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BEFORE THE PATENT TRIAL AND APPEAL BOARD

AROMA360, LLC,	Case IPR 2025-00705
Petitioner,	2025-00706
v.	2025-00707
AIR ESSENTIALS,	U.S. Patent No. 9,527,094
INC.,	10,583,449
Patent Owner.	10,092,918

REMOTE STREAMING DEPOSITION OF

CHRISTOPHER WHITE, PH.D.

TAKEN ON

WEDNESDAY, JANUARY 7, 2026

10:08 A.M.

275 OCEAN BOULEVARD, SUITE 308

HAMPTON, NEW HAMPSHIRE 03842

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Air Essentials – Exhibit 2001
Aroma 360 v. Air Essentials
IPR No. 2025-00705

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EXAMINATION INDEX

PAGE

EXAMINATION BY MR. EAGAN

7

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

EXHIBIT INDEX

EXHIBIT		PAGE
1	1002 Dr. White Declaration for 705	26
2	1009 Sevy	26
3	1011 Zeng	26
4	1016 Goubet	26
5	1013 Gao	26
6	1002 Dr. White Declaration for 706	30

1 REMOTE STREAMING DEPOSITION OF
2 CHRISTOPHER WHITE, PH.D.
3 TAKEN ON
4 WEDNESDAY, JANUARY 7, 2026
5 10:08 A.M.
6

7 THE REPORTER: We are on the record at
8 10:08 a.m. Dr. White, would you please raise your
9 right hand. Do you affirm under penalty of perjury
10 that the testimony you are about to give will be the
11 truth, the whole truth, and nothing but the truth?

12 DR. WHITE: I do.

13 THE REPORTER: Will each attorney please
14 state their name and whom they represent?

15 MR. EAGAN: W. John Eagan on behalf of Air
16 Essentials.

17 MR. RAYES: Josh Rayes. With me, my
18 colleague Jordan Riviello, on behalf of Petitioner,
19 Aroma360.

20 THE REPORTER: Okay, Counsel, you may
21 proceed.

22 MR. EAGAN: Thank you. I would just like
23 to note for the record that in scheduling a
24 deposition, we had expressed a preference for Dr.
25 White to be in the same room as our court reporter,

1 but I think that has been lost. We're going to
2 elect to proceed because we've all convened here
3 anyways.

4 CHRISTOPHER WHITE, PH.D., having been first duly
5 affirmed to tell the truth, was examined and
6 testified as follows:

7 EXAMINATION

8 BY MR. EAGAN:

9 Q. Dr. White, we are here today for your
10 deposition to discuss the expert declarations that
11 you submitted in support of IPR numbers 2025-705,
12 2025-706, and 2025-707.

13 My first question is, have you ever sat
14 for a deposition before?

15 A. I have, yes.

16 Q. Okay. So our court reporter, Ms.
17 DiPronio, did an excellent job of obviating my
18 preliminary statements here, but I will just repeat
19 and remind you to respond verbally so that our court
20 reporter will be able to record your response.

21 And although sometimes you may think you
22 already know the answer to what's coming, please
23 allow me to finish asking the question fully before
24 you answer, and I will try to do the same, allow you
25 to finish answering before I ask the next question.

1 **Is that fair?**

2 A. That is fair.

3 **Q. Did you review any documents in**
4 **preparation for your deposition today?**

5 A. Yes, I did.

6 **Q. Do you recall which documents you**
7 **reviewed?**

8 A. I reviewed my expert reports, and the
9 patents in question.

10 **Q. Okay.**

11 A. That would be the 094, 449, and 918
12 patents, if I use shorthand if that's okay.

13 **Q. Okay, thank you. Now, I would like to**
14 **begin with the declaration that you submitted in IPR**
15 **number 705. So if our exhibit handler could bring**
16 **up Exhibit 1002 from the 705 matter.**

17 MR. RAYES: And is that --

18 THE REPORTER: Would you like these marked
19 as they are with them already numbered for you?

20 MR. EAGAN: That would be my preference.
21 I will say it may get confusing if, you know, the
22 exhibit numbers are the same across the three
23 proceedings.

24 THE REPORTER: Are they the same exhibits?

25 MR. EAGAN: Yes.

1 THE REPORTER: Okay. It seems like it
2 would be okay. All right, we can stick with the
3 numbers that you have here.

4 MR. EAGAN: And then I think we also may
5 need to reference the Sevy document at this time,
6 which is Exhibit 1009 from this 705 matter. So is
7 it possible to get those side by side?

8 MR. BRYAN: Stand by.

9 MR. EAGAN: Okay, thank you.

10 BY MR. EAGAN:

11 Q. Dr. White, are those documents clear
12 enough for you?

13 A. They are. I can zoom in on them, so
14 they'll be clear when I zoom in.

15 Q. Okay, great. So, let's see. Are you
16 familiar with the Sevy reference, Exhibit 1009 which
17 is on the right side of the screen?

18 A. Yes, I am.

19 Q. Great. So I would like to begin with
20 paragraph 150 of your declaration, which is on page
21 63 of the left side here. Thank you.

22 So here you have noted in paragraph 150
23 that droplets adducted from Sevy's nozzle, number
24 92, dash against the wall 121 of atomizer 16 and
25 cause additional atomization. As a result,

1 relatively small droplets become entrained in the
2 area.

3 Is that correct?

4 A. That is correct.

5 Q. So referencing the figure of Sevy, 1009,
6 is it correct to say that droplet separation occurs
7 in the chamber marked at 120? And actually, I
8 believe -- could we go to page 10 of Exhibit 1009?

9 MR. RAYES: Objection, form.

10 BY MR. EAGAN:

11 Q. Do you need me to repeat the question?

12 A. Oh, sorry, I was waiting for the
13 objection. So yes, could you repeat the question?

14 Q. Referencing figure 9 of Sevy here, is it
15 correct to say that droplet separation occurs in the
16 chamber marked as 120?

17 MR. RAYES: Objection, form.

18 Dr. White, you can -- you can answer.

19 THE DEPONENT: Yeah. Could you define
20 what you mean by separation?

21 BY MR. EAGAN:

22 Q. Separation of different sized droplets.

23 A. So different sized droplets are produced
24 just downstream of the atomizer. They're actually
25 in the mixing chamber as well.

1 THE REPORTER: Can you repeat?

2 THE DEPONENT: Sorry, I'm getting --

3 THE REPORTER: Your audio is cutting out a
4 little bit.

5 THE DEPONENT: Yeah, I'm getting feedback
6 on my side.

7 MR. RAYES: I'm hearing it as well.

8 MR. BRYAN: Ms. Court Reporter, if you
9 wouldn't mind muting yourself in between when you're
10 saying stuff.

11 THE DEPONENT: So I'll answer the
12 question. So droplets of different sizes in Sevy's
13 atomizer assembly are produced in the mixing
14 chamber. They're also produced immediately
15 downstream of the atomizer exhaust. The impact of
16 droplets on the wall in Sevy produces additionally
17 smaller droplets.

18 BY MR. EAGAN:

19 Q. And at some point, larger droplets are
20 separated from smaller droplets; is that correct?

21 A. Larger drop --

22 MR. RAYES: Objection to form.

23 You can answer.

24 THE DEPONENT: Yes, larger droplets will
25 be separated by -- from smaller droplets. In Sevy,

1 some larger droplets impacting the wall will produce
2 smaller droplets. And then under the influence of
3 gravity, some larger droplets will fall out of the
4 dispersion.

5 BY MR. EAGAN:

6 Q. Does that separation, the falling of
7 larger droplets, does that occur in the chamber
8 marked as 120?

9 A. Yes, some will happen in chamber 120.

10 Q. Okay, thank you. I'd like to move on to
11 paragraph 169 of the Exhibit 1002, your declaration.
12 I believe it goes on to the next page a bit, if we
13 could scroll down.

14 MR. BRYAN: Stand by.

15 MR. EAGAN: Thank you.

16 BY MR. EAGAN:

17 Q. Here in paragraph 69, there is a portion
18 where you discuss paragraph 69 of Sevy --

19 MR. RAYES: One -- oh, sorry.

20 BY MR. EAGAN:

21 Q. Right. Which states droplets that cannot
22 move with the air flow typically because they have
23 too large a size and mass, will strike the walls of
24 the opening 100 or the separator plate 98. Is that
25 correct?

1 A. That is correct.

2 Q. Is it also correct to say that the
3 separator plate 98 separates larger droplets from
4 smaller droplets by preventing the larger droplets
5 from passing through the opening in the separator
6 plate?

7 MR. RAYES: Objection.

8 THE DEPONENT: That is correct.

9 BY MR. EAGAN:

10 Q. Okay, thank you. If we could move on to,
11 and display paragraphs 171 and 172. So take your
12 time to read these, but I -- your conclusion here is
13 that separator plate 98 acts as an orifice baffle.
14 Is that correct?

15 A. That is correct, yes.

16 Q. So as you sit here today, do you recall
17 reading anything in Sevy's written description,
18 Exhibit 1009 here, stating that the separator plate
19 98 would act as an orifice baffle or otherwise
20 condition the flow of fluid?

21 MR. RAYES: I would just note that the
22 conclusion at paragraph 173 says that the separator
23 plate corresponds to a baffle.

24 BY MR. EAGAN:

25 Q. You can answer.

1 A. Sure. This is my opinion based on a
2 POSITA, basically based on physics.

3 **Q. Okay. So the conclusion in paragraphs 171**
4 **and 172, is that based on any measurements,**
5 **calculations, or simulations?**

6 A. It's based on physics, specifically the
7 governing equation that covers fluid motion taught
8 in undergraduate classes as well as graduate
9 classes.

