AIR QUALITY BOARD
CHARLESTON WEST VIRGINIA

ROXUL USA, INC. D/B/A ROCKWOOL

Appellant,

v. **APPEAL NO. 23-01-AQB**

LAURA M. CROWDER, DIRECTOR, DIVISION OF AIR QUALITY, DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Appellee,

v.

JEFFERSON COUNTY FOUNDATION, KAREN FREER, GAVIN PERRY, AND SHARON WILT,

Intervenor.

EVIDENTIARY HEARING

WEDNESDAY, FEBRUARY 7, 2024
1:55 P.M. - 4:12 P.M.

WEST VIRGINIA DEP
CHARLESTON, WEST VIRGINIA

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Certified Court Reporter

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T A B L E O F C O N T E N T S

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EXHIBITS MARKED FOR IDENTIFICATION

P R O C E E D I N G S

CHAIRMAN KOON: We'll now come to order for hearing 23-01-AQB. Again, I'm Mike Koon, Chairman of the Air Quality Board. We're going to dispense with introductions of everybody. I think everybody knows. The only thing we need to note on the record is that the Appellant now is Rockwool, and the Intervenor is JCF. Having said that, unless somebody else wants any more introductions, I think we're ready to begin. Same rules that we talked about before apply, everything we talked about before, so. All right. Mr. Walls?

MR. WALLS: Thank you. And I --

CHAIRMAN KOON: Well, let's do opening statements first. So Mr. Walls, we'll --

MR. WALLS: Thank you. And I will be brief. Thank you. We have appealed two specific discrete permit conditions in the modified permit. We actually, in our notice of appeal, had three that we were appealing, and we subsequently dismissed one of them, leaving us with two here today.

The first is permit condition 4.1.11, which requires Rockwool to keep all exterior doors closed except for ingress and egress, and the second permit condition that we appealed is condition 4.1.5.a which sets the PM,

particulate matter, 2.5 limits at the WESP stack at 33.6 tons per year.

With respect to the doors, you will hear testimony that there are 95 exterior doors at the RAN-5 facility. We agree that permit condition 4.1.11 should apply to the 8 doors that are in the charging building, and we'll show you what that is, because there is a possibility that if we keep those doors open, there will be fugitive emissions, and as you'll hear from Mark Graves, the plant manager, we have kept those doors closed since we began operations as a prudent practice.

We believe, though, that the remaining 87 doors should not be subject to the close door permit because of such things as when it gets warm in the facility, which isn't just in July -- when it gets warm in the plant, we need to keep doors open, prop doors open, for the health and safety of the workers and for, from time to time, good operating flow within the facility.

You'll also hear testimony that there's no chance of fugitive emissions from the 87 doors we think should not be subject to this permit condition because there either aren't any emissions around, or Mr. Morgan and Mr. Graves are going to talk about how the air is sucked out of these -- I'm sorry -- sucked in through these doors. It doesn't blow out.

It flows in. So that's permit condition 4.1.11.

With respect to permit condition 4.1.5.a, which sets the particulate matter 2.5 limit at the WESP stack at 33.6 tons per year, we think that that was improperly set and was based on the stack testing that you heard reference to in the first appeal, and the DEP averaged the emissions from those stack tests and then added a 20 percent cushion to it and said that that's your PM 2.5 limit. We think that's improper. We think the PM 2.5 limit should be higher than 33.6. In fact, we propose that it be set at 50.39 tons per year.

And you'll hear testimony that shows that there's no environmental benefit whatsoever to keeping the limit low at 33.6 tons per year versus the 50.39. In fact, even though there's no environmental benefit to setting the limit where the DAQ has set it, it will result in much higher annual stack testing cost for Rockwool with no environmental benefit.

Those are our two points, and we'll try to be efficient in getting there.

CHAIRMAN KOON: Mr. Driver.

MR. DRIVER: Thank you, Mr. Chairman. Again, our opening statement is going to be pretty brief. I believe and I think it's going to come out during Mr. Pursley's testimony

that after the parties got together and we reviewed it a little bit, we can come to an accommodation on a lot of those doors. I think we're going to be good on a lot of those doors, and we've talked about it, and we can go through that with Mr. Pursley.

As to the stack testing, I believe Mr. Pursley will testify that we used the largest value for the stack testing and added approximately a 20 percent cushion on top of that rather than the average. If the Appellant wanted additional stack testing to account for the variability of a single stack test, they could have performed more. We gave them quite a cushion. 20 percent is a lot of cushion for this, and it was off of the largest value, not the average.

So it's our contention that we gave them, number one, an environmentally protective limit, but number two, enough of a limit that they should have absolutely no problem meeting it. So we're going to demonstrate that the PM 2.5 limit was arrived through a judicious process, we could say charitable, a process that gave the Appellant ample room to meet it based on the information that we had.

CHAIRMAN KOON: Mr. Earley, would you like to make an opening statement?

MR. EARLEY: Very briefly. I think that, you know, obviously in this case we're the Appellee, and so we believe

that on these conditions DEP did act reasonably and they acted in accordance with the law. And, you know, for the doors, I think it's very fair at this stage at least that no testing has shown that fugitive emissions wouldn't escape, and so the argument on that point is that DEP, because of that, did act reasonably in issuing that permit condition.

Similarly, with the stack testing, as Mr. Driver said and was iterated throughout the last hearing, there was a lot of deliberation between these parties in reaching that PM 2.5 limit, and Rockwool was given adequate opportunity to conduct the test again or differently and decided not to take it. so again, DEP acted reasonably in issuing the conditions they issued. I have nothing further.

CHAIRMAN KOON: Just to clarify the record, Mr. Earley, you're not the Appellee. You're the Intervenor with the Appellee.

MR. EARLEY: Yeah, I apologize, Intervenor, Appellee.

CHAIRMAN KOON: That's all right.

MR. DRIVER: I was shocked and alarmed that I was missing something for a moment.

CHAIRMAN KOON: All right. Mr. Walls.

MR. WALLS: Mr. Chairman, we call Mark Graves to the stand, please.

(Witness sworn.)

(WHEREUPON,

MARK GRAVES

WAS CALLED AS A WITNESS, DULY SWORN, AND TESTIFIED AS FOLLOWS:)

DIRECT EXAMINATION

BY MR. WALLS:

Q. State your name, please, sir.

A. My name is Mark Allen Graves.

Q. What do you do for a living, Mr. Graves?

A. I am the director of operations.

Q. Where?

A. For RAN-5, as we discussed before.

Q. Okay. You're employed by Rockwool?

A. I'm employed by Rockwool. I've been employed for 13 years at Rockwool.

Q. And what is your title?

A. Director of operations, so essentially the factory manager.

Q. How long have you been the factory manager at Rockwool?

A. I started in that role in January of 2018, so just over six years.

Q. And have you been the top guy on the ground at

RAN-5 since 2018?

A. Yes, I have.

Q. Is it fair to say at least on a local level the buck stops with you at RAN-5?

A. That is correct, yeah.

Q. Do you have a college degree?

A. I have a bachelor's of applied science in engineering. I obtained that at Queen's University in Kingston, Ontario.

MR. EARLEY: Jim, I'm sorry to interrupt you. I'm not sure that Mr. Graves is speaking very directly into the microphone, and so his voice is kind of coming in and out.

MS. DERAIMO: Let me check the mic real quick and make sure it’s on.

(Brief pause.)

MR. WALLS: With the Board's permission, I'd like to share my screen.

CHAIRMAN KOON: Yes.

BY MR. WALLS:

Q. Okay. Can you see that?

A. I can, yes.

Q. It’s a little far away, but -- All right. Can you tell us what we're looking at?

A. We're looking at a 3D rendering of the RAN-5

facility. And, yes, this is the view from the east facing the west, so north is on your right-hand side. South is on the left.

Q. Start at the north end and describe generally what the operations are going north to south.

A. Yeah. So at the north end of the facility you'll find our raw material storage bunkers.

Q. That's this end. Right?

A. That's correct, yes. Behind that, our charging plant. That is where we basically take the stones that we have in storage, and we would feed those into individual silos within that plant, and then from there we combine those materials into our recipe for our stone, our mix going to the furnace, and send that up to the furnace tower which is a large nine-story building just to the left of the raw material area.

Q. And then what happens?

A. From there we dose those stones that are already mixed, and we mix those at a ratio to get the end chemistry of the fibers on the roll that we're trying to make, because that's important across all factories in the group that those are within the ranges to make our stone insulation. From there, they go into the furnace. They go through a two-stage preheater cyclones. We're heating the rock up from the

temperature that it starts at up to about 800 degrees Celsius. Then it comes down into our melting cyclone where we hit it with all the energy, our natural gas burners, to bring it up to melt it into lava. From there it is tapped into the side of that furnace at approximately 2,650, 2,700 degrees Fahrenheit, and I know I'm switching back and forth between Celsius and Fahrenheit, but that -- so that is what we call our melt. At that point it's our molten lava. We take that. We put it across a series of spinners. We form fibers from those melt -- from little droplets turned into fibers. We collect those in our spinning chamber, and then from there we layer that into what we call our primary fleece where we then cure it. Back in the spinners, we've added our binding agents, and then from there we have to cure it. Then it goes through our cooling zone, which is another thing that was mentioned earlier, just to get the inside temperature of that wool down to a point where it's not going to affect our saws. Then it goes through cutting and formatting, packaging, and then ultimately up to our finished goods warehouse which is the building on the far left in this rendering.

Q. Let me take a little exit ramp here. Can you tell the Board, who is Rockwool?

A. All right. So, Rockwool is the world leading stone

wool insulation manufacturer. We have manufacturing facilities and sales offices in 40 countries around the world. They were founded in Denmark in 1937, so we've been in operations for over 85 years, and I believe somewhere around 120 countries that we serve out of different manufacturing facilities.

Q. Back to the plant at RAN-5, how many exterior doors are there at the facility?

A. We count 95, and then I'll just make one comment here. When we speak about a door, if there is a double door, like two doors, like a French door, I'm considering that to be one door even though there's technically two sets of hinges. Just for clarity.

Q. Okay. Thank you. And you heard me mention the charging building.

A. Yes.

Q. And that's the first building we looked at on the right side of the 3D depiction. How many exterior doors are there in the charging building?

A. There are eight doors.

Q. And you heard me talk about permit condition 4.1.11. Correct?

A. Yes.

Q. And it's your understanding that under that

condition, if it stands, Rockwool has to keep all of its exterior doors closed except for ingress and egress?

A. Except for people coming in and out or moving equipment in and out, yes.

Q. And do we agree that the eight exterior doors in the charging building should be subject to that permit condition?

A. Yes, we agree to that. You know, when we are charging stones, there is the potential for dust. These are finer materials, and if they are dryer and don't have a lot of moisture content, which is ideal for us, it can be dusty, so we keep that building secured. Any of the penetrations through the walls have skirting around those to make sure nothing gets out, so it would stand to reason and make sense to us to apply that. Even if the original construction permit didn't explicitly say that, that's how we've operated.

Now, that fugitive emission potential only exists when the plant is operating. When it's not, when we're shut down on weekends, then there would be no reason to have the doors closed if someone was in there doing maintenance or something like that, moving stuff in and out frequently. But when we are operating it, which means that we are either dosing stone from the raw material into our silos or from our silos that are getting mixed and going up into our furnace,

then we keep that building secure.

