- porphyry copper
4 deposits, for example, in the southwestern United
5 States have really large sulfide alterations zones.
6 It can be quite small.

7 And based on the information that's been observed
8 today the alterations halo at Pickett Mountain is
9 variable. On one side of the deposit it's fairly
10 significant; on the other it looks to be small to
11 nonexistent. And it's that detail again that's also
12 important in the consideration of this mine
13 development because on the right-hand side, I'll
14 distinguish between an open pit mine and an
15 underground mine first at the high level. It's just
16 how much material do you have to manage in both of
17 those situations.

18 In an open pit mine, the black staircase line
19 corresponds to the open pit. So all the material
20 above that has to be removed before you can get to
21 the ore, right? And that is a lot of material. And
22 that's where you end up with mines with waste rock
23 piles that, you know, are 300 feet tall and a quarter
24 mile long, and those things will never go anywhere.
25 They're going to be on the land surface forever.

1 So that's a big difference between an underground
2 mine, again where the mine workings -- they're not
3 nothing, but they're a lot less substantial than an
4 open pit mine. And what that means, then, is the
5 ratio of waste rock you pull out to ore is
6 significantly different. It's much smaller in an
7 underground mine than it is an open pit mine.

8 And not only that, but you can place your mine
9 workings in such a way to minimize the potential or
10 the chance of running into acid-producing rock.

11 Well, here's some of the data, and I don't expect
12 you to think too much about the table so I just want
13 to point out a couple things. One is, on the
14 right-hand side is really the metric, that's the ABA
15 metric. And it's just a ratio. It's a ratio of how
16 much neutralizing potential is there, how much acid
17 potential is there in a rock sample, and just
18 understand that these are rock samples. I didn't
19 talk about the rock body or the rock mass itself.
20 These are the samples that are available.

21 So three of them, the ones in orange, would
22 classify as potentially acid generating. All of
23 those come from that felsic -- altered felsic rock
24 zone that Mr. Dudek showed.

25 The other four are nonacid gener --

1 non-potentially acid generating, and those come from
2 the other package of rocks. So these are
3 indicative -- it's important to note this is not
4 the -- all the data that would be collected. In
5 fact, every single lithology has to be classified,
6 categorized, on the front end. We run all the tests.
7 I'm actually -- would need to confirm these results
8 both for non-potentially acid-generating rock and the
9 ones that classify as PAG.

10 And beyond that, then I want to know what kind of
11 reactivity they have, and that's where the humidity
12 cell tests come in. So that's the information.

13 In terms of carrying geochemical characterization
14 programs, I think this is super important. Prior to
15 the early 2000s -- and the bottom example from Nevada
16 is a little bit special, but prior to the early
17 2000s, there was really no guidance with regard to
18 how you carry out a geochemical characterization
19 program.

20 It was everybody's best guess on how to do it.
21 And at that time, and really I'm talking probably
22 prior to 1990, mid-1990, people didn't really want to
23 know that badly about the geochemistry. They had to
24 understand it from a -- from a permitting
25 perspective, but casting it in the context of a

1 40-year mine life, most of the time it got ignored
2 after that initial look.

3 And people like me made the best effort they had
4 to make predictions of what potential effects may be
5 with a small set of data.

6 So the world of geochemical characterization has
7 changed significantly from actually all the example
8 mines except for a couple of them that have been put
9 forward in testimony both by me and by Dr. Maest.

10 But just to point that out, Dr. Maest generated a
11 document that was a fine piece of work that described
12 what you need to do in order to carry out
13 characterization. The other thing to remember here
14 is that while we want to know what the geochemical
15 nature of the rocks are, we want to know what is
16 going to be the likely water quality, all right?
17 Because from a geochem perspective, who cares if it
18 makes acid, if the sulfides react or not? It's
19 whether or not they're going to end up having an
20 impact on water chemistry.

21 So the target of all this is to make projections
22 of water chemistry through a geochemical
23 characterization program, okay? So Dr. Maest and
24 colleagues generated a document. The Canadians have
25 been after this for a long time. The second one

1 listed there is the Mend Document.

2 In 2009 an international group of mining
3 companies, actually, got together, just like they
4 have recently, for tailing management and
5 acknowledged that, you know, they actually have to
6 understand what's happening with acid rock drainage.
7 And through that, they generated a living document
8 called the GARD Guide that is only available on the
9 web. And the reason it's only available on the web
10 is so that it can be updated as new information is
11 gathered.

12 So the GARD Guide is out there. The state of
13 Nevada, of course, has a lot of mines in the state of
14 Nevada, and they have just recently overhauled their
15 entire program describing how you conduct these
16 studies in support of a permitting process for mining
17 activity. And I guess the point of this then is
18 that, you know, for mining examples that predate,
19 I'll say, 2000 -- I don't have an exact cut-off
20 number, but for mining activities that occurred prior
21 to the establishment of what I'll call the more
22 modern geochemical characterization period, those
23 aren't actually very applicable other than to say
24 that they are precautionary tales.

25 And also that it's -- this is not simple to do.

1 So -- so it's -- there's two parts to that.

2 This is a table, which I know you cannot see even
3 though you have the monitor in front of you. There's
4 a large example of this over on the posterboards and
5 we'll make sure that's put up, but this is a table
6 out of GARD Guide. And basically what it does is it
7 runs from top to bottom through the life cycle of the
8 mine development, from exploration down through
9 permitting, mine development, and initial operations
10 through operations and all the way to closure.

11 So in the old days, there was some geochemical
12 work done in the exploration and kind of right after
13 that certainly to get through permitting, and that
14 was kind of it. A lot of times, no more work was
15 done.

16 And then they would get close to closure, within
17 a couple months, and go, you know, we've got --
18 better develop a closure plan here, and they didn't
19 have any recent information, which made it very
20 difficult to -- to actually come up with an effective
21 closure plan. And there's plenty of examples of
22 those in the mining industry.

23 But on the right-hand column, that's the AMDML,
24 so ML stands for metal leaching program that the GARD
25 Guide would endorse that carries out throughout the

1 mining activity. So not only do we gather a lot of
2 information on the front end to support permitting
3 and mine development, but throughout the mining
4 activity, information and data are being collected in
5 order to update projections of potential water
6 chemistry because it's an unknown -- you know,
7 there's lots of uncertainties in the system both
8 geochemically and hydrologically.

9 So if you gather information throughout the
10 mining process, then you can go back and update your
11 information when you get information that's
12 significantly different from what you had before. It
13 makes good sense.

14 So anyway, there's quite a lot of overlap between
15 the GARD Guide table and some of the information
16 that's required as part of the Chapter 200 process.
17 It makes good sense.

18 Wolfden in their exploration and mine development
19 program are just about in -- right where you would
20 expect them to be in terms of the nature of the
21 information that's available. The geology and ore
22 deposit definition always is way out in front of
23 geochemical characterization, and I think that's
24 pretty evident based on Mr. Dudek's testimony as
25 compared to the amount of geochem information that's

1 available.

2 Again, we're using two pieces of information,
3 seven samples for geochemistry, and a lot of ore
4 deposit definition geochemistry and geologic
5 understanding to make the assertion that I started
6 this presentation with.

7 So I just want to touch on these again. The
8 examples of mines with no geochemistry or mitigation,
9 well, you have an example from 5,000 years ago and
10 no -- or 500 years ago. No one thought about
11 geochemistry. Even to the mid-1900s, no one really
12 spent any time.

13 For example, anyone who understands geology and
14 geochemistry at all would never have endorsed opening
15 the Iron Mountain Mine in California. That is one
16 gigantic chunk of iron pyrite, and it's -- they
17 developed tunnels throughout that whole thing and
18 it -- I'm telling you, it is one of the worst places
19 you can see. And they'll never be able to turn that
20 off, ever. So there's a water treatment plant there
21 that will be there through perpetuity.

22 Okay. So Holden Mines, similar. 1800s to the
23 early 1900s, mine. And, again, in the early days of
24 mining if there was an ore, and if wasn't high enough
25 grade ore, it was waste rock and it went down the

1 hill. There was not much thought given to where it
2 was placed, how it was placed, and what kind of
3 management occurred afterwards, mainly because when
4 you were done, you just walked away, right? There
5 were no regulations at that time.

6 From the Kuipers document in 2006, I think I made
7 this point earlier, but, you know, 18 of those 25
8 mines are open pit mines and the minute -- even
9 though Flambeau is not that large of an open pit, but
10 as soon as you talk open pit that's going to be there
11 forever and in most of those cases, you end up with a
12 wet tailing impoundment as you saw in the second
13 example of Jeremy's along the coast. And, sorry,
14 I can't remember the name, Callahan, I think it is,
15 where wet tailing is placed on the ground. In almost
16 all those instances in those old mines and some of
17 those mines are still operating to this day, there
18 are no liners under the waste rock, there's no liner
19 under the tailings impoundment. So there's no
20 consideration at that time.

21 Again, when these mines started in the 1940s,
22 '50s and '60s, that was not what was done. So
23 I think that's important.

24 And again, all of those mines listed predated
25 what I would consider the more modern era of

1 geochemical characterization.

2 It's not to say that we don't need to think about
3 those or pay attention to that information, but to
4 make a direct comparison between those and what the
5 Pickett Mountain project is, I'm not convinced that's
6 a fair comparison.

7 Yes, ma'am?

8 MS. HILTON: So I've heard a lot -- not a lot,
9 but quite a bit about unsuccessful mining operations,
10 but I haven't heard very much about ones that have
11 been successful, particularly in dealing with the
12 acid mine runoff.

13 Do you have any examples?

14 MS. FINLEY: Yes, I do. So part of the challenge
15 also here is that we don't have a -- very many -- as
16 many mines in the more -- that reflect a more modern
17 area -- era, sorry -- than we do mines that predate
18 that. So it's kind of hard if you look in the
19 historical mining index to find a mine that was
20 successful that way.

21 In the modern era, many of those mines are still
22 operating. And I will just take this opportunity to
23 point out that two of mines that are listed in the
24 Kuipers document, Stillwater Mine and Greens Creek
25 Mine.

1 Stillwater is in Montana, it's an underground
2 mine. Greens Creek Mine is in Alaska, that's an
3 underground mine. They're larger operations than
4 Pickett Mountain, and they are ongoing operations.

5 Now both of those got listed, and I'm not arguing
6 whether they should have been listed, but there's a
7 difference between -- think of a mine as an
8 industrial process, right, so it's like a paper pulp
9 mill, it's like any kind of big industry. They will
10 have issues. And it's whether or not, I think, the
11 issue is a chronic issue that is not going to go away
12 forever, or if it's a one-off issue or -- and this
13 issue may last for five years, right, before they
14 resolve it, but they resolve it and continue.

15 So I would contend both of those. I would also
16 contend the Eagle Mine, which is in Dr. Maest's
17 testimony, is also a successful mining operation.

18 Now, did they get exactly what they predicted in
19 terms of water chemistry? They didn't. They're
20 seeing different water chemistry show up than they
21 predicted. And I'm going to tell you right now that
22 if you ask me for a number from a water quality
23 prediction, I cannot give you a number, I cannot tell
24 you that the sulfate concentration will be
25 1,000 milligrams per liter. I can't do that. And

1 the reason is, there are too many uncertainties
2 involved with that process. I can tell you a range
3 of probable concentrations. And where that fits in
4 is whether or not the mining operation has the
5 flexibility and capacity to adjust to those different
6 conditions. Right? So I think that's important. So
7 I guess those are ones that I would offer. It's hard
8 to look in the past.

9 MS. HILTON: Are they open mined or underground?

10 DR. FINLEY: Those are all underground mines.

11 MS. HILTON: Underground?

12 DR. FINLEY: Yeah, they're underground.

13 I just will touch on the earth work study from
14 2019. Three of those mines of the 16, I think there
15 were, Chino in New Mexico, Bagdad in Arizona, Bingham
16 Canyon in Utah. I worked at all of those, but I will
17 tell you right now, I'm not responsible for their
18 challenges, because they started a long time before
19 I was born.

20 But the point is that also, those are all very
21 large open-pit operations, so they -- again, these
22 are facilities that have 100 million ton waste rock
23 dumps sitting next to a pit that's a thousand feet
24 deep or deeper and a tailing impoundment that covers,
25 you know, several hundred acres, all of which is

1 unlined. So they're just not good comparables to
2 what is planned for Pickett Mountain.

3 This is a table out of the Kuipers document, and
4 I think it's a great summation of the challenges,
5 which is to say, if you don't pay attention and
6 continue to update any -- either the hydrologic
7 characterization, the geochemical characterization,
8 and also your mitigation measures throughout the mine
9 life process, you're not going to have success
10 because things will be different than what you think
11 on the front end. That's the nature of this process.

12 Well, in summary, again, current understanding of
13 the orebody is that you probably can access the
14 orebody without having to manage a whole lot of PAG
15 rock. Okay?

16 In the Chapter 200 process they're going to know
17 that for certain and should they be successful with a
18 permit, they're going to also know through the mining
19 activity because again, geochemical characterization,
20 hydrologic characterization is not going to stop.

21 During the mining operation, groundwater will
22 flow into the mine, not out. And that's actually a
23 good thing. It's fine. They may not make much
24 water. They're talking 30 gallons a minute, which is
25 really not very much water at all. And that's likely

1 given the topographic location of the site. But
2 again, I -- don't quote me on that, please.
3 Relatively low water amounts. But the water flows
4 into the mine. It's pumped out. If it needs to be
5 treated, it's treated before it's discharged to the
6 environment.

7 So -- and all of that treatment and discharge
8 part is permitted as well, right. It's just not --
9 whoever thinks what's good, it's actually a permitted
10 process.

11 Limited time on the surface for waste rock before
12 being placed back underground. And again, this goes
13 back to how fast does that reaction occur, is it
14 months, is it years? And if the storage time on a
15 surface is, let's say, five years and what you
16 understand from geochemical characterization says
17 10 years, then you're in a better position than if
18 geochemical characterization says four months and it
19 has to be on the surface for five years, right?

20 So that's a moving part that has to be
21 understood.

22 When the mine is backfilled, there's limited to
23 no air in the backfilled areas, which is to say they
24 backfill these stopes, and they pull all the
25 ventilation, right? And there are other parts of the

1 mine that are open and have ventilation in there, but
2 that stope that's backfilled in there has no oxygen
3 going into it.

4 Is there some that diffuses from the rest of the
5 system? Yes it does. Most of it will be consumed
6 pretty quickly by the rock. So that's important.
7 That's a mitigation measure.

8 I have 5 minutes remaining. Thank you.

9 The rock fill is not expected to be -- it will be
10 nonacid generating, so that's a mitigation measure as
11 well that's baked in on the front end of the project.
12 We'll understand much more about that, what does that
13 actually mean, how much material is nonacid
14 generating, what are the geochemical properties of
15 nonacid generating material? Just because it's not
16 acid generating doesn't mean it can't leach metals.
17 That's another aspect of geochemical characterization
18 that's important in this process.

19 After mine closure, they pull everything out and
20 allow groundwater to rebound. It will take time for
21 groundwater to rebound. That period of time
22 groundwater is rebounding, we're going to have a good
23 idea of what that water chemistry would be before
24 they even turn off or stop pumping water from the
25 underground.

1 But should there need to be something done to the
2 water chemistry, there's a period of time to do that.
3 And I'll just reemphasize, you all know this better
4 than I do, that the Chapter 200 process is
5 comprehensive. It requires essentially all the
6 information that's available and suggested and all
7 the guides for modern day geochemical
8 characterization of these systems.

9 So with that -- yes, ma'am?

10 MS. HILTON: Another question for you.

11 So how do you neutralize acid mine drainage?

12 DR. FINLEY: So it depends on the amount. So if
13 you -- your entire water flow is acid, then you have
14 to neutralize it with something.

15 In the mining industry, and you'll hear my
16 colleagues talk about a different kind of water
17 treatment process, but in a -- in many systems --
18 sorry, I'm getting feedback here, but in many systems
19 they use lime. So that's a commonly available
20 chemical compound to raise the pH. And as you raise
21 the pH, it actually causes minerals to precipitate
22 from solution. And when those -- it's sludge. And
23 when the sludge forms, it actually has the capability
24 to absorb constituents, metals, contaminants from the
25 solution.