10 **Q. So your conclusion is based on your**
11 **intuition?**

12 MR. RAYES: Objection, form.

13 THE DEPONENT: Physics is not intuition.
14 Physics is physics. It's also based on my
15 experience designing fluid systems that incorporate
16 baffles and orifice plates, et cetera.

17 BY MR. EAGAN:

18 **Q. But it's -- it is based on -- the**
19 **conclusion is based on your expectations of how**
20 **fluid would flow through this device when you view**
21 **this diagram?**

22 MR. RAYES: Objection, form.

23 THE DEPONENT: It's not based on my
24 expectations. It's based on physics.

25 BY MR. EAGAN:

1 Q. Did you do any measurements, calculations,
2 or simulations to confirm those physics?

3 A. As I said previously, I have incorporated
4 baffles, orifice plates, other flow obstructions. I
5 have completed measurements around those, so yes, I
6 have experience taking measurements through orifice
7 plates, around baffles, so it's not intuition.
8 Again, it's physics.

9 Q. But to be clear, you performed no
10 measurements, calculations, or simulations regarding
11 the Sevy device shown in this drawing?

12 A. I would not have to do that.

13 Q. Okay, thank you. I would like to move on
14 to paragraph 174, please. Here, Dr. White, you
15 assert that Sevy's separator plate 98 would disrupt
16 flow by cross-sectional changes, and would limit
17 sound associated with the fluid flow by creating
18 acoustical impedance discontinuities that reflect
19 sound back to the source, and flow resistance that
20 suppresses turbulence so that less flow noise is
21 generated.

22 Is that correct?

23 A. That is correct.

24 Q. Do you recall as you sit here today
25 reading anything in Sevy's written description

1 **stating that the separator plate 98 would limit**
2 **sound associated with the fluid flow?**

3 A. Similar to my response before, my opinion
4 here is based on physics.

5 **Q. Is -- is your conclusion in paragraph 174**
6 **based on any measurements, calculations, or**
7 **simulations of the Sevy device?**

8 A. My opinion is based on flow physics, and
9 past experience taking measurements similar to
10 Sevy's device.

11 **Q. But not Sevy's device.**

12 A. I do not have Sevy's device.

13 MR. RAYES: Objection, form.

14 THE DEPONENT: And there would be no need.
15 Again, this is just -- this is what physics tells
16 us.

17 BY MR. EAGAN:

18 **Q. Dr. White, when coming to the conclusion**
19 **in 174, did you consider sources of sound other than**
20 **fluid flow, such as the expansion of air as it**
21 **leaves the nozzle? I believe it's 121.**

22 MR. RAYES: Objection, form.

23 You can answer.

24 THE DEPONENT: 121 in terms of my deck
25 paragraph, or 121?

1 BY MR. EAGAN:

2 Q. The -- I'm pointing to the structure in
3 Sevy, Exhibit 1009, that looks like it's -- oh,
4 that's my mistake. It should be 119. There's a
5 nozzle there. So let me -- I'll withdraw the
6 question, and I'll rephrase it.

7 When coming to the conclusion of paragraph
8 174 that the separator plate would limit sound
9 associated with the fluid flow, did you consider any
10 sources of sound that would include the expansion of
11 air as it leaves the nozzle 119?

12 MR. RAYES: Objection, form. I'll just
13 note that the figure is sideways, so it's hard to --
14 hard to see.

15 BY MR. EAGAN:

16 Q. Dr. White, if you need us to rotate it,
17 let us know.

18 A. Okay, that's fine. That is flow generated
19 noise. What you just described is flow generated
20 noise.

21 Q. Okay. And I'll note for the record that
22 we rotated figure 9, 90 degrees.

23 MR. RAYES: Thank you.

24 BY MR. EAGAN:

25 Q. Let's -- if we could please turn to

1 paragraph 176. Dr. White, looking at this diagram,
2 you have overlaid some terms over the drawing of
3 Sevy. In this diagram that you've created, is there
4 any particular point or structure here that would
5 distinguish the silencer inlet from the baffle?

6 MR. RAYES: Objection, form.

7 THE DEPONENT: I'm just trying to pull the
8 figure out, sorry. So in terms of a structure,
9 there's a tapered section below the separator plate,
10 if you zoom in on that. So that would be the
11 structure that separates or differentiates the
12 separator plate from the silencer inlet.

13 Also in a fluid mechanics analysis, one
14 would draw a control volume and the control surface
15 that defines that control volume would be below the
16 separator plate if one was performing a fluid
17 dynamical analysis of this silencer assembly.

18 BY MR. EAGAN:

19 Q. So if I understood that correctly, the
20 silencer inlet is the tapered ledge where the baffle
21 is sitting.

22 A. That would be correct, yes.

23 Q. Okay. I'd like to go to paragraph 210 in
24 the declaration, which is on page 88. And I think
25 we may also need to bring up the Zeng reference,

1 which is exhibit number 1011. And if we could
2 replace Exhibit 1009 with Exhibit 1011 on the right
3 side of the screen.

4 THE REPORTER: You don't need this marked
5 as an exhibit, correct? You're just using it as a
6 reference for now?

7 MR. EAGAN: Correct. I believe it might
8 be helpful to go to page 15 of Exhibit 1011.

9 BY MR. EAGAN:

10 Q. Dr. White, are you familiar with Exhibit
11 1011?

12 A. Yes, I --

13 Q. With this drawing?

14 A. Yes, I am.

15 Q. Okay. So then referring back to your
16 declaration, paragraph 210, here you are discussing
17 combining what is shown in -- in Zeng, Exhibit 1011,
18 with Sevy, and you assert that a person of ordinary
19 skill in the art would have been motivated to
20 combine Zeng with Sevy to improve atomization and
21 dampen sound waves. Is that correct?

22 A. Yes, that is correct.

23 Q. Could we next move to paragraph 213, and
24 also display the diagram below paragraph 213.

25 So Dr. White, here in this diagram you

1 have inserted some of Zeng's components in the same
2 physical space previously occupied by Sevy's
3 separator plate; is that correct?

4 A. Yes, that is correct.

5 Q. In this new device that you have proposed,
6 is my understanding correct that the atomizer will
7 still spray into chamber 120 and against wall 121
8 before the droplets float up into these new
9 components from Zeng?

10 MR. RAYES: Objection, form.

11 THE DEPONENT: Yes, that is correct.

12 BY MR. EAGAN:

13 Q. Okay, thank you. I would like to go to
14 paragraph 240 which is on page 99 of the
15 declaration. And there is a diagram below paragraph
16 240 as well. And can we also bring up, on the right
17 side of the screen, Exhibit 1016 which is the Goubet
18 reference? Could we scroll to page 2 of Exhibit
19 1016?

20 Dr. White, are you familiar with this
21 document, Exhibit 1016 on the right side of the
22 screen?

23 A. Yes, I am.

24 Q. So in -- returning back to paragraph 240
25 of your declaration, here you are discussing Goubet,

1 and you have indicated that the inner chamber 13
2 comprises an outlet 16 for the micro droplets to
3 enter the ambient air. Is that correct?

4 A. Yes, that is correct.

5 Q. And in the diagram below paragraph 240,
6 you have marked outlet 16 as being analogous to the
7 discharge port of the claimed invention. Is that
8 correct?

9 MR. RAYES: Objection, form.

10 THE DEPONENT: That is correct, yes.

11 BY MR. EAGAN:

12 Q. All right. Could we go to paragraph 264
13 now? And there's also a diagram below, thank you.

14 Dr. White, in paragraph 264 you've
15 asserted that among the components of the silencer
16 assembly, the silencer outlet of the claimed
17 invention is analogous to outlet 16 of the inner
18 enclosure 13. Is that correct?

19 MR. RAYES: Objection, form. Just note
20 that you're paraphrasing, not quoting.

21 THE DEPONENT: Yes, that is correct. So
22 16, that seats -- that's seated slightly below the
23 top of the fusion unit is where the silencer outlet
24 would be located. And the outlet from the diffusion
25 unit would be above the conduit that connects 16 to

1 the top of the diffusion unit.

2 BY MR. EAGAN:

3 Q. Okay. I believe I followed that, but so
4 it seems like you were just describing some of the
5 structure that you're asserting distinguishes the
6 silencer outlet labeled here in paragraph 264 from
7 the discharge port that you labeled in paragraph
8 240.

9 A. That is correct. If you zoom in on this
10 figure, you'll see that there is a small conduit
11 between the location where I identify as the
12 silencer outlet and the top of the diffusion unit.

13 Q. I think it may be helpful to look at the
14 unmarked diagram in Exhibit 1016. If we could
15 scroll down on the right-side document. It may be
16 page 11. It will be page 10 then. Okay. And could
17 we zoom in a little bit to just make that figure a
18 little bit larger?

19 Okay, Dr. White, is there any way for you
20 to describe here again where this -- the conduit is
21 located?

22 A. Sure. So if we look at 13. Is 13 clear?

23 Q. Yes.

24 A. So at the top of 13, the figure shows an
25 area change. So we go from a larger area to a

1 smaller area, so there's a little rectangle box. Is
2 that clear?

3 **Q. Yes, I'm following.**

4 A. So the bottom of the box would be the
5 silencer outlet. The bottom surface of that top
6 box, and the top surface of that box would be the
7 discharge from the dispersion unit. This is again
8 classical fluid dynamical analysis where we draw a
9 control volume that has a volume surface, or control
10 surfaces, and there could be fluid communication
11 through those control surfaces.

12 So the bottom of the control volume is the
13 silencer outlet, and the top of the control volume
14 is the discharge from the diffusion unit.