Q. Are you familiar with the 2018 preconstruction air permit?

A. I am.

Q. Was there any similar requirement in that permit that Rockwool keep all of its exterior doors closed?

A. No. There was nothing specifically like there is now in the modified permit that said that.

Q. Nonetheless, even though there wasn't any restriction on keeping the doors closed in the original permit, did Rockwool keep the eight exterior doors in the charging building closed?

A. Yeah, while in operation we do, yes.

Q. Why?

A. Because of what I mentioned before, because there is the potential of fugitive emission source there, so we secure that in the building so that the dust collectors and other control devices would work.

Q. Okay. And you were here, were you not, during the testimony in the first appeal, 23-02-AQB, in which Mr. Pursley testified generally about the application process?

A. Yes.

Q. For the modified permit. And you heard him talk about the fact that at one point in the process the DAQ

issued a draft permit. Correct?

A. That's correct.

Q. Did you review that draft permit?

A. We did review the draft permit, yes.

Q. And did Rockwool have the opportunity to make comments to the DAQ based upon that draft permit?

A. We did, yes.

Q. Was permit condition 4.1.11 in the draft permit?

A. That condition was not in the draft permit.

Q. So, is it fair to say that Rockwool has never had the opportunity to comment on the door condition?

A. That is correct.

Q. Now, there's a good reason why I'm a lawyer and it's because I can't do math, but it seems to me like there are a total of 95 exterior doors, and there are 8 in the charging building. That leaves 87 other doors in the facility. Right?

A. I agree with that math.

Q. We do, do we not, appeal permit condition 4.1.11 as it applies to those 87 doors. Correct?

A. Yes, we do.

Q. And why do you feel that the DAQ improperly inserted that permit condition with respect to all exterior doors at RAN-5?

A. I'm sorry, say that again?

Q. Yeah. It was a really bad question. Let me see if I can restate it. Is there any reason for Rockwool to have to keep those 87 other exterior doors at RAN-5 closed at all times?

A. I do not believe there is any good reason for that, no.

Q. Tell us why. Aren't you worried about fugitive emissions?

A. No. One, you'd have to have fugitive emissions present in the building and, two, then there would be a means for them to escape. And one thing I think is important is when we talk about the spinning chamber, there's a very, very large what we call our spinning chamber fan, and that moves a significant amount of air. That's what's forming the fibers.

So, where the spinners are, we're actually moving in the neighborhood of 350,000 normal cubic meters of air per minute, which is a lot, and you can feel that in the factory. So, anecdotally, I don't measure, I don't have a Pitot tube or any differential pressure devices with me, but if I'm standing in the curing hall, I can feel that air being pulled from the warehouse towards me and then upstairs.

So, any doors that are open, and you mentioned before, at least especially in those areas where you're going

to have the potential, which is the air curing oven or sawing sections, right, beyond that and when their product's packaged, I don't know where the emissions would come from, especially in the warehouse because it applies to those doors as well. This is all finished goods, wrapped up. I can't imagine where the fugitive emissions would be coming from there. But you can feel that air being pulled from outside the building in.

And there's an important reason we do that. We're not asking to be able to keep our doors open for, and I don't mean this facetiously, to create a potential for emissions to get out. We're doing it for the health and safety of our employees because the building can get warm in the summertime. Right now the doors are typically closed unless someone's coming in or out, but in the summertime when it's 90 degrees plus outside, it is even hotter in our facility. We've got our curing oven. I've got an afterburner running at 950 degrees. There's significant heat sources in that building, and that creates a higher temperature inside there, and I've got employees working. Yes, we have offices, my control room upstairs where the furnace operators are, that is climate controlled. That is air conditioned. Where I sit is air conditioned. But where the majority of the people work in the warehouse or in the packaging area, they do not

have that. We can't air condition that building. I think that would be just -- it might even be impossible with the way that is, how big it is. With the amount of energy you would need to have air conditioners that would be able to cool that to a comfortable level would be, I think, creating a bigger source of emissions than what we're trying to do here.

So, all we're trying to do is make sure that when it's uncomfortable, that we can open, and it's the overhead doors that we do. We don't prop open the personnel doors as I'll call them. It is some strategic overhead doors, and I counted ten of those. I'm not saying that all ten are even open all the time because it's operator discretion, and I didn't want to say, "Well, that one's okay," but then someone opens a different door, and the next thing you know someone's in the trees looking at me saying, "Well, that door is not allowed." Right?

So, but these are the ones I have typically seen them open just to create a, you know, kind of a cross breeze through there. Maybe it's just a little bit for getting in some sunlight on a nice day. It's only done for the comfort of our operators and under our obligation under OSHA to prevent heat stress. Right?

MR. WALLS: Okay. Mr. Chairman, before the

hearing, the Intervenor and the Appellant and the Appellee in this case agreed to exchange exhibit lists and witness lists, and we really didn't have any exhibits that weren't in the certified record, but we did have a few that we did exchange. I would like to use one, and, Mr. Earley, I apologize. It just occurred to me it might be easier for the Board to understand if I use with this witness an exhibit that we used in our hearing on our motion to stay permit condition 4.1.11. It's not one that I exchanged with the parties, and I apologize for that. I didn't think I'd be using it, but it's in the record already. It's part of the -- it was attached to the Order that the Chairman signed granting our motion to stay. Andrew, I don't know if you have access to it or not.

CHAIRMAN KOON: Are you sure it was part of our motion? I don't -- pardon me -- part of our Order?

MR. WALLS: Yes, sir. That's where we got it. It's Exhibit A to the Order.

MR. EARLEY: Jim, do you -- I mean, obviously we weren't Intervenors at that stage of the proceeding, and so do you have any way to share your screen so that I can take a look at it?

MR. WALLS: I could. I think Mr. Yaussy's going to e-mail it to you, though, right now. Would that be okay?

MR. EARLEY: Yeah, that works. I would just ask

that I have a minute to review it before I --

MR. WALLS: Absolutely.

MR. EARLEY: -- decide whether I'm going to object.

MR. WALLS: Absolutely. In fact, he can e-mail it to you, and then you can share your screen since you're so technologically --

MR. EARLEY: All right. That's two favors, Jim, but --

MR. WALLS: No, I was talking to Mr. Yaussy.

CHAIRMAN KOON: You're right. It was part of the Order. It was probably something you all sent us that we incorporated, so.

MR. WALLS: It was, yeah.

CHAIRMAN KOON: Yes.

MR. YAUSSY: Mr. Chairman, do I have leave to share the screen?

CHAIRMAN KOON: Sure.

(Brief pause.)

MR. WALLS: And I think you can put the sticker right over the A. It will be one. Will it be one?

COURT REPORTER: This will be --

MR. WALLS: Appellant's one?

COURT REPORTER: -- Appellant's one. Yes. Put it over the A, you said?

MR. WALLS: Yes. And obviously at this point I'm just -- we're marking it for identification purposes.

COURT REPORTER: Right.

MR. WALLS: We haven't moved it yet.

(WHEREUPON, Appellant's Exhibit No. 1 was marked for identification.)

MR. EARLEY: Jim, I assume you're going to discuss it a little before you formally move it into evidence?

MR. WALLS: Yes.

MR. EARLEY: Okay. I've had a chance to review it.

MR. WALLS: Mr. Chairman, maybe the court reporter could hand the witness what we marked as Appellant's 1 for identification purposes.

COURT REPORTER: (Complies.)

BY MR. WALLS:

Q. Mr. Graves, do you see that?

A. I do, yeah.

Q. Can you tell us what that is?

A. So, this is a plan view of the building which shows a little bit less than the rendering did. It is the main building itself starting at the left-hand side at our maintenance workshop and storeroom. It shows our furnace building, our curing hall. I think it actually has the building numbers in there. Which is what I usually refer to

them as. Building 400 being the curing hall, our main packaging area, and as we move to the far right, that's our finished goods warehouse with the yellow just denoting a big block of our 18 dock doors plus one overhead door for our forklifts for moving in and outside.

Q. Let's talk about category 2. It says "melt door that must be kept open at all times," and there's a one there.

A. Yes.

Q. What does that refer to?

A. So, below the furnace we have our melt pit, so if there's something happening down the line, where I'm not going to stop melting, we don't just stop melting instantaneously. We would have to divert melt off of the spinners, and that melt goes down into a pit. Now, I categorize that as a door because technically there is an overhead door there that can be lowered down, but we need to operate that with that open because that is where the majority of the air that's providing that large number I talked about to the spinning process.

So, the air is being pulled in through that melt pit up behind and underneath the spinners to give it the lift to where we can collect it in our spinning chamber. So, that door always is open. It's never closed. And the reason

there's a door on it is, you know, could be an event where we're doing maintenance in the line and we're doing it in the winter. We want to keep the door closed for people inside. That's about it. It operates all the time with that door open.

Q. Okay. Tell us what category 3 doors are.

A. So, category 3s are doors that we need to have open from time to time regardless of the indoor and outdoor temperatures, and basically that's just the doors in our warehouse. So, as trucks pull up, and keep in mind that these doors are closed if there's no trucks in the bay because it would be a bit of a drop, but we will have to open doors periodically for trailers to be pulled in, taken out. But the one at the very bottom right is a door that if we're producing a product that is stored outside, we've got forklifts moving back and forth all the time and would be very inefficient for them to stop, close the door, you know, then carry on, come back, open the door kind of thing. So, that door will need to be kept open. It's also a nice door that we're using in the hotter periods because, again, you can feel when that door is open, the air being pulled in through that factory up into the Building 3 on there which is the furnace tower.

The other one I noted on there is up in our brand

experience center, which is that half hexagonal shape I guess we want to call it. And that's actually separated from the production floor by our offices, our conference rooms, and it is an exhibition center for our customers and visitors to come in. We have some displays set up there. So, if we're hosting one of our quarterly neighbor meetings or any large events like that, then I would have those doors open because that's how I welcome them into that room, but they're not even anywhere near connected to the production floor.

Q. Can you tell us about category 4 doors?

A. Category 4 doors are those doors -- and these are the overhead doors, the ones that are rolled up doors that we have that we would typically at times open up when it's hot in the building, when the operators and the personnel there would like some cooler air to be drawn in. So, there's doors in the -- a couple in the maintenance workshop and what we call our parts room storage, along the back in the curing hall, one at the front there, which is right next to our cooling zone filter.

And then, yeah, just moving along in the packaging area, and then there's one kind of in that -- in the larger square in the middle there. That's a door that is often left open, and that is really in our packaging area where our packaging materials are stored. And it just creates a nice

cross-breeze from where the operators are working through -- mostly operators are working in that larger square in the middle in our packaging area.

Q. And what's missing here, it seems to me, are two things. One would be category 1 doors.

A. Right.

Q. We can call those the eight that are in the charging building?

A. Yeah, and the charging building is not shown on this drawing.

Q. Yeah. And we agree the permit condition should apply to those eight?

A. And we have been applying that even before the modified permit.

Q. So, when we add the eight to the category 2, 3, and 4 doors, again, I'm using lawyer math, I think that gets us to 39 doors that we're talking about on this, which leaves the difference between 39 and a total of 95. Where are the other 95 exterior doors?