1 So if you do it in a controlled water treatment
2 process system then -- you know, it's an engineered
3 process, you know exactly what's coming in, you know
4 exactly how much to add, et cetera.

5 It's also used as a mitigation measure in
6 backfilled material. It could -- that's one place.
7 They're going to -- a portion of the backfill will be
8 cemented, so that's another possible source of
9 neutralizing material.

10 But we have to understand, you know, what are the
11 consequences of all this in terms of resultant water
12 chemistry that's in contact with that.

13 MR. WORCESTER: I understand this correctly, if
14 you handle the ore once you've got it aboveground,
15 there's minimal opportunity for acid to get --
16 escape, if everything goes well. But underground,
17 the acid water forms on the walls of the mine; is
18 that correct?

19 DR. FINLEY: So in -- that -- there's one of
20 those details is when you're mining the ore, you
21 know, there's a place where -- and I'm -- ore on this
22 side is all ore. Ore, ore, ore, ore, ore, and then
23 it's not.

24 And so what the nature of the wall rock chemistry
25 and mineralogy is has everything to do with the

1 question you're asking.

2 MR. WORCESTER: And let me ask you this: Is
3 there some quick way to determine the percentage of
4 acid in this water that leaks into the mine? Is
5 there a simple test?

6 DR. FINLEY: Yes, pH.

7 MR. WORCESTER: Okay.

8 DR. FINLEY: Yeah, pH is a great measure.

9 MR. WORCESTER: If you monitor it on a daily
10 basis, then you know what's going on?

11 DR. FINLEY: Like crazy. You know what's coming
12 at you. And certainly because there will be no water
13 discharge from this facility without having been
14 treated. That's --

15 MR. WORCESTER: Well, you hope that -- fishers
16 and things like that can give you trouble.

17 DR. FINLEY: Right. Yes, sir?

18 MR. ELLSWORTH: So the -- I heard you talk about
19 the water table and refilling the mine and whatnot.

20 What's the impact within some distance to
21 personal wells and/or other things while you're down
22 there drilling and digging? Because it -- it would
23 assume that you're pumping out the water to treat it
24 so that you're not in the water while you're there.

25 DR. FINLEY: Right.

1 MR. ELLSWORTH: You can't go anywhere in Maine
2 and not run into water. You dig a ditch, it's full.

3 So you're going to be treating water constantly,
4 pumping water out which is then going to be filtered
5 and whatnot. But what is to -- to anything that's a
6 local well, let's say a thousand feet deep, you know,
7 I've seen them that deep before --

8 DR. FINLEY: Sure. Sure.

9 MR. ELLSWORTH: -- you know, 4 or 500 feet is
10 pretty common. Is there any effect going to be from
11 this mining on local water production?

12 DR. FINLEY: It has everything to do with
13 distance. Distance and the hydrologic properties of
14 the bedrocks groundwater system.

15 So you know without knowing details, I can't
16 answer. If it's really close, which my to
17 understanding -- I was up at the site the other
18 day -- there are no groundwater wells in that
19 immediate vicinity.

20 But if it was close, you could dewater it.
21 Right? But there's not going to be flow water out of
22 the mine during the mining operation. All the
23 groundwater is going to be coming into it. It's
24 going to be deep.

25 MR. ELLSWORTH: Yeah, I understand that --

1 DR. FINLEY: Okay.

2 MR. ELLSWORTH: -- but you're going to have to
3 pump some water because --

4 DR. FINLEY: Yes.

5 MR. ELLSWORTH: -- out of the -- out of it into
6 the retaining pond --

7 DR. FINLEY: Correct. Correct.

8 MR. ELLSWORTH: -- because you're going to be
9 generating water within those -- that space --

10 DR. FINLEY: Yes.

11 MR. ELLSWORTH: -- as you -- especially -- you're
12 going to chase the water down, basically.

13 DR. FINLEY: So the other aspect of this that
14 I haven't really talked much about is water balance.
15 Right? Part of the mining operation requires water,
16 so some of the water that gets pumped out may get
17 treated and go back underground to support the mining
18 activity, and how much gets discharged corresponds to
19 the excess amount of water in the system. But you
20 have to -- you have to have a water balance model
21 that encompasses the entire facility and everything
22 about it -- snowfall, right, rainfall input, extreme
23 events. All those kinds of things have to be
24 factored into that.

25 Okay. I'm pretty sure I -- oh, yes, sir?

1 MR. TRUDEL: Yes. What Peter brought up is a
2 good point, but he was talking about the water coming
3 out of the well.

4 DR. FINLEY: Yes.

5 MR. TRUDEL: My question is, what about -- you
6 have the walls, the floors, the material that's being
7 returned back in. There's going to be a considerable
8 time period. Again, it's probably an unknown
9 variable before there's no oxygen and the acidity
10 process ends.

11 DR. FINLEY: Right.

12 MR. TRUDEL: That being said, you said that the
13 water table will come back up and stop that process,
14 but at the same time, what's to keep that water from
15 leaching into groundwater down the road?

16 DR. FINLEY: That was one of -- thank you for
17 that. That was one of the points I had, which is to
18 say there is -- there will be a period of time
19 between when you stop pumping water out of the mine
20 and just let it start to fill before the groundwater
21 will actually flow out.

22 So you know, again, through the hydrologic
23 characterization at the end of that analysis, I can't
24 tell you if that's going to be a month or if that's
25 going to be three years. If it's a month, then

1 there's not much time, right, so on the front end of
2 that, there's going to have to be a plan to manage
3 that wall rock because you're exactly right, the
4 entire period of time that the mine's open and there
5 can be reaction -- again, we need to understand what
6 the mineralogy of the wall rock is, right? But if
7 there's reactions going to occur, it will probably
8 occur over that period of time. The products of that
9 reaction are sitting there. And as the water comes
10 back up, it will leach it up. So we need to
11 understand that.

12 MR. TRUDEL: A follow-up to that, then, would be
13 similar to what someone had asked earlier as it
14 pertains to global warming.

15 DR. FINLEY: Mm-hum.

16 MR. TRUDEL: And as we see water tables start to
17 drop, will the acidification begin that process
18 again?

19 DR. FINLEY: Well, that's a -- that will be a
20 function of what is the highest level of ore
21 extraction that occurs relative to where the
22 groundwater table is now and what would be a pre --
23 projection of what a new groundwater level would be
24 under a climate change scenario.

25 Again, that's part of that characterization and

1 detailed analysis, right, because all -- everything
2 I've just talked about ends up being part of the
3 economic analysis of the project as it develops
4 through the Chapter 200 process.

5 MR. TRUDEL: Thank you, Dr. Finley.

6 DR. FINLEY: Yeah, sure. Thank you. I'll --.

7 MR. WORCESTER: Next item on the agenda is
8 Intervenor 2's Cross Examination.

9 I get nervous when I see all these wires going
10 back and forth. That's, like, under my desk in my
11 office. I have no idea what those are plugged into
12 or where they go.

13 (A discussion was held off the record.)

14 CROSS-EXAMINATION OF: DR. FINLEY

15 BY MR. BLOOM:

16 Q Thank you. I'll start -- I'll start with you,
17 Dr. Finley, since we were just speaking.

18 So the hydrate sulfates within -- sulfides, I'm
19 sorry -- within the Pickett Mountain Deposit have
20 quite a bit of pyrite, don't they?

21 A As you heard Mr. Dudek say, that's variable.

22 Q Okay. But there is actually -- it's -- in the
23 preliminary economic assessment, it stated that the
24 high grade sulfides contain 45 to 60 percent pyrite;
25 is that correct?

1 A That is stated, yes.

2 Q And those high grade sulfides contain the minerals
3 that Wolfden seeks to extract from the deposit,
4 correct?

5 A That constitutes the ore, correct.

6 Q Right, which is what Wolfden would seek to mine?

7 A Sorry?

8 Q Which is what Wolfden would seek to mine?

9 A Correct.

10 Q Okay. And so it also states within the preliminary
11 economic assessment that the zinc, lead, and copper
12 sulfides within that deposit are, quote, finely
13 laminated and are overlain and in sharp contact with
14 massive pyrite; is that correct?

15 A Sorry, I didn't read that section. I'll take your
16 word for it.

17 Q Okay. Let's just -- we can bring up -- can we bring
18 up Page 544 of the application, which is Page 28 of
19 the preliminary economic assessment?

20 Let's just scroll down a little bit.

21 All right. Can we zoom into this -- where it
22 says the high grade sulfides?

23 All right. So we have the high-grade sulfides
24 typically include 45 to 60 percent pyrite there.

25 And then if we scroll down a bit below that,

1 I have to find the -- I'll find the finely laminated
2 quote later, but you'll take -- you're willing to
3 take my word for it?

4 A I will take your word for it.

5 Q That's fine. Thanks.

6 And so by finely laminated and overlain in sharp
7 contact with massive pyrite, that means the zinc,
8 lead and copper are basically finely interlaced or
9 interwoven with the pyrite, correct?

10 A Correct.

11 Q And so now the rezoning application states on
12 Page 289 of the application, quote: Within the
13 project area, the potential sources of acid rock
14 drainage are, quote -- are limited to mineralized
15 rock from underground being temporary stored on the
16 surface.

17 Do you agree with that?

18 A Yes.

19 Q You agree that the potential sources of acid rock
20 drainage are limited to the rock that's stored on the
21 surface?

22 A Well, okay. I will correct that to say that
23 certainly I spent a lot of time talking about mine
24 wall --

25 Q Right.

1 A -- as another possibility.

2 Q Correct. The mine walls are another source of acid
3 rock drainage, correct?

4 A They are another potential source, yes.

5 Q Correct. Okay. And you state on Page 6 of your
6 written testimony that, quote: The combination of
7 air and humidity from groundwater seepage in the
8 underground openings generates conditions that could
9 cause production of acid rock drainage and metal
10 leaching if the mine walls contain pyrite without
11 accompanying minerals to contribute neutralizing
12 capacity. Correct?

13 A Yes.

14 Q And you have no sampling right now to show that the
15 mine walls would have minerals that would neutralize
16 the acid, correct?

17 A I would -- yes, that's correct.

18 Q Okay. And the mine walls would be exposed to air and
19 humidity throughout the time of active mining,
20 correct?

21 A Correct.

22 Q And they would also be exposed throughout the time,
23 you said, of the filling -- once the mining was done
24 and the water was filling back into the mine
25 workings, correct?

1 A That -- I believe I spoke to that in a lot of detail,
2 yes.

3 Q And is it also possible that if water levels
4 fluctuate so -- get drier or refill, that could also
5 cause a time when there's reintroduction of oxygen
6 into those areas?

7 A Maybe.

8 Q Okay. And also, we heard Mr. Ouellette talk to us
9 earlier about the sequence of mining and that there
10 will be some mining at upper levels -- I think even
11 before some of the lower levels.

12 A Mm-hum.

13 Q So the upper levels are not going to get filled up
14 with water until the mining of the lower levels is
15 complete and then those get filled up first, right?

16 A Correct.

17 Q So those upper levels are going to stay exposed to
18 air and water for the whole time until -- until
19 Wolfden gets through with getting down to the bottom
20 and mining all the lower levels, correct?

21 A Not necessarily. And the reason is, is once they
22 finish a stoke, and that's one of those long cuts
23 where they extract the ore, they backfill it. And
24 when it's backfilled, it no longer has ventilation in
25 there. It's -- the system is a -- not completely

1 disconnected from the air that's in the underground
2 from ventilation, but it's significantly
3 disconnected.

4 So I would contend that those upper layer -- the
5 period of reactivity is the period of active
6 mining --

7 Q Mm-hum.

8 A -- with some period following as they backfill them.

9 Q And you're talking about that upper layer. You're
10 saying once they backfill it, it won't be -- there
11 won't be as much room for oxygen to get in?

12 A Correct.

13 Q But there will be some room, it just will be less; is
14 that --

15 A No, I'm saying it will very difficult to get oxygen
16 throughout the entire length of that stoke once it's
17 backfilled.

18 Q Okay.

19 A There's no driver.

20 Q There's no --?

21 A There's no mechanism for driving oxygen into the
22 stoke.

23 Q Okay. And you talked to us -- you spoke to us
24 earlier in your testimony about field tests and
25 laboratory humidity cell tests that would, excuse me,

1 expose sample rock to air and water and determine how
2 long it would take to -- for acid mine drainage to
3 occur, correct?

4 A Correct.

5 Q But that testing has not started yet; is that right?

6 A Correct.

7 Q And you also talked about an acid-based accounting
8 test, correct?

9 A Correct.

10 Q And that was done on seven samples; is that right?

11 A Yes, sir.

12 Q But more than 7,000 core samples have been taken from
13 the Pickett Mountain Deposit, correct?

14 A I believe that's the number. I don't know it
15 exactly.

16 Q All right. And those samples were used to determine
17 the mineral resource estimate; is that correct?

18 A Yes.

19 Q You stated that -- I believe in your PowerPoint that
20 we just -- we just saw that you would want to collect
21 samples of all rock types and conduct laboratory
22 testing on them, correct?

23 A Yes.

24 Q And the number of samples of each rock type is tied
25 to the amount of each rock type to yield

1 representative results, correct?

2 A Correct.

3 Q And you're not contending that those seven samples
4 that have been done thus far are enough to satisfy
5 those things that you want to do, correct?

6 A I am not contending that.

7 Q You would want to take a lot more samples, correct?

8 A Correct.

9 Q And you would want to do a lot more tests?

10 A Yes.

11 Q And so -- and with regard to the seven samples that
12 were tested with acid-based accounting, those samples
13 were not from the orebody itself, correct?

14 A Correct.

15 Q They were from the parts on the side -- either side
16 of the orebody?

17 A Correct.

18 Q So those samples don't tell us whether or not the
19 orebody would be acid -- potentially acid generating,
20 correct?

21 A To be quite honest, I don't need an ABA test to tell
22 me the ore would be acid generating.

23 Q Because -- because you believe it definitely would be
24 acid generating, correct?

25 A Yeah.

1 Q Okay. So there's no doubt that the orebody itself
2 will be acid generating?

3 A Correct.

4 Q Okay. And so when we're talking about what those
5 seven tests tell us, we're talking about -- they tell
6 us -- if they tell us anything, they tell us
7 something about what can be done outside of the
8 orebody or what the potential acid-generating
9 capacity is outside of that orebody, correct?

10 A Correct.

11 Q Okay.

12 MR. DUDEK: Can I have a comment?

13 MR. BLOOM: Well, I'm going to ask you questions,
14 too, so I bet you will --

15 MR. DUDEK: (Inaudible) -- directly with that.

16 CROSS-EXAMINATION OF: MR. DUDEK

17 BY MR. BLOOM:

18 Q What would you like to say?

19 A We've collected, as I said, over 1800 samples that
20 geochemically characterize the rock, not for ABA, but
21 our data -- so the seven samples, three of which are
22 potentially acid generating, are consistent with the
23 geochemistry and the observations that we've made
24 during the drilling programs and the cores that we've
25 logged.

1 So the point is that we have a relatively good
2 understanding of the surrounding rocks, and I don't
3 disagree that the deposit itself will probably
4 generate acid if left behind.

5 The second part is the bulk of the massive
6 sulfides that are there are ore. So we will strip as
7 much of that as we can out of the rock, we'll leave
8 behind as little as possible because it will go
9 through the mill because it's economic.

10 Q Well, and you were talking -- when you testified, you
11 said, oh, this one is 55 percent zinc, right?

12 A Sure.

13 Q But we heard earlier, and I think it's stated in the
14 application, that the overall deposit is around
15 9 percent zinc, correct?

16 A Zinc equivalent.

17 Q Zinc equivalent.

18 A The overall deposit based on the PA is about
19 19 percent.

20 Q 19 percent. But that's in the 55 percent?

21 A No --

22 Q And in fact, you don't dispute that the preliminary
23 economic assessment says that the high sulfide
24 material is 45 to 60 percent pyrite, correct?

25 A It depends on where you were on the deposit.

1 Q But that's what it says in the preliminary economic
2 assessment?

3 A More average for the east zone compared to the west.

4 Q But that's what it says in the actual document?
5 That's the only thing we have in the application that
6 I've seen that talks about the pyrite levels.