15 **Q. Okay, thank you. I think that's clear**
16 **now.**

17 **Could we please go to paragraph 348, which**
18 **is on page 149. And if we could also bring up**
19 **Exhibit 1013, this is the Gao reference, and replace**
20 **the right-hand side. And please scroll down to page**
21 **2 on the right-hand side.**

22 **Dr. White, do you recognize this document,**
23 **the Gao reference, Exhibit 1013?**

24 A. Yes, I do.

25 **Q. So returning back to paragraph 348, here**

1 you discuss that in your opinion, Gao discloses a
2 silencer assembly. Is that correct?

3 A. Yes, that is correct.

4 Q. And in that figure, I think it might be
5 helpful to blow up the figure on -- on page 150 of
6 your declaration.

7 Here you have marked up figure 1 of Gao to
8 indicate a silencer inlet, silencer outlet, and a
9 baffle, among some other features. The question is,
10 is there a point or some structure that
11 distinguishes between the silencer inlet and the
12 baffle?

13 MR. RAYES: Objection, form.

14 THE DEPONENT: The silencer inlet, again
15 from a control volume analysis, the -- is distinct
16 from the baffle. In fact, it's to the right of the
17 baffle. There's no flow through the baffle.
18 There's flow around the baffle, so the silencer
19 inlet would be to the right of the baffle.

20 MR. RAYES: If we can zoom in. I think
21 it's difficult to see the full annotated figure.

22 MR. BRYAN: Where would you like me to
23 zoom in to?

24 MR. RAYES: The silencer inlet call-out.
25 And just for the record, the document on

1 the right is Gao, patent number CN 201832737U.

2 And John, I'm not sure if you plan to mark
3 these as exhibits or you're just referencing the
4 exhibit number from the PR filings.

5 MR. EAGAN: I -- I do -- I would like to
6 eventually mark them as exhibits, but I would like
7 to get some input from Ms. DiPronio, because I think
8 we will have some of these documents that have the
9 same exhibit number once we move on to the next
10 declaration.

11 MR. RAYES: Understood.

12 THE REPORTER: Are they the same documents
13 though?

14 MR. EAGAN: No, with the exception --

15 THE REPORTER: They're not.

16 MR. EAGAN: Correct.

17 THE REPORTER: Okay, I looked at them
18 briefly and they seem to be the same, but I will
19 take your word for it that they are not, so.

20 MR. EAGAN: For the most part they are the
21 same documents, but there are some documents that
22 are literally different but have the same document
23 number across the three proceedings.

24 THE REPORTER: Okay, sure. So why don't
25 we mark the declaration, instead of as Exhibit 1002,

1 as Exhibit 1. And then we'll just go, you know,
2 forward from there.

3 (WHEREUPON, Exhibit 1 was marked for
4 identification.)

5 MR. EAGAN: All right. Is that going to
6 cause confusion if I still use the original --

7 THE REPORTER: No, that's fine.

8 MR. EAGAN: -- document numbers? Okay,
9 thank you.

10 THE REPORTER: And so far that's the only
11 exhibit you have marked. The other ones, 09, 11,
12 16, and 13 have just been reference docs so far, so
13 if you want to mark any of those let me know.

14 MR. EAGAN: Please, could we mark those?

15 THE REPORTER: All right. We'll mark
16 Exhibit 2, 3, 4, and 5.

17 MR. EAGAN: Thank you.

18 (WHEREUPON, Exhibit 2, Exhibit 3, Exhibit
19 4, and Exhibit 5 were marked for identification.)

20 MR. EAGAN: Everything's all ready to
21 proceed? Thank you.

22 BY MR. EAGAN:

23 Q. Dr. White, I think we were -- so we were
24 discussing previously that the silencer inlet is the
25 opening next to the baffle; is that correct?

1 A. Below and to the right of the baffle.

2 Q. So is -- fluid flowing through this device
3 here, is that fluid redirected before or after it
4 passes through the silencer inlet?

5 MR. RAYES: Objection, form.

6 THE DEPONENT: Can you clarify your
7 question in terms of the flow redirected before or
8 after the baffle?

9 BY MR. EAGAN:

10 Q. Once the fluid passes the silencer inlet,
11 is there any additional redirection of the fluid
12 caused by the baffle?

13 A. Yes.

14 MR. RAYES: Objection, form.

15 THE DEPONENT: Yes.

16 BY MR. EAGAN:

17 Q. Elsewhere in this diagram, you have
18 indicated the diffusion chamber with purple
19 coloring. Is there a specific point or structure
20 that distinguishes the silencer inlet from the
21 diffusion chamber?

22 MR. RAYES: Objection, form.

23 THE DEPONENT: Yes. It's a line drawn
24 here in pink that is just below the baffle, and
25 tangent to the baffle.

1 BY MR. EAGAN:

2 Q. And now focusing on the silencer outlet
3 indicated in green, and the discharge part indicated
4 in orange, again is there a specific point or
5 structure that distinguishes these two components?

6 A. Yes, there is.

7 Q. Can you describe that?

8 A. Yes. So if we look at, I believe it's
9 called cap -- the cap 1, so it's identified as
10 number 1 in the figure. So if we look just below 1
11 and draw a line tangent to 1 across, that would be a
12 control surface.

13 So the control volume where the silencer
14 assembly sits would be between the control surface
15 of the silencer outlet and the control surface of
16 the silencer inlet. So from a fluid mechanical
17 point of view, one would look at a control volume
18 here where flow is disrupted and sound is
19 suppressed.

20 Q. Okay. I'd like to move to paragraph 360.
21 Here, Dr. White, you have asserted that a person of
22 ordinary skill in the art would appreciate that
23 baffle 3 would reduce noise through acoustic
24 impedance discontinuities caused by sudden cross-
25 sectional changes and flow restriction that reduces

1 turbulence and flow generated noise. Is that
2 correct?

3 A. Yes, that is correct.

4 Q. As you sit here today, do you recall
5 reading anything in Gao's written description,
6 Exhibit 1013, that would -- that stated that baffle
7 3 would limit sound associated with the fluid flow?

8 MR. RAYES: Objection, form.

9 Is he able to navigate through Gao if he
10 needs to refresh his recollection?

11 MR. EAGAN: I don't have an issue with
12 that.

13 THE DEPONENT: So Gao teaches that the
14 flow is disrupted similar to the 449 patent. A
15 POSITA would know that the disruption of flow will
16 also reduce noise. As stated in my declaration,
17 this was known for several decades, that flow
18 disruption and noise reduction are associated.

19 Again, and this is through the governing
20 equations of fluid motion that would be known by an
21 undergraduate in mechanical engineering or similar
22 related field. So similar to the teachings in the
23 449, the disruption of flow will suppress noise.

24 BY MR. EAGAN:

25 Q. So is that conclusion here in paragraph

1 360 that the baffle 3 would suppress noise, is that
2 conclusion based on any particular measurements,
3 calculations, or simulations?

4 A. It's based on physics, and simulations and
5 calculations would not be required.

6 Q. So, okay. I think I would -- now I'd like
7 to turn to the declaration that you submitted in the
8 706 IPR. So this will be -- we'll replace the
9 document on the left side of the screen with Exhibit
10 1002 from the 706 IPR.

11 (WHEREUPON, Exhibit 6 was marked for
12 identification.)

13 THE REPORTER: Exhibit 6 marked.

14 MR. EAGAN: I'd like to begin at paragraph
15 177, which is on page 73. And we may also need to
16 reference the Sevy document, Exhibit 1009.

17 MR. RAYES: Just for the record while
18 we're pulling that up, I would note that this is
19 related to the 449 patent, the declaration on the
20 left is.

21 BY MR. EAGAN:

22 Q. Dr. White, in paragraph 177, you assert
23 that it would have been obvious to modify the
24 location, size, or quantity of apertures 99 in the
25 separator plate 98 to achieve an even narrower range

1 of droplet sizes to ensure that they have a
2 substantially uniform diameter. Is that correct?

3 MR. RAYES: Objection, form. Can you
4 point me to the sentence you're looking at?

5 MR. EAGAN: Oh, we don't have paragraph
6 177 up. It's on -- this will be page 73 of -- of
7 the declaration, which is page 74 of the PDF. Yeah,
8 there.

9 MR. RAYES: Sorry. Would you mind
10 repeating the question, just so he can follow what
11 you're reading?

12 BY MR. EAGAN:

13 Q. Yes. Here in paragraph 177, you assert
14 that it would have been obvious to modify the
15 location, size, and/or quantity of apertures 99 in
16 the separator plate 98 to achieve an even narrower
17 range of droplet sizes to ensure that they have a
18 substantially uniform diameter. Is that correct?

19 MR. RAYES: Objection, form. That's
20 largely paraphrased. You can answer.

21 THE DEPONENT: Yeah, you -- you have
22 skipped the important part which is the plurality of
23 the droplets have a substantially uniform diameter,
24 plurality meaning more than two.

25 MR. EAGAN: Okay, understood.

1 MR. RAYES: At least two, I think it says.

2 THE DEPONENT: At least two, correct.

3 BY MR. EAGAN:

4 Q. Would this uniformity be achieved before
5 or after passing through the separator plate 98?

6 A. Well, it's my opinion that a POSITA would
7 appreciate that prior to passing through the
8 separator plate, there's hundreds if not millions of
9 droplets. There will be two droplets that are
10 effectively substantially similar in diameter.

11 Q. And this is sort of due to the -- the laws
12 of large numbers, there would just happen to be at
13 least two that are substantially the same diameter?

14 MR. RAYES: Objection, form.

15 THE DEPONENT: It's both the laws of large
16 numbers, but also the physics of how a twin fluid
17 atomizer operates. So a twin fluid atomizer being,
18 in this case, air and an operative fluid,
19 effectively an essential oil.

20 It's a stochastic process that includes
21 many length scales. So all of these twin fluid
22 atomizers, both in the prior arts and in the
23 patents, will create a broad distribution of
24 droplets. The length scales, even though broad in
25 terms of the forcing mechanisms, will be

1 substantially similar stochastically, so it's an
2 extremely high likelihood that you will have a
3 plurality of droplets having this, you know, having
4 a substantially uniform diameter.