A. They're just different personnel doors, access doors for people to move in and out of the building. Many of them don't even -- aren't areas our people usually go into, but they're just there. Right? We don't usually -- wouldn't have any reason to prop open doors. Those are on self-

closing hinges. They close after you walk through. Many of them are actually secured. Either they're locked or through badge access for people to be able to go through there, and that's limited as to who needs to.

But the ones that operators will open up for the purposes of trying to, because when it's 90 degrees outside, you're not really cooling much down, but it's maybe a placebo effect, but it's those overhead doors that are marked here in that orange color.

Q. Thank you.

CHAIRMAN KOON: Mr. Chairman, at this time we move the admission of Appellant's 1.

MR. DRIVER: No objection.

CHAIRMAN KOON: Mr. Earley, any objection?

MR. EARLEY: No objection.

CHAIRMAN KOON: All right.

(WHEREUPON, Appellant's Exhibit No. 1 was received in evidence.)

BY MR. WALLS:

Q. One more topic, Mr. Graves. You heard us talk about stack testing in the previous appeal. Correct?

A. Uh-huh.

Q. And tell us, in terms of the stack testing that was done for the modified permit application, how many stack

tests were done?

A. There was three in total.

Q. Three?

A. Yeah.

Q. And how much do stack tests like that cost?

A. That can vary, but somewhere between 50 to 100 thousand dollars. And I say that -- that's quite a big range because it depends on how the first day went. You know, we attempt to get everything done in one shot, so we create the conditions required by the permit or what we have to operate under when we're doing these stack tests, and then we have to be able to run consecutive hours, so let’s say three consecutive hours doing one of those tests. Right? And we have to do that several times.

So, if there was something that happened in there, I'd have to restart that, or if something, you know -- So, when we look at the cost of that, of course, there's the sampling cost and the consultancy fees that we pay for that, but when we are doing that, we'll also make sure that we don't interrupt that. So, if it's something that's happening not with the furnace and we can keep fiberizing and producing the wool, I'll keep doing that even if I can't move it down the line and sell that product, because we don't want to have to restart that because then the consultants, they have to --

they'll stay overnight and do it all again the next day, and that's kind of disruptive. So, we will continue to do that all the while just kind of making waste while we do it. So, there is that cost there which I'm not really including in that number that I said. That is a potential if it takes extra time to get all the conditions met or the duration met for the sampling, and then, of course, there's the reporting and whatnot and the analysis afterwards.

MR. WALLS: Thank you. No further questions.

CHAIRMAN KOON: Mr. Driver.

MR. DRIVER: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. DRIVER:

Q. Mr. Graves, at any point prior to the issuance of the modification permit were these categories shared with Mr. Pursley or anyone else at DEP?

A. No, they weren't. And the reason for that is, there was no discussion about doors prior to seeing the modified permit.

Q. And what role would Mr. Morgan -- what role did Mr. Morgan play in the preparation of this application?

A. Well, he acted as our environmental consultant for the application, so.

Q. Did he play a role in formulating the comments that

you would have made?

A. Yeah, yes.

Q. Did you work --

A. I believe so.

Q. -- closely enough with Mr. Morgan that any kind of questions or concerns would have been shared, to the best of your knowledge?

A. We had several conversations, conference calls, meetings with ERM, yes.

Q. Did he indicate that at any point a potential door issue had been discussed between him and Mr. Pursley prior to the issuance?

A. Not to me, no. No.

Q. So, if that discussion took place, you weren't aware of it?

A. I was not aware of it, no.

MR. DRIVER: Okay. I think any further questions along that line I'll address to Mr. Morgan. I don't have anything else for Mr. Graves.

CHAIRMAN KOON: Mr. Earley. Mr. Earley, do you have any questions?

MR. EARLEY: Yeah, I'm taking a minute to make sure I've got it formulated correctly.

CHAIRMAN KOON: All right.

MR. EARLEY: I think just one for now for Mr. Graves.

CROSS EXAMINATION

BY MR. EARLEY:

Q. Mr. Graves, you said that the previous permit -- that in the previous permit you were not required to keep the doors closed. Is that right?

A. There was no language similar to what's in the modified permit that said that, you know, not that I'd gone through. And I looked extensively for that, and my environmental manager did as well.

Q. Mr. Graves, I'm going to ask you to speak up a little.

A. Okay.

Q. We're having the same problem we had at the beginning.

A. All right. Did you hear my answer?

Q. Not well enough, frankly.

A. Okay. So, what I said was, in the construction air permit there was nothing explicit that said keeping all the doors closed at all times was required. There was how we interpreted, when it came to the charging plant, about the requirement for the enclosures around the conveyors. In fact, there's control devices in there that it's something

that we made clear from the start that these doors -- operators must -- they need to be kept closed, and we also audit that as well.

Q. Do you recall from the previous permit a condition that stated that all of the remelting and recycling plant transfer and milling operations are conducted indoors, the building is kept closed with a fast roller gate controlled by the movement of the FEL? The building is equipped with roof ventilation equipped with particulate filters to --

A. Yeah, yeah, I'm familiar with that one, and those are --

COURT REPORTER: I think he froze up.

THE WITNESS: Oh.

COURT REPORTER: I think we lost him.

(Brief pause.)

CHAIRMAN KOON: He just came back.

COURT REPORTER: We lost you for a minute, there.

MR. EARLEY: Oh, I'm sorry. I thought that I just didn't get the chance to finish my question.

COURT REPORTER: No, you froze up on us.

BY MR. EARLEY:

Q. Well, so the very end of that question was just finishing up with that passage which was, "The building is equipped with roof ventilation with particulate filters to

control the working environment for industrial hygiene purposes such as ammonia, odor, and mobile FEL --

A. You're talking about the, what I call our recycle facility. Some might call it the waste house for recycling, which is just north of -- sorry -- just to the top side of the curing hall. And there are no doors on there that I listed as being required to be kept open at any time. So, we don't -- So, that is doors that we do keep closed, and we do have rooftop units that are for filters and stuff in there. So, yeah, those do operate that way.

We also have our front end loaders that work in there as we're taking the in-process wool waste and milling those up and then recycling back into the furnace. But they also operate in front end loaders with climate-controlled cabs.

MR. EARLEY: Okay, Mr. Graves, I don't think I have any further questions for you.

CHAIRMAN KOON: Any redirect?

MR. WALLS: No, sir.

CHAIRMAN KOON: Any questions from the Board?

MR. FRAME: I have a question.

CHAIRMAN KOON: Go ahead.

MR. FRAME: Sir, it seems like the negative pressure environment being created by the spinning room

chamber fan is one of the mechanisms that's being relied upon to make sure emissions don't leave the plant. I would imagine if many doors are open, that negative pressure would be lessened. Do you still feel that no emissions would leave the open doors with that lesser amount of negative pressure?

THE WITNESS: I do, just because of the significant volume of air that is being moved. And the majority of it is coming into that category 2 door that we spoke about under the melt pit. That's where most of it's coming from, but there is a very slight under pressure, especially in Building 400, and I can feel that when I'm in there. And, also, the indoor air quality in our facility I'm quite proud of. It is not dusty. Our operators do not wear dust masks on the production floor. So, we've never felt that there was as you're walking around -- and we get nothing but compliments when we have our visitors come through our facility about the housekeeping which we take pride in and the quality of the work environment.

MR. FRAME: Thank you.

MR. DRIVER: And, Mr. Chairman, could I follow up on Mr. Frame's line of questioning?

CHAIRMAN KOON: Sure.

RECROSS EXAMINATION

BY MR. DRIVER:

Q. Mr. Graves, did you ever provide any documentation other than a statement that there was negative pressure to DEP showing that there was negative pressure?

A. No, I didn't provide a document that showed the air balance in the factory. No.

Q. Okay. So, we don't actually -- for DEP at the time of the issuance of the permit did not actually have any concrete information demonstrating that there was, in fact, negative pressure?

A. I'd say that's correct.

MR. DRIVER: I'll go ahead and pass.

CHAIRMAN KOON: Okay. You can step down. Thank you.

THE WITNESS: Okay. Thank you.

(Witness steps down.)

MR. WALLS: Mr. Chairman, we call Steven Pursley.

(Witness sworn.)

(WHEREUPON,

STEVE PURSLEY

WAS CALLED AS A WITNESS, DULY SWORN, AND TESTIFIED AS FOLLOWS:)

DIRECT EXAMINATION

BY MR. WALLS:

Q. Good afternoon, Mr. Pursley.

A. Hi.

Q. Just real quickly, you were the engineer assigned by DAQ to Rockwool's application to modify its permit. Right?

A. Correct.

Q. And you were the permit writer. Correct?

A. Correct.

Q. And you reviewed permit application. Correct?

A. That's right.

Q. And that was, I think you'd agree with me, a pretty extensive process. Correct?

A. Correct.

Q. And you're aware that Rockwool has appealed two discrete permit conditions in that modified permit. Correct?

A. I am.

Q. One dealing with the PM 12 limitations at the WESP stack and the other one dealing with the doors, the exterior doors. Correct?

A. Right.

Q. And you're aware that shortly after -- well, on the same day that we filed our appeal of the permit modifications, we filed a motion to stay the door permit condition, didn't we?

A. You did.

Q. And then we had an evidentiary hearing on that motion before the Chairman. Right?

A. That's right.

Q. And you were present during that hearing. Correct?

A. I was present remotely, yes.

Q. Okay. And Mr. Driver just asked our plant manager questions about whether or not we at Rockwool had the opportunity to discuss the door condition before the permit was issued. Correct?

A. Right.

Q. And it sounds to me like -- I don't want to steal Scott's thunder, but you may be getting ready to testify that you had discussions with Grant Morgan about that condition. Right?

A. Yes.

Q. But you didn't have any discussion --

A. I --

Q. Go ahead. I'm sorry.

A. I'm sorry, I should clarify. Specifically, I mean, I did not share the language of that condition or anything like that with Grant. Grant and I's conversation was more along the lines of, you know, we got these public comments about having the doors open, and my question kind of to him was, "Is that true? Are those doors ever opened and why?"

Q. And what did he say?
A. I think he said that he would check into that.
Q. Did he get back to you on that?
A. I don't think we ever talked again on the phone about that. There was, in Roxul's comments on the draft permit, the last comment I thought was kind of touching on that subject.
Q. What do you mean by that?
A. Well, because there he talked about the -- I'm blanking now, but there was -- the last -- the last comment on there that Roxul commented.
Q. Okay. Was it about the doors?
A. I -- I -- my reading of it was I thought that's what he was referring to.
Q. So it's true, is it not, that permit condition 4.1.11, the door condition, was not in the draft permit that DAQ issued. Correct?
A. That's correct.
Q. And so Rockwool never officially commented on that permit condition, did it?
A. On that condition, no.
Q. Okay. And I think you're telling me that nobody -- you didn't talk to anybody at Rockwool about the condition, whether generally or specifically. Correct? Before the

permit was issued on November 16.

A. I did not talk to, no, to Mr. Graves or anyone actually employed by Rockwool.

Q. Okay. So, I think you're going to say that you were kind of surprised when we put that exhibit into evidence at the hearing on the motion to stay in which we categorized the doors. Correct?