7 A Understood.

8 Q Now, when we're -- when we're -- you mentioned
9 this -- I'll turn to you so it's -- since you
10 mentioned these 1800 samples, and I saw you mention
11 that in your prefiled testimony, that's not presented
12 in the rezoning application, correct? The
13 description of those 18 --

14 A No, this is just part of the work that we would do,
15 normal course, for our exploration programs.

16 Q Right. And that -- that hasn't been presented to the
17 LUPC?

18 A No, because it doesn't directly apply. It is just
19 visual reference and comparison.

20 And so when we collect the ABA samples, we see
21 the connection between what is potentially acid
22 generating and what is not and it matches our
23 chemistry of the 1800 samples we collected.

24 So from a high level, we have a reasonably good
25 understanding of what's potentially a problem and

1 what's probably not.

2 Q All right. I want to understand what's in the
3 application is those seven samples, correct?

4 A Yup.

5 Q And those seven samples are not from the orebody?

6 A That's right.

7 Q And there were 7,000 samples that were taken to
8 establish the mineral estimate?

9 A That's what you normally do.

10 Q Okay. And so now, I want to also -- let's -- I'd
11 like to take a look at -- can we pull up Mr. Dudek's
12 PowerPoint, actually? I just want to ask a couple
13 questions about it because, you know, these are some
14 new things. And we got a copy of this, I believe,
15 Thursday night at like 9:00 p.m. So I'm going to
16 have to do this a little bit on the fly with you
17 because I don't think this has been submitted before.

18 So if we could go to the next -- next page. We
19 go to the next page after that, the next slide.

20 So this regional geology -- I just want -- this
21 wasn't -- you didn't put this in the application,
22 correct, regional geology?

23 A That's relatively new.

24 Q Relatively new. Okay.

25 Can you go to the next slide?

1 And this -- or this diagram on stratographic
2 section of the Pickett deposit area, that's also not
3 in the application, correct?

4 A Yeah, we created that for a field tour that happened
5 at Pickett a little over a week ago.

6 Q A little over a week ago. Got it.

7 Okay. So that wasn't also -- it couldn't have
8 been in your prefiled testimony because that was a
9 few weeks before that?

10 A Yeah. And we're just trying to -- the object of this
11 is to bring understanding.

12 Q Bring understanding. Got it. But -- okay.

13 Can we go to the next slide?

14 All right. And here you're just talking about
15 how -- generally how volcanic massive sulfides work,
16 right?

17 A Yeah the deformation to create a steep deposit versus
18 a flat one.

19 Q Okay. Can we go to the next one?

20 Okay. West zone -- I'm not sure. This one might
21 have been in the application. I'm not sure. It
22 looks a little familiar to me, so --.

23 Let's go to the next one. And the next one --
24 actually, can you go back?

25 And so you have a little note here, point low

1 alteration in the rocks, right?

2 A Yep.

3 Q That low alteration levels in the rocks, that wasn't
4 discussed in the application, correct?

5 A That nuance, I'm not sure. It just -- there is a
6 difference between the west zone and the east zone
7 footwall or to the left in that diagram.

8 In the west zone there's more alteration, not
9 consistently complete, but there's more. In the east
10 zone, there's virtually none.

11 Q Yeah, and my question was just: Was that information
12 provided in the application? So like me, as an
13 attorney looking at this, I really don't know.
14 I have to send it to my expert, you know, who can
15 tell me what to think about this. And so, you know,
16 if it's not in the application, it's hard for me to
17 ask a good question about it, but I was just going to
18 ask, was it there?

19 A I am not sure.

20 Q You're not sure. Can we go to the -- actually, the
21 prior one, quickly. Prior -- prior one.

22 Yeah, I see there's another note about low
23 alteration in the hanging wall. Just the same
24 question. As you said, you're not sure if the
25 alteration was discussed in the application, right?

1 A (Nods head affirmatively.)

2 Q Can we go two slides down now? Now this slide is
3 rock chemistry analysis to date.

4 Is that where you referenced that 1800?

5 A (Nods head affirmatively.)

6 Q And that's not in the application either, correct?

7 A Yeah, it's just characterization.

8 Q It's just -- so -- but it's not something I've had a
9 chance to see or my expert has had a chance to see.

10 MS. BROWNE: So could I just comment that part of
11 his testimony is rebuttal to what was presented by
12 the intervenors, so that's why --

13 MR. BLOOM: I understand it's rebuttal. My point
14 is just the LUPC hasn't seen this -- we haven't seen
15 this. This is just new stuff that you're presenting
16 here today and LUPC can do with it what it wants, but
17 I'm just saying we haven't seen it.

18 BY MR. BLOOM:

19 Q Can we go to the next slide?

20 Do you know if this was in the application.

21 A I don't remember the details.

22 Q You don't remember the details? I don't remember
23 seeing it, but that -- it was a thousand pages, so --

24 A But that image, or ones like it, have been presented
25 by Wolfden many times.

1 Q Okay. So maybe that is -- I won't represent one way
2 or the other. I'm not going to put words in your
3 mouth.

4 Okay. So let me see. I have some -- I know my
5 time is running short, so --.

6 Oh, Dr. Finley, I had a question for you.

7 CROSS-EXAMINATION OF: DR. FINLEY

8 BY MR. BLOOM:

9 Q You mentioned with regard to the acid-based
10 accounting that you want to actually confirm those
11 results with further tests, correct?

12 A Yes.

13 Q So you wouldn't just rely on the -- this -- what's
14 called, I think, preliminary acid-based accounting at
15 this, you know -- would you?

16 A Those I would consider indicative results.

17 Q But you would want to do more tests to understand the
18 potential for acid generation, correct?

19 A Absolutely.

20 Q Okay. And you had a slide -- I can't remember which
21 one of you had the slide of the stages of, you know,
22 geochemical characterization and exploration. And
23 you said that there was like the top stage,
24 exploration, that's where you're at. And then there
25 was a lot of other stuff that went below and you said

1 a lot of that's going to happen in the 200 -- Chapter
2 200 process, right?

3 A Correct.

4 Q So that hasn't happened yet?

5 A Correct.

6 Q So there's a lot of stuff we don't know at this point
7 about the potential for acid generation, correct?

8 A Yeah.

9 Q Okay.

10 A I mean, we have a good indication.

11 Q But there's a lot we don't know?

12 A Yeah.

13 MR. BLOOM: All right. That's all I have.

14 MR. WORCESTER: I guess it's up to the staff to
15 keep this game going. Anyone have any questions?

16 MS. HILTON: Oh, I'll ask one. I don't know how
17 relevant it is.

18 So I believe that this material is going to be
19 crushed underground; is that correct? I don't --
20 I guess, is it the ore or the rock? And I'm just
21 wondering what effect that has on the generation of
22 acid.

23 DR. FINLEY: So I can answer that question.

24 I'm not quite sure about the detail of the mining
25 process --

1 MS. HILTON: Okay.

2 DR. FINLEY: -- but just in general, smaller is
3 more challenging, bigger much less. But there are
4 details in that as well.

5 So it's possible, in some deposits -- you collect
6 a sample, send it to a laboratory for acid-based
7 accounting, it comes back, it looks like PAG. But if
8 you look in detail and then you put that same sample
9 in a humidity cell test and it never makes acid over
10 a very long period of time and scratch your head and
11 wonder what heck is going on.

12 If you look at the mineralogy and thin section,
13 the pyrite grains are actually encapsulated with
14 other minerals. So even though it's a small piece
15 the part of the pyrite that's exposed to react is
16 even smaller and so it just can't really do much.

17 So, again, without having -- that's got to be
18 part of the geochemical characterization is to
19 understand the nature of the -- and the relationship
20 of pyrite in the rock with the rest of the minerals
21 and then these other standard tests that talk about
22 reactivity. But yes, in general, smaller, more
23 problematic.

24 MR. WORCESTER: So what's the size of the ore
25 when it comes out of the -- on average?

1 DR. FINLEY: Sorry, one more time?

2 MR. WORCESTER: What is the size of the ore when
3 it comes out of the mine?

4 DR. FINLEY: Again, that goes to the question
5 whether there's any crushing that's done underground.

6 If it comes up as, you know, the material from
7 the blast, it's going to be variable. But again, the
8 ore doesn't stay very long before it's -- just for
9 purposes of the Pickett project and that land
10 surface, it does not reside there very long.

11 MR. WORCESTER: So when it comes out of the
12 ground, it goes into these holding areas that are
13 lined; is that the --

14 DR. FINLEY: No, I'm sorry, sir. Excuse me.
15 They are lined. They actually have a double liner
16 system designed for those.

17 MR. WORCESTER: That's aboveground?

18 DR. FINLEY: Yes. That's very unusual in the
19 mining industry.

20 MR. WORCESTER: And then how do you get that ore
21 off that double lining into a truck?

22 DR. FINLEY: That's for the engineers to tell
23 you. Very carefully.

24 MR. WORCESTER: I wouldn't have the skill to do
25 it without putting the liner in there, too.

1 DR. FINLEY: Well, there's probably what are
2 called rub sheets, but, again, I hang out with a
3 bunch of geotechnical engineers so I have words
4 sometimes that I don't know what they were, Scrabble
5 words.

6 MR. WORCESTER: Betsy?

7 MS. FITZGERALD: Don, would you talk a little bit
8 about the core samples that you have in front of you,
9 please? You referenced them, and I'd just like to
10 know a little more.

11 MR. DUDEK: Okay. Thank you.

12 So there's four samples. These two samples are
13 from below or to the left side of the deposit to the
14 north. And so this one here is quite altered. It's
15 got chlorite in it and it's got a fair amount of
16 sericite, so these are broken down minerals in the
17 rock as a whole, and it has about 2 to 4 percent
18 finely disseminated pyrite.

19 If there was a rock that would create --
20 potentially create acid, it'd something like this,
21 but you can have a look at it closer. It doesn't
22 look like a lot. So it -- there's -- it's not a --
23 what I'd say a huge risk, but there is a risk
24 associated with it.

25 This sample is from underneath -- so this is from

1 underneath the west zone. This is from underneath
2 the east zone. This one is weakly to no-altered
3 rock. Same rock type. This is subjected to
4 hydrothermal activities, hot fluids going through the
5 rock. This one not.

6 The likelihood of this generating any acid is
7 what I would deem low because there's no pyrite in
8 it. There's no sulfite. There's no sulfur.

9 And so this is where the details really count on
10 a deposit. The east zone, both left and right of the
11 deposit, there's no appreciable sulfides. So, again,
12 the likelihood of generating acid are low.

13 In the west zone, to the right or the structural
14 hanging wall of the deposit, there's no sulfides.
15 It's a different rock package, probably more acid
16 neutralizing.

17 To the left of the footwall, it's variably
18 sulfidic.

19 The degree of alteration associated with the
20 sulfide really depends on the permeability of the
21 initial rock. So there are areas in the footwall of
22 the west zone where the rocks were really massive,
23 like massive flows from a volcano. No fluids went
24 through that at all. And so it's not altered. It's
25 neutral rock.

1 The one in the middle, and again to feel the full
2 impact is to lift it. This is a high-grade massive
3 sulfide. This would be the ore. And again, one of
4 the points I was trying to make is that the bulk of
5 the sulfide mineralization is economic. We don't
6 want to leave anything economic underground, so we
7 will do the utmost we can not to leave something that
8 could generate acid.

9 This particular one is 55 percent.

10 MR. ELWELL: Excuse me, Mr. Dudek. I'm just
11 going to interrupt you for a second.

12 Are those examples going to be introduced as
13 exhibits?

14 MS. BROWNE: Yes, we provided a photograph.

15 MR. ELWELL: Okay. If possible, could you try to
16 refer to the rocks you're holding up as their exhibit
17 name so that when people are looking back at the
18 record, they know what you're referring to?

19 MR. DUDEK: I didn't give them a name in the
20 photograph.

21 MS. BROWNE: Sorry. We'll pull it up so that we
22 can come back and identify A, B, C and D.

23 And I don't know, Don, if you remember the order
24 of the pictures?

25 MR. WORCESTER: These were considered pet rocks,

1 so you have to name them.

2 MR. DUDEK: Well, this is Fred.

3 MR. ELWELL: To the extent you just want to
4 describe them in a way that it would be easier for
5 people --

6 MS. BROWNE: Yeah, I think if he describes it as
7 the orebody, then we know which one it is in the
8 photograph.

9 MR. DUDEK: Yeah. Well, this is the orebody.

10 MR. ELWELL: I think that would work.

11 MR. DUDEK: Yeah. And again, this is about
12 55 percent zinc equivalent. And as the comment was
13 made, that isn't necessarily representative of the
14 entire deposit, but it's more representative of the
15 west lands versus the east lands. And again, details
16 matter.

17 Most of the sulfide in here is zinc sulfide, then
18 it's followed by lead, copper, and then there's a
19 subordinate silver and gold. And very little pyrite
20 in a rock like this because it's so metal-rich.

21 This one -- and again, it's more greenish
22 colored. I don't think you'll see it from where you
23 are, but it represents the geological switch where a
24 different type of volcanism occurred.

25 The mineralizing system that altered this rock

1 that created this massive sulfide is gone. It's like
2 somebody snuffed out a candle and different package
3 of rocks comes through.

4 So you had a landslide and it flowed down over
5 top of the massive sulfides, and that's a good thing
6 for us because it preserved the massive sulfide
7 through time. If it was left on the sea floor, it
8 would just oxidize away. It would just disappear
9 over time. So I'm happy to see this rock because it
10 preserved this rock, which is the one we want, which
11 is the massive sulfide.

12 These rocks are more calcium-rich. They're
13 sulfur-poor. They're more likely to be
14 acid-neutralizing. And so backfilling with something
15 like this would be another mitigation action that Jim
16 would be talking about.

17 The other thing is that we probably can do the
18 bulk of the underground excavation in this, you know,
19 economically boring rock, and it will all go back
20 down -- actually, we'll probably have a deficit of
21 rock to put underground from the excavations because
22 the ore will be more than we're excavating on the
23 side. But would we want to use this stuff and does
24 Jim need to characterize it? Absolutely.

25 I hope that helps.

1 MS. FITZGERALD: It does. Thank you.

2 MR. ELLSWORTH: 45 or 50 years ago, I did some
3 drilling myself, core drilling, up in Bald Mountain,
4 and I think I heard you say that you had drilled
5 4,000 holes; is that what I heard?

6 MR. DUDEK: Over 200 holes at about 220,000 feet.

7 MR. ELLSWORTH: And was any of that ever run
8 through a plant or anything so that you could tell
9 overall what the consistency would be of the core
10 samples that you had?

11 MR. DUDEK: Well, the ore zone for mineralization
12 was subject to metallurgy, preliminary metallurgy,
13 and we have a general idea or a pretty good idea of
14 what the recovery characteristics of this material
15 would be. We need to do a bit more. You know,
16 I don't like the gold recoveries, and I don't like
17 the silver recoveries. I'd like to see more of that,
18 so I want to tweak it.

19 And again, it -- it a hundred percent depends on
20 the details of the mineralization within the sample.
21 So you have to get really down and deep and into
22 the -- into the weeds for this kind of stuff.

23 MR. ELLSWORTH: And just to clarify, how deep is
24 the deepest point that you're going to go to, how
25 deep did you drill that you found core?

1 MR. DUDEK: About a half mile.

2 MR. WORCESTER: Everett?

3 MR. TRUDEL: I don't know why I have a hard time
4 with this.

5 DR. FINLEY: We're all -- we're all together on
6 that.

7 MR. TRUDEL: Okay. Thank you.

8 Can I ask you -- we talked about pH, and at one
9 point, you were talking about some of your acid rock
10 running somewhere 8- to 9-plus pH; is that correct?

11 MR. DUDEK: So the -- the data that I showed for
12 the seven samples that are discussed, one of the
13 common tests that's run is called a paste pH.

14 MR. TRUDEL: Right.

15 MR. DUDEK: And the way you make it is you
16 basically make a mud pie consistency of a crushed up
17 sample and you put the pH prone in and look at it.

18 And so it's a great indication of the immediate
19 nature of the rock material. If it's undergone
20 oxidation, it will have a low pH. If it hasn't, that
21 rock -- those samples all were 8 or 9.