5 MR. EAGAN: Can we display figure 9 of
6 Sevy on the right-hand side? And then rotate that,
7 thank you.

8 BY MR. EAGAN:

9 Q. So, Dr. White, to clarify, we're
10 discussing what's going on in chamber 120. Is that
11 -- do we have the same understanding there?

12 A. That is correct, yes.

13 Q. So within chamber 120, is it -- while this
14 device is operating, would it be correct to say that
15 there would be a range of different size droplets in
16 this chamber, but in your opinion in all likelihood
17 at least two of them would have substantially the
18 same diameter?

19 A. Yes, I believe that statement would hold
20 for all the prior arts as well as the asserted
21 patents, because this is how twin fluid atomizers
22 generate droplets through a stochastic process.

23 Q. Is -- is there a point between the exit of
24 the atomizer there, we'll call that the nozzle 119,
25 and the -- the whole discharge of the device up top

1 at 106. Is there a point where the range of droplet
2 sizes would be reduced?

3 MR. RAYES: Objection, form.

4 THE DEPONENT: If one moves from 119 to
5 the discharge port both in Sevy, all prior arts, and
6 in the asserted patents, the droplet size
7 distribution will be a function of the local plane
8 or local location where that's measured.

9 BY MR. EAGAN:

10 Q. Is there any particular structure along
11 that path that would affect the range of droplet
12 sizes that you could measure in a given location?

13 MR. RAYES: Objection, form.

14 THE DEPONENT: So to clarify, is this a
15 diagnostic question in terms of if one were to
16 perform measurements, or is this a physics question
17 in terms of what mechanisms would be separating
18 large droplets from small droplets?

19 BY MR. EAGAN:

20 Q. The latter, what mechanisms separate.

21 A. There would be several mechanisms at play,
22 both -- for instance, gravitational separation.
23 There would be inertial separation, and impact
24 separation which could be sort of connected to
25 inertial separation.

1 Q. So if I were to attempt to measure the
2 range of droplet sizes at two points, we'll call the
3 first point anywhere in the chamber 120, and the
4 second point further up where number 106 is
5 pointing, would the distribution of droplet sizes be
6 different at those two points?

7 A. Yeah, the expectation of a POSITA would be
8 that in Sevy, all prior arts, and in the 449 patent,
9 that would be the case, correct.

10 Q. And then how about further down, if we
11 take a measurement anywhere in 120 at a first point,
12 and then the second point just above separator plate
13 98, would the range of droplet sizes be different in
14 those two points?

15 A. As I said previously, the range or the
16 distribution of droplet will vary spatially as one
17 goes from the exit from the orifice to the discharge
18 from the diffusion unit. Again, the expectation
19 from a POSITA is that would happen in Sevy, all
20 prior arts, and in the patents in question.

21 Q. Okay, thank you. Could we please go to
22 paragraphs 193 and 194 in the declaration 1002? We
23 can leave it on 193 for now.

24 It may also be helpful to reference, on
25 the right side of the screen, the Gao reference,

1 Exhibit 1013. Could we scroll down to the first
2 page of Gao? Actually, let's go to page 10 of Gao.
3 Okay.

4 Referring back to paragraph 193, Dr.
5 White, here you assert that in view of Gao's
6 teachings, a person of ordinary skill in the art
7 would be motivated to further reduce the size of the
8 droplets discharged by Sevy's atomizer to improve
9 their uniformity and corresponding aromatic
10 properties. Is that correct?

11 MR. RAYES: This is paragraph 193,
12 correct?

13 MR. EAGAN: Yes.

14 THE DEPONENT: Can -- can you point me --
15 that wasn't the whole paragraph, so where in the
16 paragraph are we?

17 BY MR. EAGAN:

18 Q. That would be the first sentence.

19 A. Okay. Yes, that is correct.

20 Q. So then -- then holding that thought and
21 moving on to paragraph 194, please. Here you
22 conclude that a person of ordinary skill in the art
23 could have modified Sevy's separator plate to make
24 the aperture smaller, thereby lowering the range of
25 droplets that could pass through it without undue

1 experimentation. Is that correct?

2 A. That is correct, yes.

3 Q. So as you sit here today, do you recall
4 reading anything in the disclosure of Gao, Exhibit
5 1013, stating that the size of the through-hole 4
6 affects droplet size that reaches the -- the
7 discharge 2?

8 A. Gao teaches that the more uniform the
9 droplets, the more uniform the aroma. A POSITA
10 would then proceed from there to understand that one
11 could modify Sevy's separator plate to produce more
12 uniform and smaller droplets.

13 Q. So is this conclusion here in paragraphs
14 193 and 194, that smaller apertures lead to smaller
15 droplet sizes, is that based on any particular
16 measurements, calculations, or simulations?

17 A. It's based on both teachings by Sevy where
18 the separator plate is used to produce smaller
19 droplets or filter out larger droplets. Sevy also
20 says that one or more apertures could be used, so
21 there's a teaching there that there could be more
22 than one aperture.

23 Gao teaches that the more uniform the
24 droplet is, the better the aroma, and a POSITA would
25 know, again based on physics, that if the separator

1 plate is modified to include multiple smaller
2 orifices, then one could produce a distribution of
3 droplets that are more uniform.

4 Q. Let's please go to paragraph 233 on page
5 99. And yes, that will be page 99 of the
6 declaration, which is 100 of the PDF.

7 Dr. White, in paragraph 233 you assert
8 that a person of ordinary skill in the art would
9 have been motivated to add additional enclosures --
10 actually, let me withdraw that question, and let's,
11 in order to help reference here, could we also
12 please bring up Goubet, which is Exhibit 1016. And
13 let's scroll down to the second page of Goubet.
14 Okay.

15 Referring now back to paragraph 233 where
16 you're discussing Goubet, you assert that a person
17 of ordinary skill in the art would have been
18 motivated to add additional enclosures to the dual
19 enclosure design because it was an objective of
20 Goubet to reduce droplet size as much as possible,
21 and furthermore a person of ordinary skill in the
22 art would appreciate that additional enclosures
23 would result in further atomization and smaller and
24 more uniform droplets.
25 Is that correct?

1 A. Yes, that is correct.

2 Q. Do you recall reading anything in the
3 disclosure of Goubet as you sit here today, stating
4 that additional enclosures would be desirable or
5 have the effect of reducing droplet size?

6 A. Goubet teaches that the diffusion is
7 controlled, gentle, and particularly quiet. A
8 POSITA would know that the quietness of Goubet's
9 design comes from the enclosures. And if one wants
10 to make the unit quieter, one could include an
11 additional enclosure, because a POSITA would know
12 that the enclosures act as both a reactive and a
13 dissipative muffler, reducing noise generated or
14 noise leaving the unit.

15 Q. Is -- is this conclusion in paragraph 233
16 that more enclosures would further reduce droplet
17 size, is that based on any particular measurements,
18 calculations, or simulations?

19 A. So similar to the 449 patent, a POSITA
20 would know that disrupting the fluid flow would also
21 reduce the noise. And as I said before, this is
22 physics. There's an equation that describes this,
23 and no simulations or analysis would be needed.

24 Q. All right. Let's -- if we could please
25 move on to paragraph 291, which is on page 122 of

1 the PDF, 121 of the declaration. Here, Dr. White,
2 you're discussing Gao, so if we could also please
3 bring up Exhibit 1013, and just leave it on that
4 figure in case we need to reference it.

5 Dr. White, in paragraph 291, you assert
6 that Gao teaches a diffusion chamber that
7 facilitates formation of the fluid dispersion, e.g.,
8 substantially uniform droplets, prior to the
9 discharge of the fluid dispersion from said fluid
10 dispersion chamber.

11 Is that correct?

12 MR. RAYES: Objection to form.

13 THE DEPONENT: Did you say paragraph 291?

14 BY MR. EAGAN:

15 Q. 291.

16 A. Then could you repeat your question?

17 Q. Here you have an assertion that Gao
18 teaches a diffusion chamber that facilitates
19 formation of the fluid dispersion, e.g.,
20 substantially uniform droplets, prior to the
21 discharge of the fluid dispersion from said fluid
22 dispersion chamber.

23 Is that correct?

24 A. Yes, that is correct.

25 MR. RAYES: Objection to form. I think

1 that's paraphrasing, not quoting.

2 BY MR. EAGAN:

3 Q. Would this uniformity be achieved before
4 or after the droplets pass through the through-hole
5 4 on Gao?

6 MR. RAYES: Objection, form.

7 THE DEPONENT: So I -- as I said before,
8 any twin fluid atomizer is going to produce a
9 distribution of droplets. Reasonably expectation,
10 because it's a stochastic process, that there will
11 be a plurality of uniform droplets. There will also
12 be small droplets. That distribution, if measured,
13 will change spatially as one moves from the atomizer
14 to the discharge. And again, that was consistent
15 with Sevy, all prior arts, and the 449 patent in
16 terms of using a twin fluid atomizer.

17 BY MR. EAGAN:

18 Q. So is it correct to state that the uniform
19 -- sorry. Is it correct to state that the
20 distribution would be more uniform after the
21 through-hole 4, after the fluid passes through the
22 through-hole 4?

23 MR. RAYES: Objection, form.

24 THE DEPONENT: Can you define what you
25 mean by the distribution will be more uniform?

1 Because a uniform distribution means that the
2 probability of any droplet over a given range is the
3 same. That's stated in the patents.

4 So is that what you mean, that the
5 probability of having a droplet of 1 micron and the
6 probability of having a droplet of 10 microns is the
7 same in terms of its probability?