A. I mean, I wouldn't say I was necessarily surprised that you did that. It just was something that I hadn't seen.

Q. Yeah. And there was a little window between when the permit was issued and when we filed that motion to stay. Right?

A. Right.

Q. All right. So, you hadn't had a chance to review it before the hearing on the motion to stay?

A. That's correct.

Q. You've had a chance to review it now. Right?

A. I have.

Q. It's been a couple of months. Right?

A. Right. A month.

Q. And you've heard testimony both at the hearing on the motion to stay and today from Mr. Graves about our opinion that 87 of the 95 doors should not be subject to the permit condition. Right?

A. Right.

Q. And you hear -- you've heard us talk about why we think that permit condition should not apply to those other 87 doors. Right?

A. That's right.

Q. Okay. And do you agree with us?

A. I agree with you on what you categorize as the category 2 and category 3 doors.

Q. Okay. So, do you have that in front of you?

A. I do, yeah.

Q. Okay. Well, I do not. Oh, here it is. All right. Is it your understanding that -- So, you agree with us on all the category 3 and 4?

A. No, all the category 2 and 3. The one category 2 door I think in reading Mr. Graves's -- the transcript from the hearing, it's clear I think that it's, one, necessary for the operation of the plant and, two, the fact that it's essentially never closed while the plant's operating, I think is reasonable to keep it opened. Then with the category 3, again, reading from the transcript, I think is reasonable. I'm pretty convinced that there's no chance of excess fugitive particulate matter from those category 3 doors.

Q. Okay. So, you agree with us that permit condition 4.1.11 should not apply to category 2 and category 3 doors?

A. Correct.

Q. And you heard me talking about my lawyer math, but when you add up the category 2, 3, and 4 doors on here, then you include the eight in the charging building, you get a total of 39 doors. Right? There are a --

A. Right.

Q. -- total of 95 minus 39 is what? So, there's a whole tranche of other doors that aren't reflected on this Exhibit 1. Right?

A. Correct.

Q. And what is your position about those other doors? Should permit condition 4.1.11 apply to those?

A. I mean, it's my understanding based on Mr. Graves's testimony in the hearing and here that those doors are kept shut anyway.

Q. Okay. So, you believe that the permit condition should still apply to those 56 doors?

A. Correct.

Q. Are you aware of any evidence, credible or otherwise, that if we leave category 4 and those other 56 doors open, there's going to be fugitive emissions?

A. I would separate those two, category 4 and those other doors. Those other doors I've not looked at at all because, again, it was my understanding that they're kept

shut anyway, so I didn't look into those. With the category 4 I do think that there is potential for excess fugitive emissions from those ten doors.

Q. And what do you base that opinion on?

A. Well, I mean, simply the fact that well-established control for particulate matter are enclosures. When you open those doors, and I know that Mr. Graves testified that there's a slight negative pressure there. I mean, we haven't seen any documentation of that, and even if there is a slight negative pressure, and again, I don't know anything about -- I don't know -- it sounds like that there was never any testing done to confirm or quantify what that negative pressure would be, but typically when you talk about buildings under negative pressure, that pressure differential is pretty small. And so, I mean, my concern was when you open doors particularly he mentioned getting cross-breezes, well, I mean, if you open doors on each end of the building, you're not going to get a cross-breeze unless the air's exiting the other end of the building.

Q. Yeah, let me go at it like this. You've been doing this for 27-1/2 years. Right?

A. Correct.

Q. And under various regs, DAQ has the power and the right to institute certain conditions on air permits. Right?

A. Sure.

Q. And wouldn't you say that it's best practice for DAQ to only institute those special conditions when it has evidence that it needs to?

A. We would not put a condition in a permit that we didn't think was necessary.

Q. So, let's talk about the 56 other doors. Right?

A. Okay.

Q. I'm not talking about the charging building doors.

A. Understood.

Q. I'm not talking about category 2, 3, or 4 doors. I'm talking about the rest of them.

A. Understood.

Q. There's no evidence, none, that those doors need to be subject to permit condition 4.1.11, though, is there?

A. I'm not aware. Again, like I said, I didn't look into those doors.

Q. Yeah. It's not our job to show the absence of that. It's your job to show that there's evidence that if you don't make those doors subject to 4.1.11, there's a chance of fugitive emissions. Correct?

A. I would not agree with that. I mean, there is an onus on the applicant to categorize all potential emissions from a facility.

Q. And we did that, didn't we?
A. You did.
Q. And did we show any emissions from any of those 56 doors?
A. Not that I'm aware of.
Q. It's because there aren't any. That's the point. We did show --
MR. DRIVER: Objection. This is getting into argumentation or testimony. There wasn't a question there.
CHAIRMAN KOON: You can ask a question.
BY MR. WALLS:
Q. Your point is it's up to us to show the emissions from the different potential emission sources. Right? Points.
A. Correct.
Q. And did we show any from any of those 56 doors?
A. Not that I'm aware of.
MR. WALLS: Thank you. No further questions.
CHAIRMAN KOON: Mr. Driver?
MR. DRIVER: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. DRIVER:
Q. We've discussed the negative pressure issue as we go through these lines of questioning. I know that there are

-- I suspect there were at least two people very familiar with ventilation in a mining context which often implicates negative pressure. Could you kind of explain what that means? What effect would negative pressure have on emissions in the facility?

A. A facility under negative pressure means -- essentially you can think of it as if you've got a cube and you've got a stack coming out the middle of it and it's sucking air through that building up out the stack. That means that the air will be coming from the outside going into the building, but will not be -- and only coming out of the building through that stack in the middle. There won't be -- if you have a positive pressure building and you open the door, air will go out the window. If you have a negative pressure building and open a window, the air will come from the outside and go into the building.

Q. And were there ways to measure that other than, you know, feeling the wind coming through? Are there ways to quantitatively measure that?

A. I have, yes. There are -- there's testing that can be done to quantify and confirm that the building is under negative pressure.

Q. And were you ever provided with any documentation or analysis by Rockwool regarding that potential issue?

A. No.

Q. And I believe you testified both at the stay hearing and just now that you had some discussion with Mr. Morgan stating that there may be some kind of enclosure emission issue. Is that correct?

A. Yeah. Again, what I -- my memory of our discussion was that I had mentioned the comment -- and Mr. Morgan was at the meeting, he heard the comment himself about the doors being open. So, I asked him about that, if that was true, if those doors were open when it got hot, and if that was true, why? Were the doors being opened?

Q. Do you feel like you put it on the radar for him at least?

A. Yeah. Again, he did not see the actual language of the condition, but, yeah, I felt like we at least raised the issue.

Q. And the category of doors that need to be opened when it gets hot in the building, do you think that there is a -- that there is a reasonably and actable technological solution to that?

A. Yeah, and that's, I mean, we certainly are not asking Rockwool to make their employees uncomfortable. We don't want -- we don't want that. But we think that a better alternative would be some changes to the HVAC system, and

again, I mean, it was mentioned about air conditioning. We don't expect -- that's not reasonable to air condition a building that size. But we do feel that some changes to the ventilation could probably accomplish the same cooling effects without the potential of increased fugitive emissions.

MR. DRIVER: I'll go ahead and pass the witness to the Board or back to Mr. Walls.

CHAIRMAN KOON: Mr. Earley?

MR. DRIVER: I'm sorry, Andrew. I didn't mean to cut you out there, man.

MR. EARLEY: That's all right, Scott.

CROSS EXAMINATION

BY MR. EARLEY:

Q. Mr. Pursley, I think -- I mean, I just have one question. Are you aware of any evidence that fugitive emissions wouldn't escape?

A. No. I mean, the company has submitted a statement and Mr. Graves has testified that there's some negative pressure, but again, you know, my concern is when you talk about opening multiple doors to create cross-breezes, again, cross-breeze isn't going to be created unless it's entering one area and coming out another, and it's that coming out of the other area that is a concern.

MR. EARLEY: That's my only question for you. Thank you, Mr. Pursley. I'll pass it to the Board.

CHAIRMAN KOON: Any questions of the Board?

(No response.)

CHAIRMAN KOON: I'm going to ask just a couple that I asked at the stay hearing.

THE WITNESS: Okay.

CHAIRMAN KOON: So everybody will hear this, too. One question is the other 40 odd doors, has OAQ ever in any other facilities mandated doors that are like office doors and so forth be closed as part of a permit?

THE WITNESS: No. And, I mean, to be clear, when we -- we may not have phrased it with as much specificity as we could, but when we were talking about these doors having to remain closed, we never intended office doors to be part of that.

CHAIRMAN KOON: Yet the permit says "all doors."

THE WITNESS: It does. It says "all doors." You're correct.

CHAIRMAN KOON: And again, there was no evidence of any fugitive emissions that you looked at when you wrote the permit. Right?

THE WITNESS: From any -- correct, from any of those, right.

CHAIRMAN KOON: Or the category 4 doors?

THE WITNESS: Well, the category 4 doors, again, I think there is --

CHAIRMAN KOON: Wait a minute. Let me correct you. I said is there any evidence. Not what you think.

THE WITNESS: Evidence.

CHAIRMAN KOON: There's no evidence. There's never been any testing. There's never been anything on those doors. Right?

THE WITNESS: Correct.

CHAIRMAN KOON: Okay. Any other questions?

(No response.)

CHAIRMAN KOON: All right. You can step down. Thank you.

(Witness steps down.)

MR. DRIVER: And, Mr. Chairman, could I take a really brief break. I got a -- I got a text earlier that my mother-in-law's in the hospital.

CHAIRMAN KOON: Sure.

MR. DRIVER: So I just have to check on that.

CHAIRMAN KOON: We can all take a break. Let's take five or six minutes.

COURT REPORTER: We're off the record for a recess.

(WHEREUPON, a recess was taken at 2:54 p.m.)

CHAIRMAN KOON: We'll go back on the record. Mr. Earley, you're okay still?

MR. EARLEY: Yeah, I'm good.

CHAIRMAN KOON: Okay. I wanted to make sure you're still connected okay. All right, Mr. Walls, you're still in your --

MR. WALLS: Thank you. Mr. Yaussy is going to call a witness.

CHAIRMAN KOON: Okay.

MR. YAUSSY: I'd like to call Mr. Graves back to the stand or to the stand. I'm sorry. I'm sorry. Mr. Morgan.

(Witness sworn.)

(WHEREUPON,

GRANT MORGAN

WAS CALLED AS A WITNESS, DULY SWORN, AND TESTIFIED AS FOLLOWS:)

DIRECT EXAMINATION

BY MR. YAUSSY:

Q. Mr. Morgan, I have some questions about doors and PM 2.5 basically. Since we've been talking about doors, let's go with that first.

A. Okay.

Q. How would you evaluate the fugitive dust emissions

from the plant that could possibly come out the doors? How did you evaluate that for the permit application?

A We include that assessment in the permit application, and as we heard Mr. Graves testify about the charging building, we included estimated fugitive emissions in the charging building, which is where we also used a settling factor as a mechanism of control for those fugitive emissions. We expand out on the process from the charging building when the mineral is then loaded into the melt furnace, as we've talked about here today. That is at the point at which fugitive emissions are no longer characterized in the permit.