22 MR. TRUDEL: Do either of you gentlemen know what
23 the pH level is of the ponds or waterways even close
24 by or even in Maine for that matter?

25 DR. FINLEY: I don't know for sure, but I'm going

1 to guess based on what I've heard about that
2 chemistry that -- okay. So first of all, take a step
3 back, the pH of snowmelt, the pH of rainfall is about
4 5 and a half or lower. In fact, snowmelt can be
5 lower than that.

6 So in a system where the -- a pond or a lake is
7 predominantly influenced by surface runoff and not
8 groundwater so there's not been interaction with
9 rock, it can have a low pH. So some of those ponds
10 may be lower pH.

11 MR. TRUDEL: How would the -- if there was
12 runoff, it's my understanding that pH levels run
13 exponential, correct?

14 MR. DUDEK: It's a logarithmic, so it's ten
15 times the pH --

16 MR. TRUDEL: Correct, yes. So being said, if
17 we're looking at nine, we're look at thousands of
18 times or hundreds of thousands of times' difference?

19 MR. DUDEK: So -- yeah, pH of 9 would classify as
20 basic --

21 MR. TRUDEL: Okay.

22 MR. DUDEK: -- not at --

23 MR. TRUDEL: I thought 7 was.

24 MR. DUDEK: So neutral pH is 7.

25 MR. TRUDEL: Correct.

1 MR. DUDEK: So anything above it classifies as
2 basic, anything below.

3 So everybody knows about lye from their
4 grandparents or, you know, whoever made soap in the
5 day, right? And lye has a pH of around 12. And I'll
6 tell you, you get that on you and it will burn a hole
7 in you just like acid will.

8 So, again, most aquatic ecosystems function well
9 in a pH range of 6 and a half to 9, something like
10 that. It depends on the fish species.

11 MR. TRUDEL: So I guess my concern is, if there
12 was runoff, how would that impact water supplies
13 aboveground?

14 MR. DUDEK: Do you mean uncontrolled runoff,
15 or --

16 MR. TRUDEL: Uncontrolled, yes.

17 MR. DUDEK: Yeah. So, again, it depends on the
18 nature -- the bottom line is it -- it -- you've got
19 water coming out of the underground, you've got
20 runoff from temporary storage units, you have all
21 these systems that are contributing water to the
22 collection pond.

23 And so your question is two-fold.

24 One is, what if there's a release of water from
25 the temporary retaining pile, right, so it doesn't

1 get captured and go into the pond? What does that
2 chemistry look like?

3 Well, it depends on what the rock is that's in
4 the pile. If it's some kind of -- and you'll hear
5 more about -- from a colleague about the design of
6 that pond, but let's just say something happens and
7 water is released from that. It depends on what are
8 all these sources that fed into it.

9 So if it's poor water chemistry, it will have an
10 impact on the receiving waters.

11 MR. TRUDEL: Thank you, Doctor.

12 MS. BEYER: I have the same problem. So for
13 Dr. Finley, I have just two questions.

14 One is: In the situation where you have
15 potential for acid-mine drainage on the mine wall,
16 reactive, you said that there's something that can --
17 something would need to be done while the mine is
18 filling up in that kind of situation.

19 Can you give an example for two -- you know,
20 you've got to backfill, it's fill -- the mine's
21 filling back up. What could be done to address acid
22 drainage in that situation?

23 DR. FINLEY: Yeah, so what I would like to see
24 before that, I want to know whether or not the mine
25 walls are actually producing acidity or storing up

1 acidity in the mine walls.

2 So during the mining operation, I would contend
3 there should be a lot of work done to understand the
4 nature of the mine walls.

5 Okay. Let's say we do all that. I also
6 understand what the influence of the mine backfill
7 and cemented backfill is going to have on -- on the
8 chemistry because I can set up tests and run that,
9 right? It's not going to be exactly what conditions
10 in the underground would be, but it's going to be a
11 good indicator.

12 Let's say I do that. So I understand mine wall,
13 I understand the influence of backfill, et cetera.
14 Turn off the pumps and the water level starts to come
15 up and it's a different chemistry than we
16 anticipated. Let's say it's acidic, which it more
17 than likely would be if it's going to be something,
18 and metal-bearing.

19 So I'll just give you an anecdote from another
20 mine. And this is an open pit mine, but the Sleeper
21 Mine in Nevada, gigantic open pit, has some of the
22 worst mine wall rock chemistry you can imagine. They
23 had incredibly high pyrite content in their mine
24 walls. And when they turned off the pumps in Sleeper
25 Mine, they knew they were going to have a problem.

1 So they did two things: They filled it fast, as fast
2 as they could -- in fact, they diverted a river into
3 the pit to fill it as fast as they could, because
4 again, you turn off the oxidation reaction when you
5 submerge it. And then they added lime at the same
6 time. And I think I mentioned lime already.

7 And as a result of that, that's actually a
8 recreational fishery for an open pit, which if you
9 could see the size of this thing, it's, you know,
10 three miles across and, again, a thousand feet deep.

11 It's a gigantic feature on the landscape. And
12 they were able to manage the chemistry of the water
13 as it filled up before there was any discharge. And
14 that is -- would be one possibility.

15 The other is, if you had to, you could pump that
16 water and treat it and return the treated water back
17 in as it fills.

18 MS. BEYER: Thank you. And one more.

19 In asking for examples of mines that you felt
20 were successful in capturing and managing acid mine
21 drainage, you mentioned the Eagle Mine in Michigan.

22 Dr. Maest's testimony that was prefiled indicated
23 that there was increasing concentrations in the
24 groundwater down gradient of that mine.

25 So how does that equate with your

1 characterization that it's a successful mine?

2 DR. FINLEY: Yeah, so -- so -- and great point.

3 And it -- you can look at the same thing
4 differently. And one is, do you have control over
5 the -- the water budget of the mining operation?

6 And do you understand how the influence of the
7 underground mine is on the surrounding system?

8 So -- and quite honestly, I think the -- for me,
9 the question there is, is that an ongoing issue or
10 was it something that they didn't anticipate the
11 amount of water coming into the mine or a pump broke
12 and they didn't control the water level properly?

13 My understanding -- I looked at the records that
14 are submitted by Eagle Mine to the State of Michigan
15 for their typical reporting, and they don't have any
16 exceedances.

17 So a couple of things. One is there's a
18 difference between exceeding a permit standard or a
19 water quality limit on a chronic basis, which is to
20 say it's happening and you clearly don't have any
21 control, as opposed to a situation where
22 concentrations are increasing; they haven't exceeded
23 a permit limit or a water quality limit, but they're
24 increasing.

25 And in your permit, somebody like me wrote a

1 report that said the water chemistry will be X. So
2 the way I take that information is to say, you know
3 what, they need to not only exert control over
4 however the water is getting to a well -- first of
5 all, that shouldn't be happening because, like
6 I mentioned before, you exert a control on the
7 groundwater system as you lower the mine.

8 And, I'm sorry, I don't know the exact detail of
9 the situation, but with the increase in concentration
10 as well, that means you need to go back and revisit
11 how you predicted water chemistry in the first place.

12 So, again, I would distinguish between something
13 that happened as a course of the operation as opposed
14 to something that happened and still is continuing to
15 happen X years later.

16 Not to belittle exceeding a groundwater standard
17 in somebody's water supply well. That's a
18 significant issue.

19 MR. WORCESTER: We're taking a 15-minute break.

20 (Whereupon a recess was held at 3:00 p.m. and the
21 hearing was resumed at 3:13 p.m.)

22 MR. WORCESTER: Let's see. Applicant Panel 3?

23 MR. PETERS: Good afternoon. My name is Mark
24 Peters. I'm a senior associate engineer with
25 WSP USA, formerly Wood Environment & Infrastructure.

1 And for those of you who have been in Maine for
2 quite awhile, that is -- our legacy firm was EC
3 Jordan in Portland Maine. Started in 1860s.

4 I'm a licensed professional civil engineer and
5 currently a team leader of a group of civil engineers
6 and civil designers within the Portland, Maine WSP
7 Design Center.

8 I have nearly 40 years of civil engineering
9 design experience and have extensive experience in
10 expertise in stormwater management, expertise in
11 watershed hydrologic and hydraulic modeling, flood
12 plane assessment, determination and erosion control.

13 WSP was retained by Wolfden to develop the
14 conceptual stormwater collection system, specifically
15 the preliminary sizing and design of the pretreatment
16 water storage pond associated with the stormwater
17 runoff and melting snow from mine facilities that
18 could be potentially impacted with contaminants from
19 the mine activities.

20 In addition to the stormwater and snowmelt runoff
21 from the mine facilities, a base flow of 30 gallons
22 per minute was provided to WSP from the mine
23 dewatering to include in the total volume of water to
24 collect and store for treatment.

25 The collected surface water and mine water will

1 be treated to appropriate background water quality
2 standards and then returned to the environment, and
3 that will be discussed with Mr. Danyliw and
4 Ms. Turner.

5 This slide provides the conceptual mine site
6 layout. Jeremy on his earlier testimony provided
7 some detail on the mine facilities during his
8 testimony. The blue shaded areas include the mine
9 facilities where surface runoff water will be
10 collected in the pretreatment water storage pond for
11 treatment.

12 The areas where the surface runoff will be
13 collected in treatment include the pretreatment water
14 storage pond itself, which is shown as drainage area
15 6A, and is approximately 3.25 acres. It also
16 includes some of the embankment slopes besides the
17 pond itself.

18 The primary Phase 1 mine facility shown as
19 Drainage Area 7A consists of about 22.2 acres, and
20 that includes the ore and waste rock pads, backfill
21 plant, mine access portal, mine roads and other
22 associated facilities.

23 The Phase 2 mine facility shown as drainage area
24 13A consists of approximately three acres and that
25 also includes pads for ore and waste rock and a head

1 frame and hoist.

2 Mine traffic leaving the mine collection areas
3 would be required to go through a washing pad prior
4 to exiting those -- those collections areas.

5 This table just lists the mine facilities where
6 surface runoff would be collected and stored in the
7 pretreatment water storage pond prior to treatment
8 and is shown on the conceptual mine site layout on
9 the previous slide.

10 The major mine facility collection areas include
11 the ore pads, waste rock pads, backfill plant, mine
12 roads and the mine access portal as well as snow
13 storage, and the total areas is approximately
14 28.4 acres.

15 The stormwater runoff calculations were conducted
16 using USDA technical release 20 or TR20 methodology.
17 Using HydroCAD software. TR20 is a fully accepted
18 standard engineering method for calculating
19 stormwater runoff.

20 This stormwater evaluation is relatively
21 straightforward and the stormwater analysis is
22 something conducted for our development projects, no
23 matter what type. The main difference is how the
24 stormwater is managed.

25 For this project surface water from the

1 collection areas will be stored, treated and returned
2 to the environment. For this analysis in determining
3 the required storage volume, it was assumed during
4 the 24-hour storm event no discharge from the pond
5 would occur. In other words, no discharge to the
6 treatment plant during the 24-hour period. As well
7 as ignored any additional storage in collections
8 systems such as containment pads, sumps and
9 collections trenches.

10 As required in the Chapter 200 analysis, the
11 precipitation used a 500-year storm event in the
12 analysis. The precipitation was taken from NOAA
13 Atlas 14 and, for the mine site, the 500-year 24-hour
14 storm event is 7.82 inches.

15 For context, the Chapter 400 Maine Solid Waste
16 Management rules for landfills requires stormwater
17 design be based on a 25-year storm event. This is
18 also the case for other development projects that
19 fall under Chapter 500, Maine Stormwater Management
20 Standards, which also require just the 25-year storm
21 event.

22 This conceptual layout includes the pretreatment
23 storage pond with a preliminary area of 2.8 acres
24 graded to a depth of 10 feet. This table provides
25 the stage storage volume for the preliminary sizing

1 of the pretreatment water storage pond.

2 The total pond volume is 7.95 million gallons,
3 and the volume required for the 500-year storm is
4 approximately 5.1 million gallons.

5 For this preliminary evaluation, the water depth
6 in the pond for the 500-year storm event is 3.2 feet
7 below the top of berm and below the goal of providing
8 a 2-foot freeboard volume contingency.

9 You can also see on the pond section there, the
10 water depth for a 25-year storm event from the runoff
11 from the mine collections areas. As I stated
12 previously, the required storage volume for the
13 pretreatment water storage pond assumes no discharge
14 from the pond as occurring for the water treatment
15 and ignores additional storage volume that would be
16 provided in the water collections system itself.

17 MR. ELLSWORTH: Question if I may?

18 MR. PETERS: Sure.

19 MR. ELLSWORTH: What are you going to do about
20 sedimentation, how are you going to -- how are you
21 going to -- while you're using the pond?

22 MR. PETERS: Typically what's -- what you do is
23 you have -- you have a ramp and you go down and you
24 clean it out.

25 MR. ELLSWORTH: Okay.

1 MR. PETERS: Intervenor No. 2 brought up the
2 issue of climate change. The previous slide showed a
3 storage volume contingency of more than 3 feet of
4 freeboard is provided in the pond during a 500-year
5 storm event; however, in order to validate the pond
6 storage volume contingency, several conservative
7 conditions were evaluated, including potential
8 increase in precipitation due to climate change, as
9 well as increasing the dewatering flows from the
10 mine.

11 This slide shows the results of a future climate
12 precipitation tool, ClimateEVA, developed by WSP. It
13 can estimate a potential future precipitation event
14 for a specific site. The prediction tool uses
15 greenhouse gas concentration scenarios or
16 representative concentration pathways, or RCP,
17 adopted by the Intergovernmental Panel on Climate
18 Change. The results show a potential increase in
19 precipitation from 7.82 inches to 9.3 inches for the
20 500-year storm event in a -- 30 years into the
21 future.

22 This slide shows the output from the HydroCAD
23 stormwater runoff calculations used in the potential
24 500-year climate change precipitation of 9.3 inches.

25 In addition, with the concern that 30 gpm for the

1 mine dewatering is too low, the volume for the mine
2 dewatering was increased from 30 gallons to
3 300 gallons per minute, and the results show using
4 the same size pond, that you still had a foot of
5 freeboard for this increased flow condition.

6 This table provides the stage storage volume for
7 the pretreatment storage pond with the increased
8 surface runoff in dewatering flows described on the
9 previous slide.

10 The final design and the sizing of the
11 pretreatment water storage pond as well as the
12 collections systems will be based on obtaining more
13 detailed site-specific data as well as -- as such as
14 refining the dewatering rates, detailed topographic
15 surveys, geotechnical investigations that will be
16 collected and developed as part of the Chapter 200
17 process.

18 I guess the bottom line is, if required, the
19 sizing can be easily increased based on detailed
20 design.

21 Concerns were raised about leak -- liner leaking
22 and there would be bypass of impacted water. This is
23 an example of a liner system -- a double liner with a
24 leak detection layer that drains to a monitoring sump
25 that is inspected on a regular basis.

1 This type of liner would be used for ore storage
2 pads in the pretreatment water storage pond.

3 Relatively recent innovations within the last
4 20 years in liner materials and leak detection
5 methods have been made, and this allows for high
6 quality liner system insulations and liner leakage
7 can be essentially nondetectable.

8 This is done by selecting a liner material
9 appropriate for the exposure, providing an
10 appropriate protective cover to prevent damage during
11 operations. Conducting stringent construction
12 quality assurance, or CQA, during installation plays
13 an important role in producing a high quality
14 containment system, and this can include electrical
15 leak integrity surveys.

16 These surveys are nondestructive CQA tests to
17 locate leaks and defects during installation of the
18 liner, and they can also be done once the liner is
19 covered. And there are several test methods
20 available depending on whether a liner is covered or
21 not covered and are able to detect holes as small as
22 a pin hole.

23 In addition, using a high quality electrically
24 conducted gear membrane, or leak location liner, make
25 it possible to detect leaks on wrinkles or other

1 nonconductive surfaces, and it allows the liner to be
2 retested as often as necessary.

3 That means during operation, you can -- you can
4 test it to make sure that the integrity is maintained
5 over the life of the project.