8 MR. EAGAN: No. I'm referring to the
9 variance of droplet sizes in particular locations in
10 this device.

11 MR. RAYES: Objection, form.

12 THE DEPONENT: And how would you quantify
13 that variance? Or how would you like me to quantify
14 that variance?

15 MR. EAGAN: A distribution of the
16 different size particles.

17 MR. RAYES: Objection, form. Do you mind
18 re-asking the question? Or Dr. White, you can
19 answer if you understand it.

20 THE DEPONENT: Well, the question was
21 phrased as a uniform distribution. And as I said
22 before, a uniform distribution means that the
23 probability of an occurrence over a range, so if
24 we're speaking about droplet diameters, let's just
25 say a given range from 1 micron to 10 microns, the

1 probability would be the same between all those
2 droplets within that range.

3 That was the question that was asked to
4 me, and I just wanted clarification if when the
5 phrase uniform distribution is used, is that what is
6 meant.

7 BY MR. EAGAN:

8 **Q. And I'm referring to the range or**
9 **variation of different droplet sizes in any given**
10 **location, not necessarily the likelihood that two**
11 **droplet sizes are the same.**

12 A. Understood. Again, that is different than
13 the stated question of uniform distribution, so I
14 don't want to answer a question that at least may be
15 different than what the question was asked. So that
16 was the request for the clarification.

17 As I said before, the expectation for a
18 twin fluid atomizer is that there will be a
19 distribution of particles generated. Of course,
20 based on a stochastic process, the likelihood of
21 finding two droplets of the same diameter is
22 extremely high.

23 There are structures and volume changes in
24 all the prior arts and the patents that will change
25 the distribution as the dispersion moves from the

1 atomizer assembly out of the diffusion unit.

2 Q. All right, thank you. I think I
3 understand. And so we've been going for about an
4 hour now. If everyone's all right, I think I'd like
5 to take a little comfort break. If we want to
6 reconvene at 11:20. Is that all right with
7 everyone?

8 MR. RAYES: Works for me.

9 THE REPORTER: We are off the record. The
10 time 11:14 a.m.

11 (WHEREUPON, a recess was taken.)

12 THE REPORTER: We are on the record. The
13 time is 11:21 a.m.

14 BY MR. EAGAN:

15 Q. Dr. White, my final question that I
16 prepared for you today is, during the course of our
17 discussion have you referenced any documents that
18 were not displayed on the screen?

19 A. No.

20 Q. Okay, thank you. That will conclude my
21 cross. I think Josh, if you'd like to re-direct,
22 that's appropriate now I suppose.

23 MR. RAYES: If you could just give me
24 maybe 10 minutes to look over my notes.

25 MR. EAGAN: Certainly.

1 THE REPORTER: We are off the record. The
2 time is 11:22.

3 (WHEREUPON, a recess was taken.)

4 THE VIDEOGRAPHER: We are on the record.
5 The time is 11:31 a.m.

6 MR. RAYES: We have no questions at this
7 time of Dr. White.

8 THE VIDEOGRAPHER: Okay. Attorney Eagan,
9 would you like to order the original?

10 MR. EAGAN: Yes, ma'am.

11 THE REPORTER: And you would like that by
12 January 9th; Friday?

13 MR. EAGAN: Yes, please.

14 THE REPORTER: And Attorney Rayes, would
15 you like to order a copy?

16 MR. RAYES: Yes, please.

17 THE REPORTER: And do you also want that
18 by the 9th? Otherwise it's 10 business days
19 typically.

20 MR. RAYES: That's fine.

21 THE REPORTER: Ten business days is fine?

22 MR. RAYES: Yeah, 10 business days is
23 fine, unless Jordan disagrees.

24 MR. RIVIELLO: Yeah, that's fine with me.

25 THE REPORTER: Okay. Attorney Riviello,

1 would you like to order a copy?

2 MR. RIVIELLO: No, I think one copy is
3 fine.

4 THE REPORTER: Okay. And Attorney
5 Matiuada or Attorney Litwak?

6 MR. LITWAK: Same thing here. I think one
7 copy is fine on our side. Thank you.

8 MR. MATIUADA: Yes, thank you.

9 THE REPORTER: Okay, great. We are off
10 the record. The time is 11:32 a.m.

11 (WHEREUPON, the deposition of CHRISTOPHER
12 WHITE, PH.D., was concluded at 11:32 a.m.)

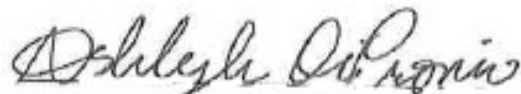
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CERTIFICATE

I, Ashleigh DiPronio, do hereby certify that I reported all proceedings adduced in the foregoing matter and that the foregoing transcript pages constitutes a full, true and accurate record of said proceedings to the best of my ability.

I further certify that I am neither related to counsel or any party to the proceedings nor have any interest in the outcome of the proceedings.

IN WITNESS HEREOF, I have hereunto set my hand this 9th day of January, 2026.



Ashleigh DiPronio

DECLARATION

Deposition of: Christopher White, PhD Date: 01/07/2026

Regarding: UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE PATENT TRIAL AND APPEAL BOARD A

Reporter: Ashleigh DiPronio

I declare under penalty of perjury the following to be true:

I have read my deposition and the same is true and accurate save and except for any corrections as made by me on the Correction Sheet herein.

Signed at _____, _____
on the _____ day of _____, 20____.

Signature: _____

Christopher White, PhD

Email to: Production@NaegeliUSA.com

Exhibits	1011 19:1,2,8,11, 17	173 13:22	4
EX001 1002 Dr. White Declaration for 705 26:1,3	1013 23:19,23 29:6 36:1 37:5 40:3	174 15:14 16:5,19 17:8	4 26:16,19 37:5 41:5,21,22
EX002 1009 Sevy 26:16,18	1016 20:17,19,21 22:14 38:12	176 18:1	449 8:11 29:14,23 30:19 35:8 39:19 41:15
EX003 1011 Zeng 26:18	106 34:1 35:4	177 30:15,22 31:6,13	5
EX004 1016 Goubet 26:18,19	10:08 6:8	193 35:22,23 36:4,11 37:14	5 26:16,19
EX005 1013 Gao 26:19	11 22:16 26:11	194 35:22 36:21 37:14	6
EX006 1002 Dr. White Declaration for 706 30:11, 13	119 17:4,11 33:24 34:4	2	6 30:11,13
0	11:14 44:10	2 20:18 23:21 26:16,18 37:7	63 9:21
09 26:11	11:20 44:6	201832737U 25:1	69 12:17,18
094 8:11	11:21 44:13	2025-705 7:11	7
1	11:22 45:2	2025-706 7:12	705 8:15,16 9:6
1 24:7 26:1,3 28:9,10,11 42:5, 25	11:31 45:5	2025-707 7:12	706 30:8,10
10 10:8 22:16 36:2 42:6,25 44:24 45:18,22	11:32 46:10	210 18:23 19:16	73 30:15 31:6
100 12:24 38:6	120 10:7,16 12:8, 9 20:7 33:10,13 35:3,11	213 19:23,24	74 31:7
1002 8:16 12:11 25:25 30:10 35:22	121 9:24 16:21, 24,25 20:7 40:1	233 38:4,7,15 39:15	8
1009 9:6,16 10:5, 8 13:18 17:3 19:2 30:16	122 39:25	240 20:14,16,24 21:5 22:8	88 18:24
	13 21:1,18 22:22, 24 26:12	264 21:12,14 22:6	9
	149 23:18	291 39:25 40:5, 13,15	9 10:14 17:22 33:5
	15 19:8	3	90 17:22
	150 9:20,22 24:5	3 26:16,18 28:23 29:7 30:1	918 8:11
	16 9:24 21:2,6,17, 22,25 26:12	348 23:17,25	92 9:24
	169 12:11	360 28:20 30:1	98 12:24 13:3,13,
	171 13:11 14:3		
	172 13:11 14:4		

19 15:15 16:1 30:25 31:16 32:5 35:13 99 20:14 30:24 31:15 38:5 9th 45:12,18	analysis 18:13,17 23:8 24:15 39:23 and/or 31:15 annotated 24:21 answering 7:25 aperture 36:24 37:22 apertures 30:24 31:15 37:14,20 area 10:2 22:25 23:1 aroma 37:9,24 Aroma360 6:19 aromatic 36:9 art 19:19 28:22 36:6,22 38:8,17, 22 arts 32:22 33:20 34:5 35:8,20 41:15 43:24 assembly 11:13 18:17 21:16 24:2 28:14 44:1 assert 15:15 19:18 30:22 31:13 36:5 38:7, 16 40:5 asserted 21:15 28:21 33:20 34:6 asserting 22:5 assertion 40:17 atomization 9:25 19:20 38:23 atomizer 9:24 10:24 11:13,15 20:6 32:17 33:24	36:8 41:8,13,16 43:18 44:1 atomizers 32:22 33:21 attempt 35:1 attorney 6:13 45:8,14,25 46:4,5 audio 11:3	briefly 25:18 bring 8:15 18:25 20:16 23:18 38:12 40:3 broad 32:23,24 BRYAN 9:8 11:8 12:14 24:22 business 45:18, 21,22
A	B	C	
a.m. 6:8 44:10,13 45:5 46:10 achieve 30:25 31:16 achieved 32:4 41:3 acoustic 28:23 acoustical 15:18 act 13:19 39:12 acts 13:13 add 38:9,18 additional 9:25 27:11 38:9,18,22 39:4,11 additionally 11:16 adducted 9:23 affect 34:11 affects 37:6 affirm 6:9 affirmed 7:5 air 6:15 12:22 16:20 17:11 21:3 32:18 ambient 21:3 analogous 21:6, 17	back 15:19 19:15 20:24 23:25 36:4 38:15 baffle 13:13,19,23 18:5,20 24:9,12, 16,17,18,19 26:25 27:1,8,12, 24,25 28:23 29:6 30:1 baffles 14:16 15:4,7 based 14:1,2,4,6, 10,14,18,19,23, 24 16:4,6,8 30:2, 4 37:15,17,25 39:17 43:20 basically 14:2 begin 8:14 9:19 30:14 behalf 6:15,18 bit 11:4 12:12 22:17,18 blow 24:5 bottom 23:4,5,12 box 23:1,4,6 break 44:5	calculations 14:5 15:1,10 16:6 30:3,5 37:16 39:18 call 33:24 35:2 call-out 24:24 called 28:9 cap 28:9 case 32:18 35:9 40:4 caused 27:12 28:24 cetera 14:16 chamber 10:7,16, 25 11:14 12:7,9 20:7 21:1 27:18, 21 33:10,13,16 35:3 40:6,10,18, 22 change 22:25 41:13 43:24 CHRISTOPHER 7:4 claimed 21:7,16	