From that point on, the generation of fugitive emissions is characterized by what we term as point sources in the permit which have their own bag houses or filter systems and -- well, we close vent systems to collect the generation of those fugitive emissions.

Q. So there would be no fugitive dust from the doors because there's no fugitive dust?

A. That's correct. There are no fugitive emission sources characterized in the facility operations outside of the charging building.

Q. You heard testimony about a cross-breeze, and Mr. Pursley said, and I believe I'm getting this correct, that if

air was coming in one side and it's going out the other, that could be carrying fugitive dust. What would be the breeze pattern in something like the building? Would it be flowing through or through in and up?

A. Well, generally, because of the amount of airflow that would be required through the cooling system, that airflow would be being drawn in. So if there was a door open for a cross-breeze, the way that that would promote flow would be through the door into the cooling fan.

Q. But not from one door across the factory to another door?

A. That's not my understanding of how that would occur, no.

Q. The WESP, you testified about it before, but the wet electrostatic precipitator takes up emissions from the product as it's coming down the line. Correct?

A. That's correct.

Q. Tell us how that operates and why that might create a negative pressure.

A. Well, the wet electrostatic precipitator induces a significant amount of flow associated with it, and that's so that across the spinning chamber, the curing oven, the cooling section, all of those are routed through the closed vent system to the WESP as the point source. So, those are

designed bays, gutters, closed vent systems coming off of each of those sources, is what I described as like a connection directly to the WESP.

Q. Is the WESP's operation in that fashion required by the permit?

A. Yes, the WESP is required to be in operation by the permit, and there are monitoring conditions of secondary amperage and secondary voltage on the WESP. Those are continuously monitored parameters.

Q. And those guarantee that the WESP is drawing air up and out through the stack?

A. Those parameters would ensure correct operation of the WESP, yes.

Q. And the WESP exists to do that?

A. That's correct.

Q. Okay. Let's turn to PM 2.5.

A. Okay.

Q. Tell us briefly what PM 2.5 is.

A. PM 2.5 is particulate matter of 2.5 microns or less.

Q. And that is something that is regulated for determining whether something's a major source or a minor source?

A. That's correct. It's what we would term as a

national ambient air quality pollutant.

Q. Now, from minor sources, though, how do you set -- PM is particulate matter 2.5. How do you set limits for particulate matter if you're looking at a minor source?

A. If you're looking at a minor source, you won't be concerned with some of the modeling provisions that exist in major sources. A PM limit could be required because of a state or a federal rule or based upon manufacture data that talks about the potential to emit.

Q. Okay. And what rules govern particulate matter for a facility like RAN-5?

A. For a facility like RAN-5, what I'll call State Rule 6 and State Rule 7, so 45 CSR 6 and 45 CSR 7 applies particulate matter rules.

Q. Do they regulate particulate matter or do they do it through a proxy of some kind, like opacity testing?

A. Under the rule, it depends. Some opacity standards are required. State Rule 6 has an F factor calculation. Some operations under State Rule 7 could require source testing depending upon their specific applicability.

Q. What is opacity testing?

A. Opacity testing would be conducting visual observations of an omission point to look for either black or white smoke and, based upon the opacity of that smoke,

there's a correlation that can be made to the amount of particulate matter emitted from those sources.

Q. Are there opacity conditions in this permit?

A. There are opacity conditions in this permit.

Q. Is there a separate rule, separate state rule that establishes a PM 2.5 limit of some kind or provides a calculation for regulating PM 2.5?

A. Not specifically for PM 2.5.

Q. How did we end up then with a PM 2.5 limit then in this minor source permit?

A. We have a PM 2.5 limit because I guess PM 2.5 would qualify as a statutory air pollutant, and so it would be common under minor sources permits it would be listed as a permitted emission.

Q. It was originally had a limit -- and I stated that poorly. It originally had a limit as a major source in the major source permit.

A. That's correct, yes.

Q. And so when it came time to set a limit in the minor source permit, you had done a stack test, you had some kind of data available?

A. Yes, that's true.

Q. And the data established what kind of PM 2.5 emissions you might expect to see?

A. Could you repeat the question, please?

Q. What did the stack test tell you with regard to PM 2.5?

A. The stack test provided some insight into the levels of emissions from the RAN-5 facility. Prior to that testing, those emissions were based upon Rockwool engineering information, other factories, a compilation of calculations, but none had yet been RAN-5 specifics and so RAN-5 had not yet built -- been constructed or tested.

Q. Now, to be precise, we're talking about the PM 2.5 limit for the WESP. Correct?

A. Yes.

Q. There's PM 2.5 limits elsewhere, but the WESP is the only one that we appealed?

A. Yes, that's correct.

Q. Okay. And how does the WESP deal with, reduce, control PM 2.5?

A. Sure. So the WESP, the wet electrostatic precipitator, is going to charge the ions in the effluent gas to promote a charge and then to attract those charged ions, particulate matter, to a magnet to remove them from the effluent flue gas, and the reason this is a wet electrostatic precipitator is because it does it in the presence of water, and so those charged ions are then swept away with water and

removed from that effluent stack before continuing on and being emitted from the stack or chimney.

Q. Now, the WESP is something that just operates to its best of ability at all times. Right? You don't adjust that according to operations at the plant.

A. Correct. The secondary amperage and voltage monitoring conditions that are in place don't change based upon how RAN is operating. Those are always conditions of the permit.

Q. So, does it make any difference what the permit limits are as far as affecting how much is actually emitted from the WESP?

A. It does not.

Q. Explain that.

A. The actual emissions coming from the WESP, based upon how the WESP is performing, the WESP doesn't perform based upon how the permit condition is written. The WESP performs based upon what's being loaded to it, how that secondary amperage and voltage are being applied and how many stages of the WESP are in operation. RAN-5 happens to have four different stages in operation, so all of those would be the considerations that impact what's actually coming from the stack, not the permit condition itself.

Q. You've heard talk in the previous appeal about

stack testing. Is stack testing -- just to make clear, is stack testing done at levels that would generate the highest levels of PM 2.5, expected levels of PM 2.5?

A. Yeah. As the stack testing would have been designed would have been to capture those maximum potential emissions.

Q. Okay. So, you did the stack testing. You didn't, but the stack testing was done. The results were tallied, and there was a number that was the average. They had high numbers, had average numbers, but from those numbers the DEP picked out a permit limit to impose. Do you recall the number?

A. I believe it was 30-point -- was it 30.6 tons per year?

Q. Yes. So, how did they come up with that number?

A. DEP has described that they looked at the highest run of the three runs that were conducted as a part of the compliance test and applied a 20 percent contingency on top of that hourly maximum value.

Q. What you proposed, Rockwool proposed, but you calculated a different number. What number was that?

A. We had calculated and provided in the permit application a number of 50.39 tons per year as the applicant-provided potential to emit.

Q. And why did you believe that a higher number might be appropriate?

A. Well, there are a number of different reasons. To briefly cover those, the first is the amount of variability that you would expect in field testing. So, PM 2.5, it includes both filterable and condensable particulate matter. Because the WESP operates in the presence of water, that water interferes with some of the known test methods that exist.

MR. DRIVER: Can I jump in real quick? I just want to ensure that Mr. Morgan is still qualified as an expert here. I'm not objecting to his qualifications, but I want to make sure he's still being called as an expert.

MR. YAUSSY: He is being. He's offering opinions as an expert, yes.

MR. DRIVER: Okay. I have no objection to his qualifications this time either.

THE WITNESS: So, part of the reasons was the variability with the source testing, the ability to achieve repeatable results based upon the methods that were being used, and Rockwool's experience conducting that type of testing at other facilities informed their perspective on what made the variability just across the testing method be.

I think the second that we would point to is also

just the variability among operations. Mark Graves gave some testimony earlier about how they have to keep the operation running. They've got to do it at maximum amounts, and there's an opportunity there for variability and how the -- I won't say how the WESP is operating. The WESP kind of operates its own way. But how the spinning chamber, curing oven, and cooling section are being generated. And so it was our perspective that only looking at three stack tests didn't provide a large enough sample size to consider some of the inherent variability. And the number that we provided in the permit application took into account Rockwool's experience testing at other factories and other sources, and felt that that was a more appropriate number to include in their permit application.

BY MR. YAUSSY:

Q. So, the higher limit wasn't intended to increase emissions?

A. Correct.

Q. Then why was a higher number important?

A. A higher number was important based upon the provisions of the permit that require the frequency of testing to be based upon the most recent result generated. So, just to state what the permit includes, if you exceed 90 percent of your permitted emission limit, the permit would

require you to conduct testing annually. If you are less than 90 percent of your permit limit, the permit would allow you to conduct testing once every three years.

Q. So, the higher limit that Rockwool has asked for makes it more likely not that we'll increase emissions, but that we'll have to test less frequently?

A. That's correct.

MR. YAUSSY: I have nothing further, Mr. Chairman.

CHAIRMAN KOON: Mr. Driver.

MR. DRIVER: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. DRIVER:

Q. Mr. Morgan, I suspect you know where this is going, but did you ever discuss with Mr. Pursley or have any reason to think that we might have some questions about the doors?

A. Mr. Pursley and I did have a discussion, as he talked about, after the public meeting when the comment was raised. We had a brief conversation on the phone as I recall it. Then we generated a small number of written comments to provide back to him to support DEP's response with some of the questions that were posed.

Q. Did any of those comments address the door issue?

A. One of those comments was specifically on the doors, yes.

Q. So, it would be accurate to say that you all -- that before the permit as issued came out, you all were aware that there was an issue, a potential issue, with emissions from the doors. Is that correct? Because I believe, and I don't want to put words in anybody's mouth, but I believe the characterization has been that this was a total surprise to Rockwool and just bounced out in the permit as issued, and Rockwool had no reason to think -- to discuss the doors because they had never been brought up. Do you think that would be an accurate characterization?

A. I think the way that I would try to characterize it is that we had a discussion on fugitive emissions that was raised because the public asked some questions about some doors, but it is just my opinion here that I didn't fully understand the construct of what DEP may place in the permit at that time as far as all of the doors.

Q. Do you think Mr. Pursley's recollection that he said that they might be an issue and he wanted to know why you all were doing it that way? Do you think that his recollection is correct?

A. Oh, yeah, I definitely remember that we had a conversation about it. But like he said, nothing was exchanged in writing, so there was an opportunity for miscommunication perhaps.

Q. So, you wouldn't say that it's a surprise that there was some kind of an issue with the doors or that DEP had an issue with the doors?

A. It depends upon which doors you're talking about, sir.

Q. Okay. Did you ever get back to him with any information that he had requested about those doors?

A. We had provided that written response that he had requested, and so I think we provided a paragraph or two of response to his question.

Q. Okay. So, you again having responded to it, it wasn't an ambush for us to bring up the doors or to include a condition about the doors. Is that correct? And again, I'm not trying to put words in your mouth.

A. I would say that I was understanding that the discussion of doors where fugitive emissions applied. I would say I was surprised about conditions on doors where the permit did not characterize the existence of fugitive emissions, nor did the permit claim a settling factor control device on fugitive emissions.