6 In the last 15 years I've had approximately a
7 dozen projects where I have specified electrical leak
8 integrity surveys for landfill, leachate ponds and
9 process ponds, with most of these projects including
10 double liners with leak detection systems. And
11 during the construction for a lot of these projects,
12 there would be some leaks detected using this method
13 which were repaired before it went into operation.

14 The project will also require preparation of
15 operations and a maintenance plan that would include
16 regular inspections and monitoring such as inspection
17 of the condition of the liner, protective covers for
18 damage, monitoring of leak detection sumps,
19 conducting electrical leak detection surveys, as well
20 as testing monitoring wells and surface waters.

21 Also the project has a finite life, well below
22 the durability and life expectancy of high quality
23 geomembrane liner materials. The detailed design of
24 liner systems would -- will be done as part of the
25 Chapter 200 process.

1 Thank you.

2 MS. HILTON: I have a question.

3 MR. PETERS: Sure.

4 MS. HILTON: So what -- during closure, what
5 happens to the liner when -- with the whole, yes,
6 closer of the system -- of the facility?

7 MR. PETERS: Those -- those get pulled up.

8 I've had some projects where we've used temporary
9 geomembrane liners and they were pulled up and then
10 those were actually recycled.

11 MS. HILTON: Okay. Thank you.

12 MR. ELLSWORTH: I'd like to ask the same question
13 again, because I -- maybe I didn't hear you last
14 time.

15 I'm assuming in this pre-pond before the
16 treatment system that there's going to be a lot of
17 sedimentation, and I didn't hear exactly what you
18 said. I'm sorry, I'm a little deaf in one ear.

19 MR. PETERS: Removal of sediment would be a
20 regular maintenance activity, and typically what you
21 do is you have a ramp that you can drive equipment
22 down.

23 MR. ELLSWORTH: Yep.

24 MR. PETERS: You know, a skid steer or something,
25 and scoop out the sediment.

1 MR. ELLSWORTH: And so you're -- you have -- that
2 pond has no capacity while you're doing that, though;
3 is that correct, you've got the single pond --

4 MR. PETERS: Yeah, you would have plan it based
5 on the weather reports, definitely.

6 MR. ELLSWORTH: So if it's -- you're going to
7 clean it when it's fairly low, I guess -- I keep --
8 I'm just -- I had -- I've actually been in charge of
9 a landfill before, so I know about the detection and
10 the liners and those type of things from paper --
11 when I worked for the paper mill.

12 But the -- the -- you know, usually you have a
13 lagoon and another lagoon so that you can swap. Is
14 that -- was that ever considered here so that you
15 could split it so that you could drain the water out
16 of one side, clean it?

17 MR. PETERS: Well, the design -- detailed design
18 for that hasn't been done, but you certainly could
19 have it petitioned in the mill so you could --

20 MR. ELLSWORTH: Well, I think --

21 MR. PETERS: -- fluctuate between the two.

22 MR. ELLSWORTH: I think it would be advantageous
23 to the process of making sure that we're able to keep
24 the sediment out of the pond because it -- if you're
25 going to be pumping from down in the mine where

1 trucks are running and everything else is running,
2 you're going to have a lot -- a lot of sediment,
3 which if it fills up 3 or 4 feet of the pond, you're
4 got no capacity anymore.

5 MR. PETERS: Yeah, that would definitely have to
6 be part of the regular maintenance.

7 Thank you.

8 MR. DANYLIW: Hello, everyone. My name is Brian
9 Danyliw. I'm the principal consultant with Mine
10 Water Service. I was responsible for the water
11 treatment scoping study.

12 With me today is Dr. Paul Thoen. Paul has --
13 well, back up.

14 I have about 42 years of experience in the water
15 treatment industry and specifically in water
16 treatment in the mining industry throughout the
17 world, at different types of mines, different water
18 treatment challenges.

19 Sitting to my right is Dr. Paul Thoen. Paul has
20 over 25 years of experience specifically in membrane
21 filtration, which is ultrafiltration reverse osmosis
22 plant design engineering, installation, and
23 operation, including many plants in the mining
24 industry.

25 So I'm going to do the presentation. Dr. Thoen

1 is here to answer questions that are particularly in
2 his area of expertise with respect to the plants.

3 So to begin with -- let's see if I can get this
4 to -- just as a quick overview of the proposed
5 treatment process. So it is what is referred to as
6 membrane filtration. And that encompasses ultra
7 filtration, nanofiltration, reverse osmosis. They're
8 all based on membrane technology.

9 It's a two-stage treatment. The first stage is
10 ultrafiltration, which is a pretreatment stage for
11 the reverse osmosis step in the process. And it's
12 designed to remove suspended solids, fine particles.
13 To give you an idea of context, the size, it will
14 remove particles down to sort of the size of bacteria
15 or red blood cells. That's what the ultrafiltration
16 stage takes out. It's a very fine filtration.

17 The next step is the reverse osmosis process.
18 And so osmosis is a process of equilibrium of --
19 through a semi-permeable membrane. And so what that
20 means is, if you have a semi-permeable membrane and
21 you put water with contaminants in it on one side and
22 pure water on the other side, they -- it will
23 equalize. Okay?

24 Reverse osmosis, we use the same principle, but
25 instead of allowing it to equalize, we put pressure

1 on one side. And by putting pressure on one side of
2 the membrane, we force pure water through the
3 membrane, and we concentrate the contaminants or non
4 water components on the pressurized side of the
5 membrane. So that's how we separate water from other
6 things that are in the water.

7 Yes?

8 MS. FITZGERALD: I don't want to -- can you
9 equate that to landscape fabric?

10 MR. DANYLIW: Well, sort of. You can, actually,
11 because it's a semi-permeable membrane because water
12 will go through it, but large particles of dirt
13 won't, right?

14 MS. FITZGERALD: Yes, but --

15 MR. DANYLIW: So it's the same type of principle
16 except that the holes, instead of being very coarse
17 and allowing a lot of different things to go through,
18 are so tiny that basically only water can go through.

19 MS. FITZGERALD: Okay.

20 MR. DANYLIW: Okay? So it's like a really,
21 really fine filter.

22 MS. FITZGERALD: Gotcha.

23 MR. DANYLIW: Okay. This just is a pictorial of
24 what an actual RO membrane looks like. So they're
25 round -- they're round wound membranes.

1 The feed water goes in one end, that's the raw
2 water that's being fed into the process. And that
3 osmosis takes place where the water molecules pass
4 through the membranes and the contaminants are
5 concentrated in a smaller volume that don't pass
6 through.

7 Eventually the clean water makes it to the center
8 and comes out in the center of the -- through the
9 center of the membrane, and the dirty water is coming
10 out through the side of the membrane. Okay?

11 So just some terminology as far as names. The --
12 so the feed water is the raw water that's going in.
13 Permeate is basically treated water. So that's the
14 clean water. And then the concentrate is often
15 referred to as brine. So we'll hear -- we have
16 comments and discussions about the brine being
17 produced from the system; that's that concentrate of
18 the contaminants.

19 So this chart just shows kind of the different
20 types of filtration. And I just bring it up to show
21 you kind of what the different stages in the process
22 are going to remove. Okay? And if my animation
23 works correctly, and it does, the first step is
24 ultrafiltration. So you can see the types of things
25 that -- and the size that get removed by ultra

1 filtration. So that's down to about .1 micron.

2 So we're talking viruses, we're talking, you
3 know, smaller than bacteria, as I mentioned. And
4 then the next step is on the far left of the diagram,
5 and that's reverse osmosis.

6 And so reverse osmosis is able to remove
7 impurities in water down to essentially atomic radii.
8 So atomic radii means atoms. Okay?

9 So any type of contaminant that's in the water is
10 an atom or a molecule, and reverse osmosis is able to
11 reject down to atomic sizes. Okay?

12 So essentially what you can create with reverse
13 osmosis process is -- is pure water with all of the
14 impurities removed. Okay? So this is used
15 extensively, it has been for years, in places where
16 they need ultra pure water, and that would include
17 things like the pharmaceutical industry,
18 semiconductors, feed water for high pressure boilers
19 for power generation.

20 All of these processes require ultra pure water
21 to function. And so reverse osmosis has been used in
22 that capacity for many years.

23 MR. WORCESTER: I have a question for you.

24 MR. DANYLIW: Yes.

25 MR. WORCESTER: I would assume that this holding

1 pond is going to have a lot of acidic runoff in it
2 just because of the nature of the dust and the travel
3 and the runoff and all of that.

4 So when this sediment is cleaned from the bottom
5 of this holding area, how are you dealing with that?

6 MR. DANYLIW: That's -- the ultrafiltration is
7 designed to remove any suspended materials that come
8 into --

9 MR. WORCESTER: I understand, but there is a
10 residue on one side of that filtration system,
11 correct?

12 MR. DANYLIW: Yes.

13 MR. WORCESTER: And how's that being treated?

14 MR. DANYLIW: The solids from the ultrafiltration
15 process step are treated internally in the treatment
16 plant through one of side processes that is in the
17 process flow diagram.

18 MR. WORCESTER: Okay.

19 MR. DANYLIW: Yeah.

20 MR. WORCESTER: I assume that that material was
21 like mud when you take it out of the bottom of that
22 holding area.

23 MR. DANYLIW: You're talking about the sludge
24 that's dewatered from the --

25 MR. ELLSWORTH: Sediment. He's talking about

1 sediment, I think.

2 MR. DANYLIW: Yeah. And I'm sorry, but I would
3 have to defer to someone else on the team.

4 MR. WORCESTER: Okay.

5 MR. DANYLIW: That's -- my area of expertise is
6 in the treatment of the water.

7 MR. WORCESTER: When the right person comes up,
8 signal me.

9 MR. DANYLIW: Okay. So the only thing that
10 reverse osmosis actually can't take out or doesn't
11 take out is dissolved gases. And there were some
12 questions about that in the prefiled testimony from,
13 I think, Dr. Maest. And I'll address that later in
14 this presentation.

15 I do want to, at this point, talk about the --
16 the pre-file testimony with respect to the claims
17 that the data -- water data from the Halfmile Mine
18 wasn't representative or not substantiated enough to
19 provide a reasonable comparison and that there's a
20 further assertion in the pre-file testimony that
21 because of this lack of influent water quality
22 information, the whole model is rendered useless.

23 I would propose that -- or I believe that the
24 Halfmile Mine is a good example, actually, of the --
25 a good proxy for an underground mining operation.

1 We've heard from geology that there's a very --
2 it's a very similar orebody and very similar in
3 nature. It's also, in my experience, a pretty good
4 model for an underground operating mine, base metal
5 mine.

6 So I believe that it is good data, and while not
7 all of the parameters are available, I would say that
8 the modeling still provides a very good example of an
9 underground water quality that demonstrates the
10 ability of the proposed treatment system to reach the
11 required water quality for discharge.

12 And finally, as stated previously, the technology
13 being used, which is reverse osmosis, is capable of
14 removing any impurities from water. So anything that
15 might be encountered, the RO system can take it out.

16 So from a design standpoint, we're talking about
17 a two-pass RO system that will meet the water quality
18 requirements dictated by background water quality.

19 The system is modular. So all RO systems are
20 modular. You can add another train of RO membranes
21 if required, so you can incrementally improve the
22 water quality by adding additional trains. You can
23 also handle additional volume if required by simply
24 adding additional trains. So these are modular
25 systems which are very easily expanded, and the cost

1 associated with expanding is incremental, so it's not
2 as if you have a cost to build an RO plant and when
3 you add another train you have to double the cost.
4 It doesn't double the cost. It's an incrementally
5 small addition.

6 Again, volume can be increased without -- by
7 adding another train. And again it's an incremental
8 cost.

9 From an assurance standpoint point, all of these
10 plants are very -- they're sophisticated, modern
11 pieces of equipment. They're instrumented, there are
12 monitoring of water quality throughout the process.
13 So we have pH, monitors, we have conductivity
14 monitors, we have instrumentation on those plants to
15 ensure that they're operating properly at all times.
16 They're alarmed. If something is out of spec, there
17 are alarms. There are, you know, actions taken to
18 ensure that the plant is run properly all the time.

19 In addition, the plan for Pickett Mountain is
20 that the treated water goes to a treated water
21 holding pond and that water is tested prior to
22 discharge to the environment. So, again, there's an
23 ongoing set of testing requirements to ensure that no
24 possible contaminated water can be released to the
25 environment.

1 The modeling -- RO modeling really does provide
2 good quality information. Not only is it used to
3 model the chemistry of the water that's going to be
4 produced, but it also is valuable for us to model
5 things like operating costs and capex costs and
6 actually to select the process flow diagram, how many
7 passes we need, that type of thing, to look at
8 different membranes and the performance of different
9 membranes.

10 So finally, the -- you know, the results that
11 we're expecting to see, many of the parameters are
12 below detection limits. I need to -- I would like to
13 explain, because there are a lot of zeroes that show
14 up in the tables, and Dr. Maest points out well --
15 well, they're all zero, how can this model be of any
16 value when they're all zero?

17 What the zeroes in the model actually mean is
18 that it's below the detection limits for modern
19 analytical procedures. So you take a water sample
20 and you bring it to any analytical lab and they can
21 only detect down to a certain level. And so what
22 those zeroes are telling us is that all of those
23 parameters will be below the detection limits. Okay?

24 So I think it's important to understand that
25 we're talking about water that's so clean that we

1 can't even analyze most of the parameters down to the
2 level it has to be.

3 So this is the proposed process flow diagram.
4 I just want to point out mainly here is that -- to
5 talk about brine. So Dr. Maest and others point out
6 that there's going to be a huge volume of brine
7 generated with this system, it's going to be 20 to 30
8 percent of the inflow. It's going to make the system
9 impossible to use because of that amount of brine,
10 which, if you look at systems 20 and 30 years ago,
11 that was true. But things have come a long way, and
12 this proposed treatment design, which is being used
13 in many different industries including the mining
14 industry, it uses a secondary treatment process,
15 which is pointed out by this reactor here.

16 So in the type of systems that are referenced by
17 the opponents, what they're talking about as brine is
18 what we call our first pass RO brine, which you can
19 see here is a -- is called -- is circled at the top
20 there, concentrate 52 gpm. That's what old
21 systems -- that would have been all the brine, that
22 would have been all wastewater, and that's actually
23 25.4 percent of the influent water.

24 But in our design, and in modern designs, that
25 goes to a reactor where lime is added and a majority

1 of the contaminants are actually precipitated as a
2 solid in that stage. And the overflow from that
3 reactor goes through a secondary ultrafiltration RO
4 process where we recover most of the water and send
5 it back to the front of the plant and the actual
6 amount of brine that's generated from the entire
7 treatment plant is only 5 gallons per minute.

8 So we're talking about 2.4 percent of the
9 influent water is what's actually waste brine coming
10 out of the plant. And it should be noted that that
11 5 gallons per minute of brine is far less toxic
12 than -- or potentially toxic than brine used to be
13 from the old plants because that reactor process has
14 taken most of the contaminants out.

15 That -- solids from that reactor go to a filter
16 press and it creates a filter cake, and that filter
17 cake is disposed of off site in a -- through a
18 landfill system. Okay? So the filter cake is, you
19 know, disposed of off site.

20 MR. ELLSWORTH: Where -- where would it be
21 disposed of off site?

22 MR. DANYLIW: It would go to a hazardous waste --

23 MR. ELLSWORTH: To a hazardous waste -- where --
24 someplace they take hazardous waste?

25 MR. DANYLIW: Yes. Yep.

1 MR. ELLSWORTH: So another couple questions.

2 I see you add lime here possibly in a reactor?

3 MR. DANYLIW: Yeah.

4 MR. ELLSWORTH: And are -- that's where you're
5 trying to control the pH, then; is that correct?

6 MR. DANYLIW: No, there could be pH control steps
7 at different spots in the process. Okay?

8 So we will -- and I'll talk real quick about
9 ammonia, but in order to -- if we need to handle
10 ammonia, we do that through a pH adjustment prior to
11 the RO membranes. So there can be chemical additions
12 to adjust pH as we go through the process as well.

13 MR. ELLSWORTH: But it appears that this system
14 that you have, and from what I gathered earlier, is
15 basically taking the -- taking the grit out of it, if
16 you may, but it's not -- it's -- there's not a lot of
17 treatment of the water should there be a pH issue.
18 If it's acidic -- happens to be acidic -- or does
19 that take place in the pond before you pump it back
20 out again?