<p>clarification 43:4, 16</p> <p>clarify 27:6 33:9 34:14</p> <p>classes 14:8,9</p> <p>classical 23:8</p> <p>clear 9:11,14 15:9 22:22 23:2,15</p> <p>CN 25:1</p> <p>colleague 6:18</p> <p>coloring 27:19</p> <p>combine 19:20</p> <p>combining 19:17</p> <p>comfort 44:5</p> <p>communication 23:10</p> <p>completed 15:5</p> <p>components 20:1,9 21:15 28:5</p> <p>comprises 21:2</p> <p>conclude 36:22 44:20</p> <p>conclusion 13:12,22 14:3,10, 19 16:5,18 17:7 29:25 30:2 37:13 39:15</p> <p>condition 13:20</p> <p>conduit 21:25 22:10,20</p> <p>confirm 15:2</p> <p>confusing 8:21</p> <p>confusion 26:6</p> <p>connected 34:24</p>	<p>connects 21:25</p> <p>consistent 41:14</p> <p>control 18:14,15 23:9,11,12,13 24:15 28:12,13, 14,15,17</p> <p>controlled 39:7</p> <p>convened 7:2</p> <p>copy 45:15 46:1, 2,7</p> <p>correct 10:3,4,6, 15 11:20 12:25 13:1,2,8,14,15 15:22,23 18:22 19:5,7,21,22 20:3,4,6,11 21:3, 4,8,10,18,21 22:9 24:2,3 25:16 26:25 29:2,3 31:2,18 32:2 33:12,14 35:9 36:10,12,19 37:1, 2 38:25 39:1 40:11,23,24 41:18,19</p> <p>correctly 18:19</p> <p>corresponds 13:23</p> <p>Counsel 6:20</p> <p>court 6:25 7:16, 19 11:8</p> <p>covers 14:7</p> <p>create 32:23</p> <p>created 18:3</p> <p>creating 15:17</p> <p>cross 44:21</p> <p>cross- 28:24</p>	<p>cross-sectional 15:16</p> <p>cutting 11:3</p> <hr/> <p style="text-align: center;">D</p> <hr/> <p>dampen 19:21</p> <p>dash 9:24</p> <p>days 45:18,21,22</p> <p>decades 29:17</p> <p>deck 16:24</p> <p>declaration 8:14 9:20 12:11 18:24 19:16 20:15,25 24:6 25:10,25 29:16 30:7,19 31:7 35:22 38:6 40:1</p> <p>declarations 7:10</p> <p>define 10:19 41:24</p> <p>defines 18:15</p> <p>degrees 17:22</p> <p>DEPONENT 10:19 11:2,5,11, 24 13:8 14:13,23 16:14,24 18:7 20:11 21:10,21 24:14 27:6,15,23 29:13 31:21 32:2, 15 34:4,14 36:14 40:13 41:7,24 42:12,20</p> <p>deposition 6:24 7:10,14 8:4</p> <p>describe 22:20 28:7</p>	<p>describes 39:22</p> <p>describing 22:4</p> <p>description 13:17 15:25 29:5</p> <p>design 38:19 39:9</p> <p>designing 14:15</p> <p>desirable 39:4</p> <p>device 14:20 15:11 16:7,10,11, 12 20:5 27:2 33:14,25 42:10</p> <p>diagnostic 34:15</p> <p>diagram 14:21 18:1,3 19:24,25 20:15 21:5,13 22:14 27:17</p> <p>diameter 31:2,18, 23 32:10,13 33:4, 18 43:21</p> <p>diameters 42:24</p> <p>differentiates 18:11</p> <p>difficult 24:21</p> <p>diffusion 21:24 22:1,12 23:14 27:18,21 35:18 39:6 40:6,18 44:1</p> <p>Dipronio 7:17 25:7</p> <p>disagrees 45:23</p> <p>discharge 21:7 22:7 23:7,14 28:3 33:25 34:5 35:17 37:7 40:9,21 41:14</p> <p>discharged 36:8</p>
--	--	---	--

discloses 24:1	20:21 22:15	E	equations 29:20
disclosure 37:4 39:3	23:22 24:25 25:22 26:8 30:9, 16		Essentials 6:16
discontinuities 15:18 28:24	documents 8:3,6 9:11 25:8,12,21 44:17	e.g. 40:7,19	essential 32:19
discuss 7:10 12:18 24:1	downstream 10:24 11:15	Eagan 6:15,22 7:8 8:20,25 9:4,9, 10 10:10,21 11:18 12:5,15,16, 20 13:9,24 14:17, 25 16:17 17:1,15, 24 18:18 19:7,9 20:12 21:11 22:2 25:5,14,16,20 26:5,8,14,17,20, 22 27:9,16 28:1 29:11,24 30:14, 21 31:5,12,25 32:3 33:5,8 34:9, 19 36:13,17 40:14 41:2,17 42:8,15 43:7 44:14,25 45:8,10, 13	eventually 25:6
discussing 19:16 20:25 26:24 33:10 38:16 40:2	draw 18:14 23:8 28:11	effect 39:5	everyone's 44:4
discussion 44:17	drawing 15:11 18:2 19:13	effectively 32:10, 19	Everything's 26:20
dispersion 12:4 23:7 40:7,9,10, 19,21,22 43:25	drawn 27:23	elect 7:2	EXAMINATION 7:7
display 13:11 19:24 33:5	drop 11:21	enclosure 21:18 38:19 39:11	examined 7:5
displayed 44:18	droplet 10:6,15 31:1,17 34:1,6,11 35:2,5,13,16 37:6,15,24 38:20 39:5,16 42:2,5,6, 9,24 43:9,11	enclosures 38:9, 18,22 39:4,9,12, 16	excellent 7:17
disrupt 15:15	droplets 9:23 10:1,22,23 11:12, 16,17,19,20,24, 25 12:1,2,3,7,21 13:3,4 20:8 21:2 31:23 32:9,24 33:3,15,22 34:18 36:8,25 37:9,12, 19 38:3,24 40:8, 20 41:4,9,11,12 43:2,21	engineering 29:21	exception 25:14
disrupted 28:18 29:14	dual 38:18	ensure 31:1,17	exhaust 11:15
disrupting 39:20	due 32:11	enter 21:3	exhibit 8:15,16,22 9:6,16 10:8 12:11 13:18 17:3 19:1, 2,5,8,10,17 20:17,18,21 22:14 23:19,23 25:4,9,25 26:1,3, 11,16,18,19 29:6 30:9,11,13,16 36:1 37:4 38:12 40:3
disruption 29:15, 18,23	duly 7:4	entrained 10:1	exhibits 8:24 25:3,6
dissipative 39:13	dynamical 18:17 23:8	equation 14:7 39:22	exit 33:23 35:17
distinct 24:15			expansion 16:20 17:10
distinguish 18:5			expectation 35:7, 18 41:9 43:17
distinguishes 22:5 24:11 27:20 28:5			expectations 14:19,24
distribution 32:23 34:7 35:5, 16 38:2 41:9,12, 20,25 42:1,15,21, 22 43:5,13,19,25			experience 14:15 15:6 16:9
docs 26:12			experimentation
document 9:5			