Q. Did you provide any kind of -- and again, I think we've established that negative pressure and negative emissions is pretty important here, potentially important. Did you all ever provide any documentation of that to DEP

prior to the permit being issued?

A. To my knowledge, there was no testing or flow measurements that were provided, no.

Q. And shifting gears to PM 2.5. First of all, I want to clarify, in the notice of appeal in a couple of instances, it says 33.6 tons per year and 8.0 kilos. I want to make sure that pounds. Does that sound right, that it would be pounds and not kilograms per hour?

A. This permit did something that I've only ever seen in this permit in which it issues all the limits in pounds per hour and in kilograms per hour. That was because of Rockwool's request generally dealing with the metric system. I haven't done the conversion here quickly. I don't want to say one way or another, sir.

Q. Okay. And when we talk about the three runs for the stack testing, which value was used as the base for the 120 percent limit? Was it the lowest, average, highest?

A. It was the maximum value from those runs.

Q. Do you have any reason to believe that there were any circumstances that would have made this particular test an outlier that was unrepresentative of the usual operations?

A. My response would be that there's not a sufficient sample size to make that statement.

Q. And did you work with Mr. Pursley on this permit

application?

A. Yes. Yes, I did.

Q. Did DAQ or DEP give Rockwool the chance to do additional stack testing if it wanted to?

A. It was a point that was raised during some of our discussions, yes.

Q. And why did Rockwool elect not to do that if variability was a huge potential issue?

A. The discussions that I was part of at that time is that there were no requirements to conduct that testing and that Rockwool had already demonstrated through the previous permit that there would be no impact to air quality, and so they did not desire to voluntarily take on additional burden when they didn't believe that it was demonstrating a lesser impact on air quality. Hopefully, that's not too verbose, but that's just what I recall.

Q. No, not at all. But if Rockwool's contention is that the single stack test is potentially invalid and it was afforded an opportunity to reduce that variability and say, "DEP, look, you're wrong here. This is, you know, this is demonstrating that this is completely variable," why didn't they do that?

MR. YAUSSY: I'm going to object. We did not say the test was invalid.

MR. DRIVER: Oh, no. Well, strike -- well, let me rephrase it. Potentially unreliable or nonrepresentative.

MR. YAUSSY: I don't believe we characterized it in that fashion at all.

BY MR. DRIVER:

Q. Well, real briefly then, why does the variability matter? Why does the potential for variable results in the stack testing matter?

A. It's basing the permit limit on just that stack test I think that we take exception with. It would be somewhat unique to Rockwool to gain a preconstruction permit, take a testing, and then come back and reduce the limits. And so it was that additional burden of taking additional testing that was somewhat unique to Rockwool that was part of the reason for the desire to not conduct additional testing.

MR. DRIVER: If I could have one moment with my representative here. (Brief pause.) I'll go ahead and pass the witness, Mr. Chairman.

CHAIRMAN KOON: All right. Mr. Earley.

MR. EARLEY: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. EARLEY:

Q. Mr. Morgan, I’m sorry to make you jump back and forth between us, but we're going to go back to the doors

quickly here.

A. That's fine.

Q. Where does the inward flowing air go when you're discussing the air coming in from the open doors?

A. That would be drawn in by the cooling fan in order to promote airflow across the mineral product to reduce the temperature.

Q. And where does it go from the cooling fan?

A. From the cooling fan it would be routed through the WESP as a particulate matter control.

Q. And has that process been characterized for fugitive emissions?

A. The process has not been characterized for fugitive emissions. The cooling and curing and spinning chamber are point sources in the permit.

Q. And so if it hasn't been characterized for fugitive emissions, how can you say that there are no fugitive emissions escaping?

A. I believe it would come back to fugitive emissions haven’t been characterized as a part of the operations within that building.

Q. Because they were only characterized in relation to one portion of the building. Is that correct?

A. That's correct. The charging building is where the

fugitive emissions were calculated and, therefore, that settling factor that was claimed to keep the doors shut.

Q. Do you have -- What's your basis for claiming that the WESP can handle the amount of airflow that's coming in from these open doors?

A. Well, the WESP and the size of the fan, the design basis there is kind of -- Let me make sure I'm understanding your question before I respond. Could you please repeat that, sir?

Q. Yeah. What's your basis for concluding that the WESP can handle the amount of airflow coming into the doors necessary to create negative pressure within the facility?

A. I don't know that I can speak to that as the negative pressure isn't claimed in the air permit application as having any impact or control. I'll also say that the doors being open is kind of independent of the design of the fan of the cooling section. That fan design is just not something I can speak to.

Q. I want to make sure I understand your point with the fan design correctly. Are you saying that the fan is not designed as an operational control?

A. No, that's not what I'm saying. I think I'm saying that the design basis of the fan is not something that I have significant experience with. How that applies to the air

permit or the BACT analysis or things like that I do have familiarity with. But I think you're asking -- as I understand your question, your question is on the design of the fan itself, and I did not design that fan.

Q. I was actually just kind of trying to clarify that I understood your testimony correctly as it relates to the role of the fan. So, I'm going to move on to PM 2.5, to talk about that with you a little bit.

A. Okay.

MR. EARLEY: I don't want to repeat Mr. Driver's questions and, actually, I don't think that I have anything different than the questions that he asked you.

CHAIRMAN KOON: Thank you. Anybody on the Board have a question?

MS. STEWART: I have a question.

CHAIRMAN KOON: Go ahead.

MS. STEWART: Going back to the doors. For the buildings, are the doors that are in rooms or buildings that have things like maintenance activities, laboratory activities perhaps, maybe even some cleaning or waste, is there potential there for fugitives that would have been affected with the door closed or not? If you account for any emissions from that.

THE WITNESS: To respond to your question, like one

specific example is I know that there is a small bandsaw that is used for QAQC. Under some of the provisions of Rule 13 I think specifically the de minimis table, that specific emission source is deemed de minimis in Rule 13 and, therefore, not included.

MS. STEWART: Right. But in particular not just so much about the 2.5 or the fugitive specific, but about whether the door being open or closed has any effect. Whether it's --

THE WITNESS: Yeah, no type of settling factor or control was claimed by the door in any of those locations, so I would say it has no effect, yes.

MS. STEWART: Okay. That's all I had.

CHAIRMAN KOON: I forgot to give you a chance to redirect.

MR. YAUSSY: It will be quick.

REDIRECT EXAMINATION

BY MR. YAUSSY:

Q. You heard the question about fugitives, and you were referring to point sources. Could you clear up for people why if you have a point source, you don't have fugitives and vice versa? Can you explain that?

A. Yeah. So, when we're talking about a fugitive source and we're talking about the charging building. Right?

Raw materials are being moved on conveyor belts, dumped into silos. There is a generation of dust that occurs there just generally within the building. As we move out of the charging building, we move into the other pieces of a process. There are designed closed vent systems on top of the emission units designed to collect that fugitive dust or to collect that point source dust, I should say. And so the design of the facility itself having direct closed vent systems with fans pulling air on the control devices prevents the potential of fugitive emissions being generated.

Q. More basic than that, fugitive emissions are those that don't go out of stack. Correct?

A. Yeah, that's true.

Q. So, if you have emissions going out of stack, then those aren't fugitive emissions?

A. That's correct.

Q. And around the product line, those all go out the stack. Correct?

A. Yes.

Q. And that's why it wasn't evaluated for fugitives?

A. That's correct.

Q. Mr. Morgan, would it be fair to say that both you and Rockwool were surprised that the DAQ put a permit condition in that required Rockwool to keep all doors closed?

A. I would say that all doors closed was a surprise, yes.

MR. YAUSSY: Nothing further. I'm done here.

CHAIRMAN KOON: All right. You may step down. Thank you.

THE WITNESS: Thank you.

(Witness steps down.)

CHAIRMAN KOON: Mr. Walls?

MR. WALLS: Rockwool rests.

CHAIRMAN KOON: Okay. Mr. Driver.

MR. DRIVER: Thank you, Mr. Chairman. This time we're actually going to put on a case. I'll call Mr. Stephen Pursley back to the stand. He should know where it is by now.

(Witness sworn.)

(WHEREUPON,

STEVE PURSLEY

WAS CALLED AS A WITNESS, DULY SWORN, AND

TESTIFIED AS FOLLOWS:)

DIRECT EXAMINATION

BY MR. DRIVER:

Q. Hey again, Mr. Pursley. I know that you don't have it right in front of you, but does it sound right to say that the chosen limits was 33.6 tons per year?

A. Yeah, that's correct. I looked more at the hourly numbers, 8 pounds per hour.

Q. And it was pounds, not kilos. Correct?

A. It is. It is pounds.

Q. And what value was used as the basis for the limit we assigned and why?

A. Right. Well, I mean, as I kind of talked about in the first hearing this morning, there was a lot of back and forth with the company and DAQ when they initially came in and had essentially kept all those -- or requested to keep all those emission limits from the first permit that was issued in 2018.

So, and during that negotiation the company and DAQ came to an agreement essentially on everything except the PM limits from the WESP. I think at one point we talked, and I had had conversations with Mr. Yaussy, and he essentially told me that they were going to submit the application with that number in it, and conversations within DAQ -- with the 12 pounds per hour. I'm sorry. With 12 pounds per hour from that emission limit. And we would, you know, we were just going to have to do with it what we could do.

And so after internal conversations when we got that, that number we felt was not warranted. So, what we took was the stack test that had been done, we looked at the

three runs, we took the highest of those three runs and added a safety factor of 1.2 times the highest run to it to get 8 pounds an hour.

Now, you know, I think it's worth pointing out that the average, you know, compliance with that permit limit would be based on an average of the three runs. And, you now, the average of the three runs for the stack test that was performed was 4 point something pounds per hour. So, I know Grant had talked about the concern that they could get up above 90 percent of that permit limit and have to stack test every year instead of every three years. I understand that concern, but, I mean, you know, when you're talking 90 percent of an 8 pound per hour limit, you're talking 7.2 pounds. You know, the average of the three runs from that existing stack test was 4 point something. So, DAQ felt that there was ample cushion built in there.

We also had even discussed with them, you know, that if that was their concern, doing the additional testing, that that's something that we could work with them with, and we did. You know, the initial permit, the original PSD permit had a different testing schedule, and we kind of bumped that up to I believe with the first one, you know, if they were at 50 to 90 percent of that emission limit, then they had to test every three years. With the issuance of

this permit, we bumped that clear up to 90, so we felt -- I mean, we just -- and, you know, they obviously disagree, but we felt that we -- that the limit and the changes we had made to the testing protocol in there were reasonable.

Q. And you said that one of the values was 4.62. Does that sound about right?

A. That's about right.

Q. Barring some extreme outlier condition, if their stack test on this is remotely accurate, should they have any trouble meeting the limit that was set?

A. I mean, if it's -- if that stack test is representative, I mean, like I said, the average for them to have to test more often, the average of those three runs would have to go from 4.62 to 7.2. So, I mean, if that stack test is representative of their maximum operating conditions, you know, I just don't understand how that would be an issue.

Q. And the Appellants stated in their notice of appeal that the limits were set without us referring to any standard or requirement in the SIP or to any other legal requirement other than 45 CSR 13-5.10. Is there any requirement that we consult the SIP?