21 MR. DANYLIW: No, the -- the final treated
22 water -- because of the way the RO process works, if
23 there is -- if the water is low pH coming into the
24 plant, simply putting it through the RO membranes
25 concentrates all of the things that create that low

1 pH into the reactor. Okay?

2 So the permeate that comes out at the end of the
3 plant so clean and so pure that any minor pH
4 adjustment prior to discharge, if it's required, is
5 done at the back end and it's literally -- I don't
6 even know how to explain how small of an amount of
7 adjustment it would require. It's a very small
8 amount. It's similar -- it's the same as the surface
9 waters.

10 MR. ELLSWORTH: I have a water plant in my
11 present life as a town manager, also, so I'm --
12 I understand how the process works. And still, you
13 know, wondering if we had this acidic water when we
14 started that was in the pond, how are we going to
15 treat it in a treatment plant portion of it before we
16 blow it out through snow guns or pipes or whatever
17 else you're going to use?

18 MR. DANYLIW: Well, that's the reverse osmosis
19 process, and the reverse osmosis process removes the
20 acidity.

21 MR. ELLSWORTH: Okay. I'll take that. Thank
22 you.

23 MR. DANYLIW: Okay. Yes.

24 So I was just mentioning, just to close on this,
25 that that reactor removes the majority of

1 contaminants, metals, that sort of thing, all comes
2 out in the reactor.

3 I mentioned earlier and Dr. Maest pointed out
4 that there was a potential for ammonia. So RO
5 removes all contaminants from water with the
6 exception of dissolved gases. And typically in water
7 there are a number of dissolved gases that are
8 normally in all water. Oxygen, carbon dioxide,
9 nitrogen, all at equilibrium with the air, they're
10 all -- you know, a certain amount much those gases
11 dissolve in water.

12 The ammonia is -- ammonia is a different
13 potential contaminate -- contaminant in the mine
14 water because if there is ammonia, it would be there
15 from blasting agents. So the explosives that are
16 used underground can contribute ammonia to water.
17 And luckily for us, ammonia is actually fairly easy
18 to remove with reverse osmosis, and that does require
19 a pH adjustment.

20 In order to get ammonia out through a reverse
21 osmosis process, you need to convert the ammonia gas
22 to ammonium ion, so we need to ionize it. And you do
23 that with ammonia by simply reducing the pH to near
24 neutral or below.

25 So as you reduce the pH, the ammonia gas gets

1 protonated, a fancy term for saying it becomes
2 charged, so it goes from NH₃ gas to NH₄⁺. It becomes
3 an ion. And once it becomes an ion, it won't pass
4 through the membrane.

5 So that's how we would manage ammonia, so the
6 ammonia would end up in the waste stream and would be
7 removed from the permeator treated water.

8 So this is just an example of -- to make it a
9 little easier to understand, I guess, a visual of
10 what a typical high rate membrane filtration plant
11 looks like.

12 So this is -- that single train that you see
13 there, that's a 200-gallon per minute UFRO train. So
14 that's basically what the piece of equipment would be
15 sized as for the Pickett Mountain project. It's
16 around 200 gpm is the projected requirement.

17 So this type of configuration has become really
18 quite common in the mining industry. It's kind of
19 now becoming the standard for mine-impacted water.
20 So there are many, many, many of these systems
21 installed in mining operations around the globe.
22 There are literally hundreds of thousands of gallons
23 a minute of mine-impacted water being treated with
24 UFRO systems for discharge into the environment.

25 In the last 15 years or so, this technology has

1 improved and become so mainstream that the costs have
2 been reduced, the operating parameters have improved,
3 and it's really kind of become the industry standard
4 now for -- and for treating mine-impacted waters and
5 particularly for water that's being -- going to be
6 discharged to the environment.

7 So it's -- not only is it now affordable, but
8 it's also proven and it's practical for the mining
9 industry. It's -- as was already mentioned, if
10 additional volumes need to be treated, it's very easy
11 to expand by adding another train.

12 So really, in closing, I would just say that UFRO
13 systems are being utilized now in mining operations
14 to ensure that effluent water meets very stringent
15 environmental limits. In -- and in many instances in
16 many industries, it's used to treat water to a level
17 of purity that's even better than background water
18 quality for this project.

19 So from a treatability standpoint and practical
20 standpoint, we're very confident in the proposed
21 treatment design.

22 MS. TURNER: Chairman Worcester, commissioners,
23 my name is Lisa Turner. I'm a licensed professional
24 engineer and a licensed soil scientist.

25 My experience includes landfill design. And,

1 Mr. Ellsworth, one of our landfills that I'm the
2 project manager for does have a split leachate pond
3 with a little berm in the middle so we can clean one
4 half and then the other. It's -- yep, we can do
5 that.

6 Landfill designs, some borrow pit work, quarries
7 and hydro geo work. Most recently my husband and
8 I had a vegetable farm for 25 years. One of our
9 major clientele were fine dining restaurants and we
10 grew a wide range of vegetables for those that
11 required a range of irrigation equipment for the
12 different crops.

13 So I work for Sevee & Maher Engineers, and our
14 task was to determine the best method to return to
15 the treated water to the site, which I worked on with
16 several other of our engineers and geologists.

17 We were given estimated flows for the -- that
18 would be treated; the mine dewatering from Wolfden
19 30 gallons a minute, the collected precipitation from
20 WSP of 57 gallons a minute.

21 So we thought about those mine water assumptions
22 and Wolfden provided it based on previous mine
23 experience. So we looked into that and evaluated
24 what -- how they had calculated and said, yeah, that
25 looks reasonable.

1 And then John Sevee, of our company, looked at it
2 from an overall recharge and said, yeah, that looks
3 like a reasonable number.

4 And I looked at it from the permeability of the
5 rock and said, yep, that looks like a reasonable
6 number.

7 So we felt pretty confident with that.

8 On the collected precipitation, WSP did that with
9 HydroCAD. It's an industry standard. Everybody uses
10 that. That's just how it's done. So we're not
11 concerned about that number at all.

12 Looking at the site, we're concerned with depth
13 to water table, soil permeability, the available
14 permitted land, the depth to bedrock or other
15 restrictive layers. We want to have minimal
16 disturbance of the soil -- the site and the
17 vegetation. The slopes are something to think about.
18 We want to maintain the recharge to the wetlands.
19 That was a criteria that was added to this project.
20 And then there's the climate to consider, the frost
21 depth is 6 feet, and we have to dispose of the water
22 both summer and winter.

23 We looked at several methods and ended up
24 deciding that spray irrigation and snow making were
25 the best options, and here's some pictures of spray

1 irrigation.

2 The -- the good things about spray irrigation is
3 it allows for evaporation transpiration to get rid of
4 some of the water. It's easily installed. The
5 equipment is readily available and easy to replace.
6 There's flexibility for seasonal water distribution,
7 and it mimics the natural rain fall.

8 Snow making is the other half of that because we
9 have winter. And it is equipment that's readily
10 available, easily installed. It minimizes the winter
11 storage requirements; if we weren't getting rid of
12 some of the water as snow all winter, we'd have to
13 have bigger ponds. It dovetails well with the spray
14 irrigation, there's flexibility, and it also mimics
15 the natural precipitation at the site.

16 So we looked at other sites in Maine that use
17 these technologies, and you can see there's several
18 of them there: Moosehead; Carrabassett Valley;
19 Rangeley; Wolfeboro, New Hampshire; Pineland Farms
20 Potato Processing uses it.

21 So what type of soil do they use? Well, they're
22 all -- or do they have? They all have till soil, so
23 that was good. And we looked at the amount of
24 irritation. The total amount that would be spread on
25 any of these sites, the smallest ones, Rangeley and

1 Wolfeboro, New Hampshire, are going to put out about
2 a hundred million gallons per year of water.
3 Pineland Potato Farms is using over 300 million
4 gallons per year. And the Pickett Mountain site is a
5 total of about 46 million gallons per year. So we're
6 well within the range of what is done.

7 We said, all right, what are the application
8 rates that they're using? And they're using anywhere
9 from about 2 to 4 inches per week.

10 So we said, well, what happens at Pickett
11 Mountain if we use 2, 3 or 4 inches per week, and we
12 would need some where between 15 and 29 acres to
13 dispose of the treated water. And that's not a
14 problem at the site.

15 So then we thought about Pickett Mountain
16 relative to the wetland recharge. So how do you
17 recharge a wetland? Well, some of them are just from
18 surface water. It's just a bowl -- if you think
19 about a wheel rut, that's the smallest possible type
20 of wet depression that you'd see. Some of them
21 aren't much more than that, but on a larger scale.
22 Some of them are recharged by the groundwater, so if
23 you think about the groundwater coming in at the top
24 of the hill and water runs downhill, well it runs
25 downhill even underground. So it's running down.

1 It's going to hit a compacted till layer or bedrock
2 and it's going to come out at the bottom of that hill
3 into a wetland. So that's how the wetlands are
4 recharged. And by looking at the overall recharge to
5 the site and mimicking the natural precipitation,
6 we're going to pick up both of those methods of
7 recharging the wetlands.

8 So we looked at each watershed for each wetland
9 and looked at the current condition and the condition
10 during the active mining period.

11 So these are the watersheds that we drew around
12 each of the -- the little dotted sections are the
13 wetlands. The blue are some streams. And then
14 the -- the heavy dashed lines are the wetland
15 catchment areas.

16 So this is the current condition. And if you
17 watch right in here, that's where we've got the --
18 the change, the area that's going to be collected
19 during active mining. And so some of these wetland
20 catchments get smaller, and those are the ones noted
21 with the red hexagons around the catchment area. So
22 those are going to need some extra water added back
23 in. And you can see most of them are still just
24 circled in black. Nothing changes on those.

25 So we wanted to think about each wetland area

1 before and after. And so the precipitation that
2 falls on the site is either going to be evaporation,
3 and that's percentages that are pretty well
4 established; transpiration, and that's the amount
5 lost to plant growth, so that's usually about the
6 same as the lost -- the amount lost to evaporation;
7 infiltration, which is whatever will go into the
8 soils depending on the permeability of the soils; and
9 then runoff is what's left over, and that's how the
10 precipitation is split.

11 So we also looked at the losses of evaporation
12 from the spray irrigation, and there's a lot of
13 science that's been done on this. If you can imagine
14 irrigating out west, the loss due to evaporation is a
15 pretty big deal so there's a lot of data on how to
16 calculate that. And you know, it has to do with the
17 climatic conditions, including rainfall temperature,
18 wind speed, humidity. We looked at that for Caribou
19 because there was a lot of data for Caribou. And it
20 also depends on the number of nozzles used, the size
21 of the nozzles, how small the droplet is. That
22 evaporation is going to happen based on the surface
23 area of the droplet of spray. So the finer the
24 spray, the more that you're going to have evaporation
25 from it.

1 So we looked at the different wetlands that are
2 affected -- or the different catchments that are
3 affected. Some of them have wetlands, some of them
4 don't. We calculated the predevelopment area, the
5 active area during mining, and the deficit of
6 precipitation. And for the overall site, the
7 precipitation deficit due to the collected areas is
8 just under 11 percent.

9 Then we took that collected water plus the water
10 from the mine and figured out how much to put back on
11 each catchment. And that's just slightly
12 under 12 percent. So we ended up with less than
13 a 1 percent difference in the overall recharge to be
14 added.

15 Then we said, okay, can we do it? Is there
16 enough room in each catchment to do it? And here you
17 can see in the little tan areas are where we
18 designated as areas for the spray irrigation. The
19 pink bars are places where we would put the snow. We
20 didn't do that in every one of the -- yes?

21 MS. HILTON: Aren't you spraying them -- a
22 portion that's going to be the solar facility?

23 MS. TURNER: There is some that that is -- that
24 is -- that 1H --

25 MS. HILTON: Yeah, that --

1 MS. TURNER: Let me come to that one.

2 MS. HILTON: Okay. Sorry.

3 MS. TURNER: Yeah, no. No, no. You're good.

4 So these were just some places that we could put
5 the water.

6 And then how much would we end up putting there?
7 So if you look, we're going to put between .3 and
8 2.3 inches per week on each of these, which is well
9 below most of the sites in Maine.

10 And that catchment 1H is the one that you asked
11 about, Ms. Hilton, and we're only planning on -- it
12 only ended up being .3 inches per week, so we could
13 certainly put it on far less area and still be within
14 the -- the possibilities. There's also different
15 kinds of sprinklers you could use that would work
16 probably between the solar -- some of the lower --
17 lower emitting. There's different things you can do.

18 And then we thought about the variability in
19 flows. So we looked at the historic precipitation in
20 Caribou, which -- there's 80 years of data. The
21 lowest 10-year average was about 35 inches per year.
22 The highest 10-year average was about 44 inches per
23 year, so that's a 25 percent variability.

24 The lowest year was 1987 with 28 point inches.

25 The highest year was 2011 with 55.4 inches. So 2011

1 was nearly double 1987. So there's a change that
2 happens there just as a normal course of events.

3 So we can say the wetlands currently exist in a
4 highly variable environment. The precipitation will
5 continue to vary. So -- and this goes to the
6 question about climate change. Whatever rainfall
7 ends up falling on that site is going to fall on that
8 site. If there's a mine there, we're going to
9 collect it, treat it, and put it back on the site.
10 But it will be the same amount of water that goes on
11 whether or not there's a mine because we're just
12 collecting it, treating it, and putting it back.

13 MS. HILTON: What about underground water?

14 I guess I --

15 MS. TURNER: So we're losing quite of bit of that
16 to the evaporation in the spray nozzles. Most of
17 that gets lost in the evaporation.

18 MS. HILTON: Okay.

19 MS. TURNER: So we plan to maintain similar
20 recharge to each of the wetlands, the number in size
21 in nozzles will give us some flexibility if there are
22 variations in that mine water. We'll size the spray
23 and snow making so that it will accommodate both more
24 than the most rain we've seen and less than the least
25 rain that we've seen so that there's plenty of room

1 in that.

2 And this is a low amount of spray irrigation
3 compared to the other existing spray sites in Maine.

4 So I can answer any questions. I think I have
5 time left over.

6 MR. ELLSWORTH: Yes, ma'am. The -- if you're
7 going to make snow mountains --

8 MS. TURNER: Yes.

9 MR. ELLSWORTH: I was the town manager in
10 Rangeley, so I'm pretty well --

11 MS. TURNER: Ah, there you go. Yes.

12 MR. ELLSWORTH: And Carrabasset, too, so -- for
13 a brief period. I understand the snow mountain
14 concept. It takes until about August to melt the
15 mountain --

16 MS. TURNER: Yep.

17 MR. ELLSWORTH: -- so is there impact -- you're
18 going to have a summer spray program, and I was
19 trying to figure out exactly where everything was so
20 that would one impact the other as far as runoff and
21 certain -- more runoff in some certain areas than
22 other areas?

23 MS. TURNER: So if you look at this picture, the
24 little pink bars are where we're going to put the
25 snowbanks. So they're at the top of each of the

1 catchments. So whether that snow infiltrates or runs
2 off, it's heading down the watershed. The little tan
3 things are the spray irrigation.

4 MR. ELLSWORTH: Where -- which ones are the
5 sprayers again? I -- I'm looking at this one right
6 here, so you tell me where they're at.

7 MS. TURNER: They're hard to see. They're tan.
8 They're these little tan ones.

9 MS. BROWNE: Lisa, you need to use the mic.

10 MS. TURNER: So for everybody else --

11 MS. BROWNE: Lisa, you need to have the mic.

12 MR. ELLSWORTH: So another question then.

13 MS. TURNER: Yeah.

14 MR. ELLSWORTH: So the -- the IR2 and the IR1,
15 they're the sediment pond and the whatever treatment
16 you're going to do --

17 MS. TURNER: Yep.

18 MR. ELLSWORTH: -- before you discharge it?

19 MS. TURNER: Yes.

20 MR. ELLSWORTH: So are you going to pump all the
21 way from this pond out to these areas, the brown
22 areas that you just --

23 MS. TURNER: From the clean water pond, yes.

24 MR. ELLSWORTH: So you're going to have a pump
25 system to pump out there?

1 MS. TURNER: Yes. Yep.

2 MR. ELLSWORTH: And you're going to pump down
3 from the pond also, from the treatment pond, to the
4 snow areas, then, too?