<p>37:1</p> <p>expert 7:10 8:8</p> <p>expressed 6:24</p> <p>extremely 33:2 43:22</p> <hr/> <p style="text-align: center;">F</p> <hr/> <p>facilitates 40:7,18</p> <p>fact 24:16</p> <p>fair 8:1,2</p> <p>fall 12:3</p> <p>falling 12:6</p> <p>familiar 9:16 19:10 20:20</p> <p>features 24:9</p> <p>feedback 11:5</p> <p>field 29:22</p> <p>figure 10:5,14 17:13,22 18:8 22:10,17,24 24:4, 5,7,21 28:10 33:5 40:4</p> <p>filings 25:4</p> <p>filter 37:19</p> <p>final 44:15</p> <p>finding 43:21</p> <p>fine 17:18 26:7 45:20,21,23,24 46:3,7</p> <p>finish 7:23,25</p> <p>float 20:8</p> <p>flow 12:22 13:20 14:20 15:4,16,17, 19,20 16:2,8,20</p>	<p>17:9,18,19 24:17, 18 27:7 28:18,25 29:1,7,14,15,17, 23 39:20</p> <p>flowing 27:2</p> <p>fluid 13:20 14:7, 15,20 15:17 16:2, 20 17:9 18:13,16 23:8,10 27:2,3, 10,11 28:16 29:7, 20 32:16,17,18, 21 33:21 39:20 40:7,9,19,21 41:8,16,21 43:18</p> <p>focusing 28:2</p> <p>follow 31:10</p> <p>forcing 32:25</p> <p>form 10:9,17 11:22 14:12,22 16:13,22 17:12 18:6 20:10 21:9, 19 24:13 27:5,14, 22 29:8 31:3,19 32:14 34:3,13 40:12,25 41:6,23 42:11,17</p> <p>formation 40:7,19</p> <p>forward 26:2</p> <p>Friday 45:12</p> <p>full 24:21</p> <p>fully 7:23</p> <p>function 34:7</p> <p>fusion 21:23</p> <hr/> <p style="text-align: center;">G</p> <hr/> <p>Gao 23:19,23 24:1,7 25:1 29:9,</p>	<p>13 35:25 36:2 37:4,8,23 40:2,6, 17 41:5</p> <p>Gao's 29:5 36:5</p> <p>generate 33:22</p> <p>generated 15:21 17:18,19 29:1 39:13 43:19</p> <p>gentle 39:7</p> <p>give 6:10 44:23</p> <p>Goubet 20:17,25 38:12,13,16,20 39:3,6</p> <p>Goubet's 39:8</p> <p>governing 14:7 29:19</p> <p>graduate 14:8</p> <p>gravitational 34:22</p> <p>gravity 12:3</p> <p>great 9:15,19 46:9</p> <p>green 28:3</p> <hr/> <p style="text-align: center;">H</p> <hr/> <p>hand 6:9</p> <p>handler 8:15</p> <p>happen 12:9 32:12 35:19</p> <p>hard 17:13,14</p> <p>hearing 11:7</p> <p>helpful 19:8 22:13 24:5 35:24</p> <p>high 33:2 43:22</p>	<p>hold 33:19</p> <p>holding 36:20</p> <p>hour 44:4</p> <p>hundreds 32:8</p> <hr/> <p style="text-align: center;">I</p> <hr/> <p>identification 26:4,19 30:12</p> <p>identified 28:9</p> <p>identify 22:11</p> <p>immediately 11:14</p> <p>impact 11:15 34:23</p> <p>impacting 12:1</p> <p>impedance 15:18 28:24</p> <p>important 31:22</p> <p>improve 19:20 36:8</p> <p>include 17:10 38:1 39:10</p> <p>includes 32:20</p> <p>incorporate 14:15</p> <p>incorporated 15:3</p> <p>inertial 34:23,25</p> <p>influence 12:2</p> <p>inlet 18:5,12,20 24:8,11,14,19,24 26:24 27:4,10,20 28:16</p> <p>input 25:7</p>
---	---	--	--

inserted 20:1	length 32:21,24	35:1	39:25
instance 34:22	likelihood 33:2, 16 43:10,20	measured 34:8 41:12	moves 34:4 41:13 43:25
intuition 14:11,13 15:7	limit 15:16 16:1 17:8 29:7	measurement 35:11	moving 36:21
invention 21:7,17	literally 25:22	measurements 14:4 15:1,5,6,10 16:6,9 30:2 34:16 37:16 39:17	muffler 39:13
IPR 7:11 8:14 30:8,10	Litwak 46:5,6		multiple 38:1
issue 29:11	local 34:7,8		muting 11:9
<hr/>			
J			
<hr/>			
January 45:12	located 21:24 22:21	mechanical 28:16 29:21	N
job 7:17	location 22:11 30:24 31:15 34:8, 12 43:10	mechanics 18:13	narrower 30:25 31:16
John 6:15 25:2	locations 42:9	mechanisms 32:25 34:17,20, 21	navigate 29:9
Jordan 6:18 45:23	looked 25:17	micro 21:2	necessarily 43:10
Josh 6:17 44:21	lost 7:1	micron 42:5,25	needed 39:23
<hr/>			
L			
<hr/>			
labeled 22:6,7	M		
large 12:23 32:12, 15 34:18	make 22:17 36:23 39:10	mind 11:9 31:9 42:17	noise 15:20 17:19,20 28:23 29:1,16,18,23 30:1 39:13,14,21
largely 31:20	mark 25:2,6,25 26:13,14,15	minutes 44:24	note 6:23 13:21 17:13,21 21:19 30:18
larger 11:19,21, 24 12:1,3,7 13:3, 4 22:18,25 37:19	marked 8:18 10:7,16 12:8 19:4 21:6 24:7 26:3, 11,19 30:11,13	mistake 17:4	noted 9:22
laws 32:11,15	mass 12:23	mixing 10:25 11:13	notes 44:24
lead 37:14	Matuada 46:5,8	modified 36:23 38:1	nozzle 9:23 16:21 17:5,11 33:24
leave 35:23 40:3	matter 8:16 9:6	modify 30:23 31:14 37:11	number 8:15 9:23 19:1 25:1,4,9,23 28:10 35:4
leaves 16:21 17:11	meaning 31:24	motion 14:7 29:20	numbered 8:19
leaving 39:14	means 42:1,22	motivated 19:19 36:7 38:9,18	numbers 7:11 8:22 9:3 26:8 32:12,16
ledge 18:20	meant 43:6	move 12:10,22 13:10 15:13 19:23 25:9 28:20	
left 9:21 30:9,20	measure 34:12		

<p style="text-align: center;">O</p> <p>objection 10:9, 13,17 11:22 13:7 14:12,22 16:13, 22 17:12 18:6 20:10 21:9,19 24:13 27:5,14,22 29:8 31:3,19 32:14 34:3,13 40:12,25 41:6,23 42:11,17</p> <p>objective 38:19</p> <p>obstructions 15:4</p> <p>obviating 7:17</p> <p>obvious 30:23 31:14</p> <p>occupied 20:2</p> <p>occur 12:7</p> <p>occurrence 42:23</p> <p>occurs 10:6,15</p> <p>oil 32:19</p> <p>opening 12:24 13:5 26:25</p> <p>operates 32:17</p> <p>operating 33:14</p> <p>operative 32:18</p> <p>opinion 14:1 16:3,8 24:1 32:6 33:16</p> <p>orange 28:4</p> <p>order 38:11 45:9, 15 46:1</p> <p>ordinary 19:18 28:22 36:6,22</p>	<p>38:8,17,21</p> <p>orifice 13:13,19 14:16 15:4,6 35:17</p> <p>orifices 38:2</p> <p>original 26:6 45:9</p> <p>outlet 21:2,6,16, 17,23,24 22:6,12 23:5,13 24:8 28:2,15</p> <p>overlaid 18:2</p> <hr/> <p style="text-align: center;">P</p> <hr/> <p>paragraph 9:20, 22 12:11,17,18 13:22 15:14 16:5, 25 17:7 18:1,23 19:16,23,24 20:14,15,24 21:5, 12,14 22:6,7 23:17,25 28:20 29:25 30:14,22 31:5,13 36:4,11, 15,16,21 38:4,7, 15 39:15,25 40:5, 13</p> <p>paragraphs 13:11 14:3 35:22 37:13</p> <p>paraphrased 31:20</p> <p>paraphrasing 21:20 41:1</p> <p>part 25:20 28:3 31:22</p> <p>particles 42:16 43:19</p> <p>pass 36:25 41:4</p>	<p>passes 27:4,10 41:21</p> <p>passing 13:5 32:5,7</p> <p>past 16:9</p> <p>patent 25:1 29:14 30:19 35:8 39:19 41:15</p> <p>patents 8:9,12 32:23 33:21 34:6 35:20 42:3 43:24</p> <p>path 34:11</p> <p>PDF 31:7 38:6 40:1</p> <p>penalty 6:9</p> <p>perform 34:16</p> <p>performed 15:9</p> <p>performing 18:16</p> <p>perjury 6:9</p> <p>person 19:18 28:21 36:6,22 38:8,16,21</p> <p>Petitioner 6:18</p> <p>PH.D. 7:4</p> <p>phrase 43:5</p> <p>phrased 42:21</p> <p>physical 20:2</p> <p>physics 14:2,6, 13,14,24 15:2,8 16:4,8,15 30:4 32:16 34:16 37:25 39:22</p> <p>pink 27:24</p> <p>plan 25:2</p> <p>plane 34:7</p>	<p>plate 12:24 13:3, 6,13,18,23 15:15 16:1 17:8 18:9, 12,16 20:3 30:25 31:16 32:5,8 35:12 36:23 37:11,18 38:1</p> <p>plates 14:16 15:4, 7</p> <p>play 34:21</p> <p>plurality 31:22,24 33:3 41:11</p> <p>point 11:19 18:4 24:10 27:19 28:4, 17 31:4 33:23 34:1 35:3,4,11,12 36:14</p> <p>pointing 17:2 35:5</p> <p>points 35:2,6,14</p> <p>port 21:7 22:7 34:5</p> <p>portion 12:17</p> <p>POSITA 14:2 29:15 32:6 35:7, 19 37:9,24 39:8, 11,19</p> <p>PR 25:4</p> <p>preference 6:24 8:20</p> <p>preliminary 7:18</p> <p>preparation 8:4</p> <p>prepared 44:16</p> <p>preventing 13:4</p> <p>previously 15:3 20:2 26:24 35:15</p>
---	---	---	---