A. I'm sorry, is there any requirement what?

Q. That in setting this limit that we refer to or consult the State Implementation Plan.

A. I mean, Grant mentioned 45 CSR 6 and 45 CSR 7, those are state rules that have specific methods of determining a particulate matter. Grant mentioned the F equation. Rule 7 has a table in it that has a process weight rate based emissions. And that was not -- that was not referenced or consulted, it was not a basis of the 8 pounds per hour. You know, through the evaluation we did, of course -- I had to go through and ensure that the facility met those requirements, but, no, the selection of 8 pounds per hour from that WESP was based on 45 CSR 13, Condition 5.10.

MR. DRIVER: And I'm going to share the screen, with the Board's permission.

CHAIRMAN KOON: Sure.

MR. DRIVER: I'm going to attempt to.

MR. WALLS: Andrew can help you.

MR. DRIVER: Okay, let me try again. My apologies.

BY MR. DRIVER:

Q. Okay. I've pulled up 45 CSR 10, 5.10. I'm not going to make you read through that, but is this the section on which you predicate how we set the limits?

A. To be honest with you, I can't read that.

Q. Oh, gosh, I'm sorry. I thought I had it blown up as big as it could go.

A. Well, you probably do. My eyes aren't great.

MR. WALLS: David can share his computer with him.

MR. DRIVER: Okay. If you don't mind, that would be fantastic.

THE WITNESS: That's correct.

BY MR. DRIVER:

Q. Okay. Would you read just the first sentence there?

A. "The secretary may impose any reasonable condition as part of a granted administrative update, construction, modification, existing stationary source operating permit, or relocation permit."

Q. Are you aware of anything in the State Code, federal regulations, state regulations that would contravene that?

A. I'm not.

Q. In this particular case.

A. I'm not.

Q. Do you believe that in this case that we had the authority to impose a reasonable condition?

A. I'm not a lawyer, but I believe we did.

Q. Do you believe that this condition, as a permit writer, do you believe that that condition is reasonable?

A. I do.

MR. DRIVER: I don't think I have anything else

right now.

CHAIRMAN KOON: Mr. Walls.

MR. WALLS: Thank you.

CROSS EXAMINATION

BY MR. WALLS:

Q. Mr. Pursley, I just have a few questions.

A. Sure.

Q. You understand that Grant Morgan at ERM was Rockwool's consultant in connection with the application for the modified permit. Right?

A. Correct.

Q. And is it your understand that, based upon your 27-1/2 years of experience doing this that companies like Rockwool, applicants like Rockwool, typically hire people like Grant to be their consultants in connection with the application process?

A. Right.

Q. And is it fair to say that you've worked with a number of people like Grant through the years?

A. Yes.

Q. And is it also fair to say that, based on your experience, you find Grant to be a very good consultant to work with from DEP's perspective?

A. I do.

Q. Okay. And do you understand -- Strike that. In our application, we asked DAQ to set the PM 2.5 limits at the WESP at 50 point something pounds per year. Right?

A. Right, and which correlated I think to 12 pounds per hour.

Q. 12 pounds per hour. And do you understand Grant's rationale for asking for that limit?

A. As through his testimony, yes. As I mentioned earlier, it was -- and he -- and he had mentioned even previously that one of Rockwool's concern was with a lower emission limit, an increased chance of not necessarily violating it, but going over the 90 percent threshold that would require more frequent testing.

Q. With all due respect, I say that's half of the story, and tell me if this is the other half. So, is it your understanding that Grant told you that we would really like to see the limit at 50 something pounds per year or 12 pounds per hour, rather than the 33.6 that you imposed, because (a) the lower limit will make it more likely that we're going to have to do annual expensive testing versus every three years, and (b) there is absolutely no environmental benefit to setting the limit at 33.6 pounds per year versus 50 pounds per year?

A. Tons per year.

Q. Tons per year.

A. Yeah, and as I just mentioned, part (a), what you just mentioned is, yeah, I mean, I just said that. As far as (b), I don't recall anyone making that claim.

Q. Okay. You heard it here today, though. Right?

A. I did.

Q. Yeah. And that's a valid claim. Right?

A. I don't think it is because -- and, I mean, he's right in that the WESP is going to operate as it operates. And whether, you know, a number on a sheet of paper says 50 or 36, it doesn't matter. But it does matter to Rockwool whether or not that is -- whether or not they're going to be in compliance. So, you know, my position would be if that emission limit is lower, if, you know, and they have to again stay below, they want to stay below that 90 percent threshold even that to avoid additional testing, you know, there are maintenance requirements on control equipment. There's operational practices, things like that that, to me, is just going to make sure Roxul is absolutely staying on top of that system.

Q. But it doesn't matter if the PM 2.5 limit at the WESP is 33.6 tons per year or 50 tons per year. It is what it is. It's going to be what it's going to be coming out of that WESP. Right?

A. Yes, but that is partly on -- that -- whatever is coming out of that WESP is going to partially depend on how well it's installed, operated, maintained. And my thought is if we have a 50-ton-per-year limit and Roxul gets -- you know, is today operating at 12 tons per year, and they do testing three years from now and it's crept up to 25 tons per year, and then three years after that it's crept up to 36 tons per year, you know, they may say, "Well, we're still within our compliance margin. We'll still under that 90 percent threshold where we only have to test every three years, so we're just going to roll with it."

Q. Is it DAQ's practice to, in cases like this, set the PM 2.5 limits from WESPs and other emission sources at 120 percent of the maximum stack test?

A. Well, first, I mean, there's -- when you say is it standard practice. There's not a ton of WESPs that are in West Virginia, but more generally, it's -- there certainly is no practice or no policy within DEP where we say we're going to take emissions from a stack test and there's a hard and fast 20 percent cushion that's at -- those emission limits are set on a case-by-case basis.

Q. Have you ever set limits on other facilities like you did -- using the same methodology that you did for Rockwool on our WESP?

A. Yeah, I mean, we certainly have set emission limits based on stack tests and with a cushion.

Q. 120 percent?

A. I mean, off the top of my head, I couldn't tell you that. But that, yeah, I mean, that seems reasonable.

Q. 20 percent is not a very big cushion, is it?

A. But it's a significant cushion, and you got to remember, too, it's 120 percent of the highest run. It's not 120 percent of the average.

Q. What was the delta in the three stack tests?

A. The lowest was 2 point something pounds per hour, and the highest was 6.67 pounds per hour.

Q. And I guess you think the factor that Grant wanted to use was not reasonable?

A. I mean, I wouldn't say it was unreasonable. We didn't -- we didn't think that there was -- because I think what Grant had proposed was, I think, 2.6 times the average of that stack test, and we didn't think there was sufficient justification within the permit application for it, for one that high.

MR. WALLS: No further questions.

CHAIRMAN KOON: Okay. Mr. Earley?

MR. EARLEY: I'm here. I'm just thinking for a second.

CHAIRMAN KOON: Yes, I understand. I can see the wheels turning.

CROSS EXAMINATION

BY MR. EARLEY:

Q. Mr. Pursley, I'm going to follow up briefly on that last line of questioning from Mr. Walls. Regarding the 2.6 cushion, if you applied that to other limits for this facility, would it change how the source is classified?

A. I mean, if you're -- I haven't done the arithmetic for that, but I'm fairly certain that, yeah, I mean, if you applied -- certainly if you applied the 2.6 x to some of the VOC emissions, that probably -- I'm going to guess because, again, I haven't done the arithmetic, but I'm going to guess that probably would make it a major source.

Q. Are there instances where 2.6 times the emissions limit has been a reasonable condition that you can think of?

A. I mean, I don't ever recall adding that kind of cushion to a significant piece of equipment at a facility. I mean, just to be honest, I mean, we do do a lot of permits where you'll have very small sources that don't really amount to much. And, maybe, you know, the Rule 7 limit is super high compared to what the source could actually emit. And, you know, we may just kind of let that go because it's just a significant contributor to anything.

But, I mean, no, if you're talking about, you know, a significant piece of equipment at a facility, I can't recall adding that kind of a cushion to anything.

MR. EARLEY: I don't have any further questions for you, Mr. Pursley.

CHAIRMAN KOON: Redirect?

MR. DRIVER: No, Mr. Chairman.

CHAIRMAN KOON: The Board? Anybody with the Board have any questions?

(No response.)

CHAIRMAN KOON: You can step down. Thank you.

THE WITNESS: Thank you.

(Witness steps down.)

MR. DRIVER: Mr. Chairman, we rest our case-in-chief.

CHAIRMAN KOON: Okay. Mr. Earley, do you have anything you want to do as the Intervenor?

MR. EARLEY: Yes. I'd like to call Dr. Sahu back to the stand.

CHAIRMAN KOON: Okay.

(Witness sworn.)

(WHEREUPON,

RANAJIT SAHU

WAS CALLED AS A WITNESS, DULY SWORN, AND

TESTIFIED AS FOLLOWS:)

DIRECT EXAMINATION

BY MR. EARLEY:

Q. Dr. Sahu, you've heard some of the testimony here this afternoon, particular related to the claims about fugitive emissions and the doors. Is that right?

A. I did.

Q. And can you explain the methodology or the testing that would be required to determine whether negative pressure existed such that fugitive emissions would not be escaping from the open doors?

MR. WALLS: Mr. Chairman, I'd note an objection here. I mean, this obviously requires an expert opinion, and I don't know if Andrew is asking the Court to have him qualified as an expert for these purposes or not, but I think that needs to happen for the record before he answers questions like this.

MR. EARLEY: I thought we were incorporating the transcript on this point, and earlier I asked that he be qualified to testify to some of these types of things, and your objection was noted at that time, and at that time the Board denied the objection and allowed him to testify.

MR. DRIVER: Mr. Chairman, this is a different case, different issue, different case.

CHAIRMAN KOON: Well, a different case, but are you objecting? We said we were going to incorporate the information from the previous hearing, so what is your specific basis for objecting here? There were six issues that we've already certified him as an expert on. Are you saying that what he's testifying now is not part of those six?

MR. WALLS: I just want the record to be clear that in this case, 01, 23-01-AQB, that this witness is qualified as an expert on the topics that would cover the opinion questions that Mr. Earley, I think, intends to ask this witness.

CHAIRMAN KOON: So, can you go through those six things again, Mr. Earley?

MR. WALLS: I don't -- I didn't mean to interrupt. My point is, I think the record ought to reflect that in this case for the same reasons that he was qualified as an expert in 02, he is qualified as an expert in 01, just for good recordkeeping purposes.

CHAIRMAN KOON: Okay. So he's qualified as an expert in this case as well.

MR. WALLS: Thank you. That's all I meant to do.

CHAIRMAN KOON: So, you're not objecting to it. You're just wanting it on the record.

MR. WALLS: Well, I was objecting to it until we get that on the record, yes.

CHAIRMAN KOON: All right.

BY MR. EARLEY:

Q. Dr. Sahu, you can go ahead and answer the question.

A. I've forgotten the question. Can you --

Q. If I'm lucky.

THE WITNESS: You can have it read back if you want.

CHAIRMAN KOON: Do you want the court reporter to read it back?

COURT REPORTER: I can't --

MR. EARLEY: Can the court reporter read the question back? I'm not sure I can recapture that verbiage.