5 MS. TURNER: Yes. So we didn't run the pipes
6 that far on the snow. We kept the snow near the
7 pond.

8 MR. ELLSWORTH: Yeah, I made snow, too.

9 MS. TURNER: Yeah, so you know why I'm doing
10 that.

11 MR. ELLSWORTH: Yep. Okay. Thank you.

12 MS. FITZGERALD: Come back to me.

13 MR. WORCESTER: Thank you.

14 MS. TURNER: Okay. Thank you.

15 MR. WORCESTER: Next is Intervenor 2's
16 cross-examination.

17 MR. BLOOM: Chair and commissioners, while she's
18 getting set up, I have a question I just want to ask.
19 I think we have 25 minutes for this session.

20 I don't -- I think -- while I have, and my
21 other -- my co-counsel have questions for this panel
22 that we could do, I think we could -- if -- we would
23 like to also cross-examine Mr. Ouellette who was here
24 in the morning and we didn't get a chance to get to
25 his. If we can just finish up with our questions in,

1 you know, five, ten minutes, can we use the remaining
2 to question -- bring back Ouellette to question?

3 MR. WORCESTER: I think that's -- yeah.

4 MR. BLOOM: Will that be okay?

5 MR. WORCESTER: Yes.

6 MR. BLOOM: Okay.

7 MS. BROWNE: So I object to that. I thought
8 there was a set schedule and didn't anticipate that
9 people could do shorter cross-examination and then
10 add that to another panel.

11 I think if -- if the Commission wants that to
12 occur, one thing I would ask is there was a question
13 about the sediment in the pond. I think he -- Jeremy
14 Ouellette's probably the best person to answer that.
15 So if he is going to be subject to cross, I ask that
16 he be allowed to answer that question.

17 MR. WORCESTER: Okay.

18 MR. BLOOM: There is redirect for that question,
19 I mean, but -- or if you want, after I finish my
20 time, he could just -- they could do their minute of
21 redirect, then. That would be fine, too.

22 MR. WORCESTER: Okay.

23 MR. BLOOM: Okay. Great.

24 MR. WORCESTER: Our goal is to get as much
25 information as we can.

1 MR. BLOOM: I appreciate that. Thank you.

2 So I have some -- sorry -- questions for
3 Mr. Danyliw.

4 CROSS-EXAMINATION OF: MR. DANYLIW

5 BY MR. BLOOM:

6 Q Okay. So you were one of the authors of the water
7 treatment scoping study. And just -- and that study,
8 you didn't identify in that study any comparable
9 mines that use reverse osmosis and ultrafiltration to
10 produce treated water that meets the same water
11 quality standards that would be met here, correct?

12 A Not in the study, but certainly there are many.

13 Q Okay. And the -- and your report also doesn't
14 specify any ore processing facilities, in the report
15 itself, that use reverse osmosis and ultrafiltration
16 to produce treated water that would meet the
17 stringent background quality requirements here,
18 correct?

19 A Again, not -- it wasn't part of the study, but there
20 are many in the world.

21 Q Okay. And in your report, you present the results of
22 computer modeling of water treatment using reverse
23 osmosis and ultrafiltration. And you said you used
24 input data from Halfmile Mine to stand in the place
25 of water from Pickett Mountain, correct?

1 A Correct.

2 Q And that was provided to -- that data was provided to
3 by Wolfden, correct?

4 A Correct.

5 Q And in your -- are you aware that -- well, strike
6 that.

7 In a letter from Stacy Beyer, actually, of the
8 LUPC to Wolfden in February of 2021, she wrote: It
9 is our understanding, with regard to the Halfmile
10 Mine, that the Halfmile Mine only operated on a trial
11 basis and has not operated since 2012.

12 Is that statement correct?

13 A I have no knowledge of that.

14 Q You don't know? Okay. But -- all right.

15 And so you don't know -- do you know at what
16 points in time the samples that you used as input
17 values from the Halfmile Mine, what points in time
18 they were taken?

19 A I have access to that data. I don't have it off the
20 top of my head.

21 Q Okay. But you don't know -- you don't know where
22 it -- where it -- you don't know if it was only
23 operated on a trial basis where it was during that
24 process?

25 A I do not.

1 Q Okay. And your water treatment scoping study doesn't
2 provide information about where at the Halfmile Mine
3 those samples were taken, correct?

4 A I -- unfortunately, I don't recall if it did or not.

5 Q Okay. All right. And you mentioned that a number of
6 the analytes from -- or parameters from the Halfmile
7 Mine input water quality were not -- were not
8 measured, correct?

9 A Not all parameters were measured, that is correct.

10 Q That's correct. Okay. And then you used that input
11 water quality to run a computer model, correct?

12 A Correct.

13 Q And in that computer model then it produced results
14 of an assumed reverse -- reverse osmosis ultra
15 filtration treatment, correct?

16 A Four different modelings --

17 Q Four different modelings?

18 A Yes.

19 Q Okay. And then you compared that to what -- a target
20 value, which was what you were aiming for at Pickett
21 Mountain, correct?

22 A Correct.

23 Q And when you took the target value, you took the --
24 those samples -- the sample target value was taken
25 from surface water areas around -- around Pickett

1 Mountain Mine, correct?

2 A Correct.

3 Q Not from groundwater, correct?

4 A To the best of my knowledge, they were all surface
5 water samples.

6 Q But the -- but as we just heard, the discharge is
7 actually going to be into groundwater, correct? The
8 discharge of the treated water is going to be in
9 groundwater, correct?

10 A Well, it's going to start on the surface.

11 Q It's going to be -- but the samples that you took
12 were from, like ponds and lakes around the site,
13 correct?

14 A The sample data that was used to determine background
15 water quality was provided to my be Wolfden
16 resources.

17 Q Okay.

18 A So it was a map of where the samples were taken, and
19 there was detailed analytical data from a certified
20 analytical laboratory that provided the water
21 quality.

22 Q Okay. And can we pull up the report -- the MWS
23 report? I think that's No. 4.

24 And we can go to Page 28 of that report. It may
25 be 29. There we go.

1 So that's the map you're talking about with
2 the -- where the samples were taken, correct?

3 A Correct.

4 Q And so those stars represent the locations of the
5 samples?

6 A To the best of my knowledge, yes.

7 Q And they're all in -- it looks like in the ponds and
8 lakes sort of surrounding the Pickett Mountain
9 project site, correct, and the streams?

10 A To the best of my knowledge.

11 Q Correct. And those -- they're labeled SW and then a
12 number. I assume SW stands for surface water?

13 A I --

14 Q You don't know?

15 A I don't know.

16 Q Okay. And then just if we go back a page.

17 So that's the input water quality. That's a
18 little hard to see, so I -- so I'm going to -- we'll
19 skip that one. It's a little hard to see and you
20 already answered my question about that anyways.

21 Okay. Now, you talked about the brine
22 concentrate or brine, as you -- you --

23 A Yes.

24 Q -- discussed it. Now, one thing you said, which
25 I wanted to understand, is you said part of the brine

1 is going to be run through a reactor and it will
2 precipitate out -- the tox -- at least some of the
3 toxic metals into what you call a filter cake?

4 A Yes.

5 Q And that's going to go to a hazard waste facility?

6 A Yes.

7 Q And were -- the costs of the hazardous waste
8 treatment, were those included in the preliminary
9 economic assessment for the project?

10 A I have -- I have no idea.

11 Q You don't know? Okay.

12 Did you provide information about costs of
13 hazardous waste treatment to Wolfden?

14 A No, I didn't provide cost, but I did do an estimate
15 of the volume.

16 Q Okay.

17 A And the volume is extremely small. I don't recall
18 exactly the number, but I believe it was somewhere
19 around 1 cubic foot per day.

20 Q Per day?

21 A Yeah. 1 cubic foot. So that's a very small volume
22 of sludge.

23 Q Okay. Over ten years, though?

24 A Absolutely.

25 Q Okay. And you didn't provide a location of a

1 hazardous waste landfill?

2 A I did not.

3 Q Okay. And so also the -- so the liquid part of the
4 brine, separate from the filter cake, that's going to
5 be -- at least once backfilling starts, that's going
6 to be used to mix into cement, correct?

7 A Correct.

8 Q And that cement is going to be mixed at least with
9 part of the waste rock and backfilled into the mine,
10 correct?

11 A Yes.

12 Q Did you do any testing on -- on brine mixed with
13 cement mixed with waste rock to determine whether
14 that combination will cause any metals to leach out?

15 A I did not. That's something that would be done
16 through the Chapter 200 process.

17 Q Got it. And similarly, you didn't do testing to see
18 whether that would cause leaching of acid, correct?

19 A No, but there's no scientific or chemical --
20 chemistry reason to believe that addition of brine as
21 water for make down of cement would have any impact
22 on acid generation.

23 Q Okay.

24 A The chemistry doesn't support it.

25 Q All right. But you said you didn't do the testing

1 with regard to the metals or the -- and that's going
2 to be part of the next process?

3 A Yeah. My experience with a number of other
4 backfilling operations indicates to me that that
5 would not be an issue, but specific testing would be
6 carried out.

7 Q Okay. And have you provided any information or
8 regulations or citations to explain whether the Maine
9 DEP would allow underground backfilling of that
10 brine?

11 A I have not.

12 MR. BLOOM: Okay. Now, I think we're going to
13 move on to Mr. Ouellette now.

14 MR. ELWELL: If I could just make a suggestion
15 procedurally here. We set aside time for the LUPC
16 staff and commission to ask further questions of
17 these witnesses.

18 Rather than calling them back after Mr. Ouellette
19 testifies, why don't we do that now, and then we'll
20 return to the -- whatever is left of Intervenor 2's
21 cross.

22 MR. WORCESTER: Betsy?

23 MS. FITZGERALD: Thank you. I remembered my
24 question.

25 Lisa, this is for you and it is more a curiosity

1 question, I think.

2 As I'm sure you noticed, we did not have the
3 driest of summers, and so there was a lot of water.

4 And you talked a lot about, you know, irrigation.
5 And we'll skip the snow stuff for right now, but
6 just, you know, for spray irrigation.

7 How do you figure -- if the ground is already
8 reasonably saturated, do you still spray or do you do
9 something else? And if you do something else, what
10 do you do?

11 MS. TURNER: So you wouldn't typically do it
12 right after a large rainstorm, you'd wait. But to
13 put out 2 inches of -- 2 and a half inches of water,
14 it's quick, it's surprisingly -- you're not going to
15 take a lot of time to do that. So you could do it on
16 two separate days for a few hours and you'll have put
17 out that amount of water.

18 That amount of water was going to fall on that
19 site that week anyway. And so to continue to do
20 what's going to happen to those wetlands, you would
21 be putting more water than you would if you wanted to
22 irrigate a farm, but that's what's charging the
23 wetlands.

24 MS. FITZGERALD: Point taken. Thank you.

25 MR. ELLSWORTH: So in the capacity of the pond,

1 which we discussed early on in presentation, we
2 had -- a town adjacent to where I am had 8 inches of
3 rain in one storm, had 4 inches three or four storms
4 this summer.

5 Is there a capacity of the pond to take both the
6 water capacity such as that, you had 8 inches of
7 rain, bingo, in three hours, and the effluent that
8 you have coming from the mining operation at the same
9 time and still be able to retain it to spray it at a
10 better time than during the storm?

11 MS. TURNER: The pond is designed for a 500-year
12 storm. So Mark, you want to take the rest of that?

13 MR. PETERS: Yeah, one of the things that we did
14 because the intervenor asked about climate change, we
15 actually looked at increasing the rainfall using the
16 precipitation prediction tool as well as increasing
17 the 30 gallons per minute to 300 gallons per minute
18 and ran that through the same size pond, and we still
19 had a foot of freeboard.

20 Now, this is all still a preliminary design. The
21 detailed design for the pond will come during the
22 Chapter 200 process. But you know, based on the, you
23 know, analysis for this stage, we certainly have
24 enough room, and there's enough room to provide more
25 capacity if needed.

1 MR. ELLSWORTH: Thank you.

2 MS. HILTON: This is a follow-up to that, and
3 I don't remember what I read. Are the soils in that
4 area fairly well drained or -- for runoff, stormwater
5 absorption?

6 MS. TURNER: They're pretty heavy tills so
7 there's a lot of silt in them, so they're not
8 particularly well drained; but again, they are what
9 they are, and that's what's -- that's what's
10 recharging those wetlands. And they're not going
11 to -- most of those aren't going to change. We're
12 just going to collect -- we're going to collect an
13 area, treat it, and put it back on the same soils
14 more or less that it was going to fall on anyway.

15 MS. HILTON: Right. The problem is, and I think
16 you've already answered this question, is that we're
17 getting rainfall amounts that are unheard of and
18 that's going to probably happen more often.

19 And so what we used to have and used to see and
20 depend upon is no longer likely to be the case.

21 And so I guess that's where, I think, people are
22 concerned.

23 MS. TURNER: And, unfortunately, that's going to
24 happen one way or the other, and the mine isn't going
25 to change that. So that water is going to fall. If

1 we have more rainfall, there's going to be more
2 rainfall on that site.

3 MS. HILTON: So are you saying it's not the
4 mine's fault that we're getting more rain?

5 MS. TURNER: It's not the mine's fault that we're
6 getting more rain, yeah. We could put it that way if
7 you want, but it doesn't change anything. It's the
8 same amount of precipitation. We're collecting what
9 falls and we're putting it back out, and the stuff
10 comes out the mine mostly we're evaporating.

11 MS. HILTON: But we have to be prepared to deal
12 with the situation.

13 MS. TURNER: So we'll size everything --

14 MS. HILTON: So you're sizing it to be larger.

15 MS. TURNER: -- for excess -- more than the
16 55 inches that's the most we've seen. We'll size for
17 something greater than that.

18 MS. HILTON: Yeah, yeah.

19 MS. TURNER: So that we can -- because the goal
20 is to maintain what's happening in the normal course
21 of events in the natural environment.

22 MS. HILTON: Right. I'm a farmer. It was one
23 heck of a summer.

24 MS. TURNER: I am so glad I was not a farmer this
25 summer.

1 MS. HILTON: I never saw anything like it,
2 really.

3 MR. WORCESTER: If there are no more questions,
4 we'll move on.

5 CROSS-EXAMINATION OF: MR. OUELLETTE

6 BY MR. BRANN:

7 Q Good afternoon, Mr. Ouellette.

8 In your prefiled you say you spent eight years at
9 Trevali and you point to that experience as important
10 in this case, right?

11 A Correct.

12 Q And one of the things that you point to is the
13 Halfmile Mine -- that's pretty hard to say quickly,
14 I must say -- correct?

15 A Yeah, that's correct.

16 Q And that actually only operated on a trial basis in
17 2012, correct?

18 A So it was operated on about a 1-year basis, but has
19 remained open since then.

20 Q It remained open, but it operated on a 12-year
21 basis -- on a 12 -- on a trial basis, as the LUPC
22 staff noted in the prior withdrawn application,
23 correct?

24 A Yeah, that's correct.

25 Q Okay. And indeed, that was confirmed -- if we looked

1 at -- if we -- one of the things that we've submitted
2 was the Hearing Exhibit No. 26. We're not going to
3 put it up, but I'm just going to reference it, is
4 that it also refers to it as being done on a trial
5 basis. (Microphone off.)

6 Never let a lawyer too close to a mic or --.

7 So the -- just to be clear, so it was a -- and
8 that was confirmed in an article in -- in the Mining
9 Weekly, right?

10 A It was used as a prime example because of -- it's
11 a -- its similar size, type of deposit, type of
12 method, et cetera.

13 Q Right. I understand what you're saying, but in
14 terms of --.

15 Let me just move on to -- you say that you were
16 part of the team that designed and -- daily alarm --
17 part of the team that designed and operated the
18 Caribou Mine, right?