<p>prior 32:7,22 33:20 34:5 35:8, 20 40:8,20 41:15 43:24</p> <p>probability 42:2, 5,6,7,23 43:1</p> <p>proceed 6:21 7:2 26:21 37:10</p> <p>proceedings 8:23 25:23</p> <p>process 32:20 33:22 41:10 43:20</p> <p>produce 12:1 37:11,18 38:2 41:8</p> <p>produced 10:23 11:13,14</p> <p>produces 11:16</p> <p>properties 36:10</p> <p>proposed 20:5</p> <p>pull 18:7</p> <p>pulling 30:18</p> <p>purple 27:18</p> <hr/> <p style="text-align: center;">Q</p> <hr/> <p>quantify 42:12,13</p> <p>quantity 30:24 31:15</p> <p>question 7:13,23, 25 8:9 10:11,13 11:12 17:6 24:9 27:7 31:10 34:15, 16 35:20 38:10 40:16 42:18,20 43:3,13,14,15 44:15</p>	<p>questions 45:6</p> <p>quiet 39:7</p> <p>quieter 39:10</p> <p>quietness 39:8</p> <p>quoting 21:20 41:1</p> <hr/> <p style="text-align: center;">R</p> <hr/> <p>raise 6:8</p> <p>range 30:25 31:17 33:15 34:1, 11 35:2,13,15 36:24 42:2,23,25 43:2,8</p> <p>Raves 6:17 8:17 10:9,17 11:7,22 12:19 13:7,21 14:12,22 16:13, 22 17:12,23 18:6 20:10 21:9,19 24:13,20,24 25:11 27:5,14,22 29:8 30:17 31:3, 9,19 32:1,14 34:3,13 36:11 40:12,25 41:6,23 42:11,17 44:8,23 45:6,14,16,20,22</p> <p>re-asking 42:18</p> <p>re-direct 44:21</p> <p>reaches 37:6</p> <p>reactive 39:12</p> <p>read 13:12</p> <p>reading 13:17 15:25 29:5 31:11 37:4 39:2</p> <p>ready 26:20</p>	<p>recall 8:6 13:16 15:24 29:4 37:3 39:2</p> <p>recess 44:11 45:3</p> <p>recognize 23:22</p> <p>recollection 29:10</p> <p>reconvene 44:6</p> <p>record 6:7,23 7:20 17:21 24:25 30:17 44:9,12 45:1,4 46:10</p> <p>rectangle 23:1</p> <p>redirected 27:3,7</p> <p>redirection 27:11</p> <p>reduce 28:23 29:16 36:7 38:20 39:16,21</p> <p>reduced 34:2</p> <p>reduces 28:25</p> <p>reducing 39:5,13</p> <p>reduction 29:18</p> <p>reference 9:5,16 18:25 19:6 20:18 23:19,23 26:12 30:16 35:24,25 38:11 40:4</p> <p>referenced 44:17</p> <p>referencing 10:5, 14 25:3</p> <p>referring 19:15 36:4 38:15 42:8 43:8</p> <p>reflect 15:18</p> <p>refresh 29:10</p>	<p>related 29:22 30:19</p> <p>remind 7:19</p> <p>repeat 7:18 10:11,13 11:1 40:16</p> <p>repeating 31:10</p> <p>rephrase 17:6</p> <p>replace 19:2 23:19 30:8</p> <p>reporter 6:7,13, 20,25 7:16,20 8:18,24 9:1 11:1, 3,8 19:4 25:12, 15,17,24 26:7,10, 15 30:13 44:9,12 45:1,11,14,17,21, 25 46:4,9</p> <p>reports 8:8</p> <p>represent 6:14</p> <p>request 43:16</p> <p>required 30:5</p> <p>resistance 15:19</p> <p>respond 7:19</p> <p>response 7:20 16:3</p> <p>restriction 28:25</p> <p>result 9:25 38:23</p> <p>returning 20:24 23:25</p> <p>review 8:3</p> <p>reviewed 8:7,8</p> <p>right-hand 23:20, 21 33:6</p> <p>right-side 22:15</p>
---	--	--	--

Riviello 6:18 45:24,25 46:2	30:25 31:16 32:5, 8 35:12 36:23 37:11,18,25	sits 28:14	spray 20:7
room 6:25	Sevy 9:5,16 10:5, 14 11:16,25	sitting 18:21	Stand 9:8 12:14
rotate 17:16 33:6	12:18 15:11 16:7 17:3 18:3 19:18, 20 30:16 33:6	size 12:23 30:24 31:15 33:15 34:6 36:7 37:5,6 38:20 39:5,17 42:16	state 6:14 41:18, 19
rotated 17:22	34:5 35:8,19 37:17,19 41:15	sized 10:22,23	stated 29:6,16 42:3 43:13
<hr/> S <hr/>	Sevy's 9:23 11:12 13:17 15:15,25	sizes 11:12 31:1, 17 34:2,12 35:2, 5,13 37:15 42:9 43:9,11	statement 33:19
sat 7:13	16:10,11,12 20:2 36:8,23 37:11	skill 19:19 28:22 36:6,22 38:8,17, 21	statements 7:18
scales 32:21,24	shorthand 8:12	skipped 31:22	states 12:21
scheduling 6:23	shown 15:11 19:17	slightly 21:22	stating 13:18 16:1 37:5 39:3
screen 9:17 19:3 20:17,22 30:9 35:25 44:18	shows 22:24	small 10:1 22:10 34:18 41:12	stick 9:2
scroll 12:13 20:18 22:15 23:20 36:1 38:13	side 9:7,17,21 11:6 19:3 20:17, 21 23:20,21 30:9 33:6 35:25 46:7	smaller 11:17,20, 25 12:2 13:4 23:1 36:24 37:12,14, 18 38:1,23	stochastic 32:20 33:22 41:10 43:20
seated 21:22	sideways 17:13	sort 32:11 34:24	stochastically 33:1
seats 21:22	silencer 18:5,12, 17,20 21:15,16, 23 22:6,12 23:5, 13 24:2,8,11,14, 18,24 26:24 27:4, 10,20 28:2,13,15, 16	sound 15:17,19 16:2,19 17:8,10 19:21 28:18 29:7	strike 12:23
section 18:9	similar 16:3,9 29:14,21,22 32:10 33:1 39:19	source 15:19	structure 17:2 18:4,8,11 22:5 24:10 27:19 28:5 34:10
sectional 28:25	simulations 14:5 15:2,10 16:7 30:3,4 37:16 39:18,23	sources 16:19 17:10	structures 43:23
sentence 31:4 36:18	simulators 14:5 15:2,10 16:7 30:3,4 37:16 39:18,23	space 20:2	stuff 11:10
separate 34:20	sit 13:16 15:24 29:4 37:3 39:3	spatially 35:16 41:13	submitted 7:11 8:14 30:7
separated 11:20, 25		speaking 42:24	substantially 31:2,18,23 32:10, 13 33:1,4,17 40:8,20
separates 13:3 18:11		specific 27:19 28:4	sudden 28:24
separating 34:17		specifically 14:6	support 7:11
separation 10:6, 15,20,22 12:6 34:22,23,24,25			suppose 44:22
separator 12:24 13:3,5,13,18,22 15:15 16:1 17:8 18:9,12,16 20:3			suppress 29:23 30:1

<p>suppressed 28:19</p> <p>suppresses 15:20</p> <p>surface 18:14 23:5,6,9 28:12, 14,15</p> <p>surfaces 23:10, 11</p> <p>systems 14:15</p> <hr/> <p style="text-align: center;">T</p> <hr/> <p>taking 15:6 16:9</p> <p>tangent 27:25 28:11</p> <p>tapered 18:9,20</p> <p>taught 14:7</p> <p>teaches 29:13 37:8,23 39:6 40:6,18</p> <p>teaching 37:21</p> <p>teachings 29:22 36:6 37:17</p> <p>tells 16:15</p> <p>Ten 45:21</p> <p>terms 16:24 18:2, 8 27:7 32:25 34:15,17 41:16 42:7</p> <p>testified 7:6</p> <p>testimony 6:10</p> <p>thing 46:6</p> <p>thought 36:20</p> <p>through-hole 37:5 41:4,21,22</p>	<p>time 9:5 13:12 44:10,13 45:2,5,7 46:10</p> <p>today 7:9 8:4 13:16 15:24 29:4 37:3 39:3 44:16</p> <p>top 21:23 22:1,12, 24 23:5,6,13 33:25</p> <p>truth 6:11 7:5</p> <p>turbulence 15:20 29:1</p> <p>turn 17:25 30:7</p> <p>twin 32:16,17,21 33:21 41:8,16 43:18</p> <p>typically 12:22 45:19</p> <hr/> <p style="text-align: center;">U</p> <hr/> <p>undergraduate 14:8 29:21</p> <p>understand 37:10 42:19 44:3</p> <p>understanding 20:6 33:11</p> <p>understood 18:19 25:11 31:25 43:12</p> <p>undue 36:25</p> <p>uniform 31:2,18, 23 33:4 37:8,9, 12,23 38:3,24 40:8,20 41:11,18, 20,25 42:1,21,22 43:5,13</p> <p>uniformity 32:4</p>	<p>36:9 41:3</p> <p>unit 21:23,25 22:1,12 23:7,14 35:18 39:10,14 44:1</p> <p>unmarked 22:14</p> <hr/> <p style="text-align: center;">V</p> <hr/> <p>variance 42:9,13, 14</p> <p>variation 43:9</p> <p>vary 35:16</p> <p>verbally 7:19</p> <p>view 14:20 28:17 36:5</p> <p>volume 18:14,15 23:9,12,13 24:15 28:13,17 43:23</p> <hr/> <p style="text-align: center;">W</p> <hr/> <p>waiting 10:12</p> <p>wall 9:24 11:16 12:1 20:7</p> <p>walls 12:23</p> <p>wanted 43:4</p> <p>waves 19:21</p> <p>White 6:8,12,25 7:4,9 9:11 10:18 15:14 16:18 17:16 18:1 19:10, 25 20:20 21:14 22:19 23:22 26:23 28:21 30:22 33:9 36:5 38:7 40:1,5 42:18 44:15 45:7</p>	<p>withdraw 17:5 38:10</p> <p>word 25:19</p> <p>Works 44:8</p> <p>written 13:17 15:25 29:5</p> <hr/> <p style="text-align: center;">Z</p> <hr/> <p>Zeng 18:25 19:17, 20 20:9</p> <p>Zeng's 20:1</p> <p>zoom 9:13,14 18:10 22:9,17 24:20,23</p>
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