COURT REPORTER: Well, unfortunately, I can't. I could maybe rewind and play it back, but I can't do a read-back. I'm not real time.

MR. EARLEY: Give me a second to rephrase.

BY MR. EARLEY:

Q. Dr. Sahu, are you -- how would you measure whether negative pressure exists in the facility to determine whether or not fugitive emissions are escaping?

A. Sure. If I can just, as way of quick background, say that negative pressure in an open wall, that's an issue

here, is a door would be -- an open door would be a hole, if you will, in a wall. Negative pressure, as others have testified, simply means the pressure differential where the inside pressure is lower than the atmospheric pressure, the outside pressure.

First of all, atmospheric pressure varies. It is not constant all the time. As we said, all times the inside pressure has to be, and we've heard testimony, slightly negative, so you have to be slightly negative at a varying atmospheric pressure, and you have to maintain this across very large doorways. These are not just man doors. Some of them are very large doorways. There is a variability to that pressure differential even if you can maintain it across the entirety of a doorway. It is extremely difficult. And I speak from about 25 years of insulation design, and the way you verify that is by several methods. You can have qualitative methods. You can put air strips, let's say, all around. The air strips would blow inward, and that would give a visual indicator.

You can't put air strips in the middle, of course, but you can put air strips around just to get an idea that throughout the perimeter you've got inward pressure. You can put smoke, smoke generators. People do that, and the smoke signal tells you that the air is always coming in. And then

there are instrument methods. There are things like (inaudible.) There are anemometers. Anemometers are velocity measurements that you can put, and all of these have been tried, and you can use a combination to determine that you're maintaining all of this. So, it is not trivial. And if you want to take the risk of saying I would rather pull harder on the inside so I'm assured that there is negative pressure, then you're drawing a lot more air through each of these doors. The fans have to pull a lot more air to maintain that negative pressure, and the question I haven't heard really answered in the testimony is if you do that and you maintain your fugitives inside the building, then what happens to that air? Air can't just keep coming into the building from each door. That air has to leave somehow.

I heard, I think, some testimony that was suggestion that air could actually be drawn into the cooling system for the process and go through the wet electrostatic precipitator. I find that pretty fantastic because the wet electrostatic precipitator is designed for relatively low airflow and it works best with low airflow. You can't put a lot more air into that and expect it to function.

MR. WALLS: At this point I'm going to object and request that this line of questioning be stricken. He may have the ability to testify as an expert on ventilation

issues in general. He has absolutely no ability to testify about the ventilation at RAN-5. That has not been shown. He can testify generally about how ventilation works. He cannot testify about how the ventilation works at RAN-5 because he's never been there. He's never seen any schematics and there hasn't been anything put into this record to show that he's qualified to testify about what's happening at RAN-5 because he's never been there.

CHAIRMAN KOON: At this point I'm going to give you our stock answer, which is your objection has been noted, and the Board will give his testimony the weight in which it deserves.

MR. WALLS: Thank you.

CHAIRMAN KOON: Go ahead.

THE WITNESS: I'll just wrap up the answer. So, the most logical thing that happens here -- and in a facility like this, I should say, is that air that comes in through these open doors would have to be let out. You effectively have to release that air through some other way, through the roof, oftentimes the stack, especially if the need is ventilation on hot days, you have to probably convert all that into effectively another point source through a stack, much like has been done in the charging area. So, you'd have to do much the same thing that air has to go through.

I also heard testimony that that is not the intent, that the cooling intent is to make sure that you get cooling by convection. That means air blows across our bodies and relieves the heat from people working there. And cross ventilation was mentioned. And that's how we would normally get cooling, is by cross ventilation, and that's the standard way, but that cross ventilation simply means air coming through one door depending on the ambient condition, will leave through another opening. It is not being collected. The fugitives are not being kept in the building. It will simply blow in one -- air will blow in one door, pick up volatile fugitives, and blow that out the other door. Yes, you will get the cooling, but the consequence of the cooling is fugitive emissions. You can't have cooling minus fugitive emissions is the point.

BY MR. EARLEY:

Q. Why not?

A. Because the only way to not have -- to have one and not the other is to, in fact, design the ventilation system so you're blowing in air, maintaining the negative pressure through all openings, and that will require extremely high airflow to demonstrate that, and then collecting all that air which is blowing by the people and then cooling them and then letting it out through a stack or some other vent, and those

fugitives that you then picked up are effectively emissions that will come out of the stack or vent, like another point source. And that has not been characterized. So, if you want zero emissions for fugitives and the cooling, you've created a new stack source. And that has not been analyzed. And there is no engineering that I looked for in the CR (phonetic) that demonstrates that any was done and -- there's been testimony that there's been no documentation of any kind of calculation showing how this would actually work.

CHAIRMAN KOON: Mr. Earley, are you finished?

MR. EARLEY: I believe that's my only question for Dr. Sahu.

CHAIRMAN KOON: Nothing on the 2.5?

MR. EARLEY: Nothing on the 2.5.

MR. WALLS: I think it's me.

CHAIRMAN KOON: The Intervenor, yes.

MR. WALLS: Thank you.

CROSS EXAMINATION

BY MR. WALLS:

Q. Dr. Sahu, you just said, I think, and tell me if I'm wrong, that the emissions from the stack have not been characterized. Was that your testimony?

A. For the non-charging portion, that's what I meant. I didn't see that.

Q. Yeah, okay.

A. Only for the charging portion.

Q. So, we know what's coming out of the stack. Right?

A. Well, I've heard, just to be clear, I mean, what is coming out of the stack is the fugitives in the charging area, and that because the charging doors will be kept closed, I'm understanding that, that that will be converted to a point source and that's been characterized. What I heard was outside of the charging area where the cooling need is there in these category 4 doors, for example, that there is no characterization or no stack. That's my understanding.

Q. So, I know you're operating with one and maybe two hands tied behind your back because you've never been in the facility. You've never even seen a diagram of how this works, have you? Because if you had, you'd know that (inaudible) stack in the charging building. Right?

A. Well, I just admitted that. The charging building, I agree that those fugitives are in the charging building. I don't understand your -- I thought your question was about the fugitives I was talking about, which is outside of the charging.

Q. Right. And what happens is you heard the testimony, but you've not been there. You haven't seen any airflow diagrams. You have no idea what the fan is like.

You have no idea what the WESP is like, what the stack is like. You do know that the emissions from the WESP stack have been characterized, and you do know that the air comes in through the doors and it goes out through the stack where the emissions have been characterized. Right?

A. Mr. Walls, I disagree with almost everything you said based on the testimony. And I'm willing to, if you let me, respond. I will respond to each one of your points.

Q. Well, I'm just trying to understand how you can testify. You know that Grant Morgan who gave the testimony about that, and the plant manager, Mark Graves, have lived at this plant since 2018. Right?

A. (No audible response.)

Q. And they gave the testimony they gave. You've never been there. You have no idea what the airflow is like, and you're testifying that the way this thing works isn't right, because if we keep open doors, like in the offices. Right? If we keep doors open in the offices, we're going to have fugitive emissions from the WESP stack? Is that what you're saying?

A. Mr. Walls, if you ask me some questions, I will respond to you. I don't know what question you're asking.

Q. Well, I'm not sure how to ask you questions where you can give qualified answers.

MR. EARLEY: Jim's already expressed his opinion that, you know, he's objected to any evidence about the facility and any offered evidence about the facility, but, you know, kind of acknowledged that he can testify to his general expertise on the issue, and I believe that's what he's done.

CHAIRMAN KOON: I think you've made your point, Mr. Walls.

MR. WALLS: I will pass the witness then, Mr. Chairman.

CHAIRMAN KOON: Mr. Driver?

MR. DRIVER: I have nothing for this witness.

CHAIRMAN KOON: All right. Anybody for the Board have a question?

(No response.)

CHAIRMAN KOON: Okay. The witness can step down then. Thank you.

THE WITNESS: Thank you.

(Witness steps down.)

CHAIRMAN KOON: Mr. Earley, are you finished?

MR. EARLEY: I'm finished. Thank you.

CHAIRMAN KOON: Okay. Anybody want to do closing arguments?

MR. WALLS: I don't. I'd rather submit the

findings of fact and conclusions of law, Mr. Chairman.

MR. DRIVER: And if Mr. Earley's on board with it, I'd love to waive closing argument and just go to the briefs.

CHAIRMAN KOON: Mr. Earley?

MR. EARLEY: I have no objection to Mr. Driver staying a closing argument.

CHAIRMAN KOON: All right. So, we are then at that stage where we'll be asking you for closing arguments, findings of fact, and conclusions of law. Let me see if I've got a thing here that tells me how long.

MR. DRIVER: I believe by default it's within 30 days.

CHAIRMAN KOON: Yeah, it is. I'm looking at it. Okay. So, the parties will be allowed to present proposed findings of fact and conclusions of law. The parties may waive the right, which you obviously have already said you want to take that right. So if the parties choose to submit the findings and conclusions, they must submit them within 30 days after the Board receives its copy of the transcript. All right. The Board will send the parties notices to this effect. The notice will provide the date that the proposed findings of fact are due.

Within 14 days after the proposed findings of fact and conclusions of law are filed by the parties, each party

may file a response to the other parties' findings and conclusions. These documents should simply reinforce the evidence that's been provided to the Board today and should not encompass any new information that wasn't provided in the hearing.

And the transcript will be available to all the parties from the court reporter. If the parties wish to purchase an official copy from the court reporter, they must make arrangements with the court reporter. A copy is also available in the Board's office and is open for public review and may be copied subject to the Freedom of Information Act.

Are there any other questions?

MR. WALLS: None from Rockwool, Mr. Chairman.

MR. DRIVER: Nothing from DEP.

MR. EARLEY: None from me, Mr. Chairman.

CHAIRMAN KOON: All right. We stand concluded then. Thank you all very much. We'll adjourn.

MR. WALLS: Thank you.

MR. GRAY: Thank you.

(Hearing Concluded.)

REPORTER'S CERTIFICATE

STATE OF WEST VIRGINIA,

COUNTY OF KANAWHA, to-wit:

I, Wendy M. Thomas, Notary Public within and for the State of West Virginia, duly commissioned and qualified, do hereby certify that the foregoing Hearing was duly taken by and before me, under the West Virginia Rules of Civil Procedure, at the time and place and for the purpose specified in the caption thereof; the said witness having been duly sworn by me to testify the whole truth and nothing but the truth concerning the matter in controversy.

I do certify that the said Hearing was correctly taken by me by means of the Stenomask; that the same was transcribed by me or under my direct supervision, and that the said transcript is a true record of the testimony given by said witness.

I further certify that I am not connected by blood or marriage with any of the parties to this action, am not a relative or employee or attorney or counsel of any of the parties, nor am I a relative or employee of such attorney or

counsel, or financially interested in the action, or interested, directly or indirectly, in the matter in controversy.

I certify that the attached transcript meets the requirements set forth within article twenty-seven, chapter forty-seven of the West Virginia Code.

Given under my hand this 26th day of February, 2024.

My commission expires March 15, 2025.

_____

Wendy M. Thomas
Certified Court Reporter
and Notary Public