19 A So to --

20 Q But that was a direct quotation from your prefiled.

21 A Yeah, to -- Caribou was started, you know, half a
22 century ago.

23 Q Okay. And if we could just put up the first page
24 of -- of exhibit -- Hearing Exhibit No. 27.

25 Let's just talk for a minute about the Caribou

1 Mine. So let me just make sure -- we just have the
2 headline for now, but what I want to do -- this
3 article says, for example, that the mining was
4 suspended there, correct?

5 A That's correct.

6 Q The cost of remediation was expected to be over \$49
7 million, correct?

8 A Yeah, that's correct.

9 Q Okay. And that Trevali provided a \$4 million bond in
10 order to cover the cost of reclamation and closure,
11 correct?

12 A So that was for Trevali's portion of the liability
13 that's left behind because it was a historical --

14 Q Some of the other portion of it went -- was being
15 paid for by New Brunswick, right?

16 A Majority of the operation was previously a liability
17 that -- that the province still retained even after
18 Trevali took over.

19 Q And what -- and the agreement that had been reached
20 was to move that liability to the taxpayers of
21 New Brunswick, correct?

22 A So the existing was still in the -- managed and owned
23 by the province of New Brunswick.

24 Q Okay.

25 A And then the additional bonding or, I guess, moneys

1 that were bonded with the province with Trevali were
2 associated to additional liabilities that were --

3 Q And if --

4 A -- brought into play by Trevali.

5 Q And if we could put up the -- just the first page of
6 Hearing Exhibit No. 28, which discusses New Brunswick
7 taking control of this particular mine.

8 All of the miners who worked there were laid off,
9 right?

10 A Yeah, that's correct.

11 Q And then -- and that -- and that this mine was also
12 being criticized in what happened with it. If we put
13 up the hearing Exhibit No. 29, that, from an opinion
14 piece, in which that all of the -- the public was
15 left holding the bag for the cost of the reclamation
16 and the closure and the remediation for that mine,
17 correct?

18 A So that may be what the article says, but I guess the
19 employees that were employed at Trevali, at Caribou,
20 are still employed in the mining industry today. And
21 the revenues by that employment are brought back home
22 to New Brunswick, to Bathurst specifically.

23 And in terms of the liabilities, yes, the
24 liabilities associated to Caribou are with the
25 province, but they were preexisting liabilities that

1 the province already owned.

2 Q And Trevali, I take it you would hold them up as a
3 good corporate citizen?

4 A During my tenure with Trevali, I would agree with
5 that statement. Not so much today.

6 Q And not so much per -- if we put up
7 Hearing Exhibit No. 29 -- No. 30, rather, would --
8 one of the reasons you don't agree with that now is
9 that the exec -- couple of executives involved with
10 Trevali at the Burkina Faso Mine were found guilty of
11 involuntary manslaughter when eight miners died at
12 that mine, correct?

13 A That's an extremely unfortunate event, and I want to
14 note that that this article was in 2022, and my
15 tenure ended in 2018.

16 And our record up until that point, and even
17 afterwards, was very good. There was a senior
18 executive change and obviously, you know, I'm not in
19 agreement with a lot of the decisions that were made
20 with Trevali post my tenure.

21 Q Well, let's take a look at Burkina Faso --

22 (Off the record. Microphone was off.)

23 MR. WORCESTER: You're on.

24 A You're on now, yeah.

25

1 BY MR. BLOOM:

2 Q And so from -- and also from --

3 Hearing Exhibit No. 31.

4 So in -- Burkina Faso shut down the mine
5 following the deaths of the -- in that mine, too.
6 They shut down the Trevali mine completely, right?

7 A Yeah, that's correct.

8 Q Okay. All right.

9 We're going to shift gears. We're going to talk
10 a little bit about some of the economic assessments.

11 In terms of the jobs that were being discussed
12 here, the -- the number of jobs that are currently
13 being claimed that might be created at this mine, the
14 Pickett mine that you're hoping to do, is 233,
15 correct? In the mine itself.

16 A At the mine itself.

17 Q But you're telling the locals and local people, and
18 as recently as last week, that what it's really going
19 to do is create 275 mines [sic] because you're going
20 to include the number of jobs from the processing and
21 tailings facility that you've taken off the table for
22 this proceeding, correct?

23 A So we've certainly discussed the project as a whole
24 as well as the mining project as an independent one.

25 Q And indeed if we were to put up Page 316 of the

1 rezoning application -- and bring that up so we can
2 see it nice.

3 So in terms of assessing the economic impact and
4 why this is a good thing for the neighborhood, the --
5 what the application is pointing to are the jobs
6 being created directly in the mine as well as these
7 other jobs, the tailings and the processing, correct?

8 That's what the economic impact that's being
9 considered is included, right?

10 A Yeah, that's correct.

11 Q And so what -- and so what you're asking the
12 Commission to do is, let's consider the positive
13 benefits of the processing, the positive benefits of
14 the -- of the tail mine and -- and dealing with that
15 in terms of jobs, but we aren't going to look at the
16 trucking that we heard about this morning, or we're
17 not going to talk about the possible deleterious
18 effects of sending this off someplace else, correct?

19 A I don't necessarily agree with that, and I'd like to
20 refer to that -- we do have testimony on the specific
21 topic in the morning. And you know, we can certainly
22 get into those details at that point.

23 Q Okay. The jobs that are going to be created -- for
24 the first three years, they're going to be held
25 primarily by contractors; is that fair to say?

1 A So the way the industry works is -- I mentioned
2 earlier in my discussion, related to training for an
3 environment, and I mentioned earlier this morning
4 that we do have a little bit of runway, or quite a
5 bit of runway, actually --

6 Q Mm-hum.

7 A -- to establish a training program, operate the
8 training program, and try and develop a workforce
9 pool.

10 Now, obviously you need experience in an
11 environment, in an industrial type of environment.
12 And so the idea is that yes, we would bring in a
13 contractor to work with the local communities and the
14 public that are interested in employment, take the
15 training course. And we've said this from, you know,
16 the get-go is over the first few years is how we
17 would develop the workforce with both training and
18 experience and take over, you know, the positions
19 from that contractor.

20 Q Well, let's take a look at -- specifically at
21 Page 651 the rezoning application. And in which --
22 in the -- what Wolfden tells the Commission is that
23 initially for the first three years when the people
24 are being hired, they're going to be contractors
25 because you need qualified people and there's no

1 one -- there really isn't anyone who's qualified in
2 this area because there are no mines, right?

3 A Right. Just as I explained, we just need to work on,
4 you know, gaining that experience and translating the
5 workforce over to the local communities.

6 Q And so -- but the -- and is it Wolfden's plan that
7 after the three years you're going to just fire all
8 the contractors and then hire someone local?

9 A So this is actually a very standard type of process
10 for new mining project, and contractors -- mining
11 contractors are very well aware of the duration of
12 those contracts. And also, when we tender for those
13 types of contracts, what takes place is a part of the
14 tender process is the contractor's ability to work
15 with training programs that are established in the
16 state. So they will be helping us in a big way
17 implementing those training programs with in-field
18 training and that sort of thing.

19 Q And -- and those training programs are essential to
20 be able to -- to be able to bring on people from the
21 local area in order to work in this mill; is that
22 fair to say?

23 A They're essential throughout the duration of the
24 project because you need -- there's a continuous
25 workforce pool. So through retirement or change of

1 position, different offerings, you constantly have to
2 update your workforce. So absolutely.

3 Q And if in -- and so, let's just -- I think it's
4 probably worthwhile just to bring up, if we can --
5 sorry, Ms. Pereira, I didn't tell you I was going to
6 do this one. Let's bring -- let's bring up Page 275
7 of the rezoning application. Got it up?

8 Let's go to the bottom and just make that a
9 little bigger, if you can, so -- I certainly can't
10 see it. Yeah, right at the bottom.

11 Okay. So do you see on the bottom there where it
12 says that the objective was to hire locally, but it
13 will require training for that workforce since many
14 unique skills are required for mining working
15 underground.

16 Do you see that?

17 A Yes, I do.

18 Q And so training is going to be essential in order to
19 be able to bring it along so you can hire local folks
20 to work in this mine, correct?

21 A Yeah, I think that's the --

22 Q Okay. All right.

23 A -- general consensus.

24 Q Well, let's look at the training that's -- that's
25 planned -- that Wolfden has in mind for this project

1 according to the rezoning application.

2 And what I'd like to do is go to Page 696 of the
3 rezoning application.

4 And let's make that a little bigger.

5 And so this is -- before we do that, could you
6 just scroll down just so we can see?

7 The total ann -- these are annual administrative
8 costs that are being projected for this mine of
9 approximately \$3.3 million; do you see that?

10 A I do.

11 Q Okay. Let's go to the top. Of the \$3.3 in annual
12 operating expenses, how much -- is it -- am I reading
13 this correctly that \$10,000 is allocated to training?

14 A That's correct.

15 Q And so -- and so the -- all of the training that you
16 were talking about in your presentation this morning
17 and -- and a few minutes ago is all going to be
18 financed to the tune of \$10,000 a year?

19 A So the way that -- and obviously the way that
20 accounting tables are built, the allocation is
21 extremely important to consider here.

22 And, quite frankly, most -- see the 2.2, roughly,
23 million in salaries and overhead, that includes the
24 salaries for trainers, that includes salaries of the
25 trainees. So the majority of the cost, really, is

1 the cost that goes into paying the employees who are
2 taking the training and paying the trainers.

3 So what you're looking at here for training is
4 like -- it's the supplies related to training and
5 that sort of thing.

6 Q I see. Okay. Let's talk a little bit about your --
7 the educational -- your -- your meetings on education
8 dealing with training.

9 A Okay.

10 Q If I'm understanding Exhibit E to your pre-file
11 testimony, which appears at about Page 46, we're not
12 going to put it up, but which appears there says that
13 you had a number of meetings with some educational
14 institutions in 2019 to 2021 and then there were a
15 couple more this year; is that fair to say?

16 A Yeah. Correct.

17 Q Okay. And so that -- so there's a period of time
18 when there was -- a couple years where there were no
19 meetings at all, correct?

20 A That statement is not quite correct.

21 There was a -- I guess you could say that there
22 was a lull in meetings with the education groups.
23 There's no point where we stop having meetings with
24 different communities and groups.

25 Q And Wolfden bought the land in order to set the --

1 you know, to start the -- start it in motion for this
2 project in 2017; have I got that right?

3 A In 2017, 2018.

4 Q Okay. And so Wolfden has had five years to meet with
5 educational institutions to help set up these
6 programs, correct?

7 A Yeah, that's correct.

8 Q And as of today, there are no programs for any
9 training having anything to do with this mine; is
10 that correct?

11 A So the statement's correct, but in those initial
12 conversations with different educational, I guess,
13 groups, community colleges, vocational schools and
14 that sort of thing, it's really, you know, kind of
15 talk to us if you get the rezoning or when you've
16 been rezoned. So what we've proposed is a syllabus,
17 a training program that already exists, and it -- the
18 response is really, how much time do we have to put
19 this together. And when we say, there's three years,
20 they say, oh, we're used to a month.

21 So, yeah, so we haven't really had to initiate
22 these training programs yet. The trigger will
23 ultimately be, I guess, if there's a favorable
24 decision.

25 MR. BRANN: Thank you.

1 MR. WORCESTER: Time is by, and thank you.

2 Can you hold -- can you weave your question in
3 tomorrow somehow?

4 Go ahead and ask it. Go ahead and ask your
5 question.

6 MS. HILTON: I'm going to -- is it true that once
7 you train these people, you're only going to be using
8 them for about ten years? I mean, what happens after
9 the ten years?

10 MR. OUELLETTE: That's a really --

11 MS. HILTON: This isn't like some of the other
12 projects we look at where you're in a career for much
13 longer than that.

14 MR. OUELLETTE: That's a really great question.
15 And the project is technically a finite project, and
16 I'm aware of that. Something that I feel is very
17 exciting, and this isn't really drafted into the
18 petition, but I think it's extremely exciting that we
19 are -- you know, pending success, we will be
20 upscaling a substantial workforce.

21 The skills don't disappear even though the
22 project does, so I think what we're doing is actually
23 introducing a brand new industry to the state of
24 Maine, not just necessarily a single-use project.

25 And so if the employees are then taking their

1 skill sets and then theoretically traveling abroad,
2 and I think it's worth mentioning that the --

3 UNIDENTIFIED SPEAKER: Sorry. We were supposed
4 to be done.

5 MR. OUELLETTE: That's okay. Sorry.

6 I think it's worth mentioning that the mining
7 industry has converted their norm to, you know,
8 developing projects in remote places as opposed to,
9 you know, in urban areas. So the mining industry has
10 heavily gone towards fly-in, fly-out type of
11 operations, or commuting type of operations. So
12 theoretically, I think these skill sets -- as long as
13 there's an inherent interest -- can remain in the
14 state, travel for work, just -- just like the example
15 in New Brunswick, actually. Travel for work, bring
16 the moneys home, own their homes here, pay their
17 taxes here, and this could theoretically be a very
18 perpetual industry in the state. A substantial
19 perpetual industry, I think.

20 MS. HILTON: Thank you.

21 MR. OUELLETTE: Yep. Thank you.

22 MR. WORCESTER: Are you the one that's going to
23 do that?

24 (Inaudible response.)

25 MR. WORCESTER: I had a question on -- the

1 question came up, we have this holding tank that has
2 sediment in it.

3 MR. OUELLETTE: Yep.

4 MR. WORCESTER: My concern was, there's also
5 acidity -- acid issues there because of the dust and
6 all that stuff, there's likely to be some of that.
7 They say they're going to take the silt out, okay?
8 I view it as mud.

9 MR. OUELLETTE: Yep.

10 MR. WORCESTER: Is that going to be treated
11 somehow?

12 MR. OUELLETTE: So the texture of it will be a
13 lot like mud, but I want to just clarify.

14 The water that's brought up from underground
15 first undergoes a series of underground sumps. So a
16 series of smaller ponds, let's call them, where a
17 majority of the sediment is settled.

18 Now, you're absolutely correct. Water that's
19 collected from precipitation on surface will have
20 some sediment in it, but those are also reporting to
21 first stage sumps, lined sumps, and then over to the
22 pond.

23 So I guess the first -- the first offense against
24 silting of our pre-water treatment storage pond are
25 these primary collections areas. Now, in terms of

1 what we do with that material, first, after it's been
2 dewatered, we have to test it and identify whether
3 it's heavily mineralized or whether it's just inert
4 dust.

5 And frankly, if it's heavily mineralized or if it
6 has the strong potential for acid, then we would end
7 up concentrating it and removing the metals. What
8 would be the final product of that would be tailings.
9 And then otherwise we would end up taking the
10 material if it's -- if it's not acid generating, we
11 would take it and remove the rest of the water and
12 run it through the plant, the water treatment plant,
13 sorry, and then take that cake that's left over and,
14 if approved by DEP, we would deposit it back
15 underground.

16 And I think this is a good point to clarify.
17 If -- any of the material that isn't approved by DEP
18 to go underground, it would end up as a special waste
19 unless it's tested and indicated as a hazardous ways.
20 I just wanted to make that clarifying statement as
21 well.

22 MR. WORCESTER: Okay. Thank you.

23 MR. OUELLETTE: Thank you.

24 MR. WORCESTER: The technical session of this
25 hearing will be continued at 8:30 a.m. tomorrow

1 morning here at Stearns Junior/Senior High School.

2 We have a public hearing at 6:30 tonight if
3 anybody wishes to attend.

4 Thank you, people, for the day.

5 * * *

6 (Concluded this hearing at 4:51 p.m. this date.)

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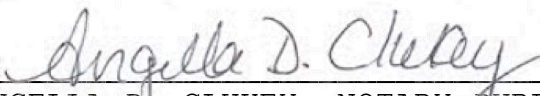
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CERTIFICATE

I, Angella D. Clukey, a Notary Public in and for the State of Maine, hereby certify that this hearing was stenographically reported by me to the best of my ability and later reduced to typewritten form with the aid of Computer-Aided Transcription, and the foregoing is a full and true record of the hearing to the best of my ability.

I further certify that I am a disinterested person in the event or outcome of the above-named cause of action.

IN WITNESS WHEREOF, I subscribe my hand and affix my seal this 24th day of October 2023.


ANGELLA D. CLUKEY, NOTARY PUBLIC
Court Reporter

My commission expires March 17, 2024

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