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IN THE UNITED STATES DISTRICT COURT
1
               FOR THE SOUTHERN DISTRICT OF TEXAS
                         VICTORIA DIVISION
2.
      SAN ANTONIO BAY ESTUARINE
3
      WATERKEEPER, et al,
4
         Plaintiffs,
                                   CIVIL ACTION
5
      VS.
                                   ) NO. 6:17-cv-00047
6
      FORMOSA PLASTICS CORP.,
      TEXAS, et al,
7
              Defendants.
8
9
10
                        ORAL DEPOSITION OF
                            STEVE LEE,
11
                       INDIVIDUALLY, AND AS
                  CORPORATE REPRESENTATIVE OF
12
                 FORMOSA PLASTICS CORP., TEXAS
                         November 9, 2018
13
                             Volume 1
14
15
         THE ORAL DEPOSITION OF STEVE LEE, INDIVIDUALLY, AND
16
    AS CORPORATE REPRESENTATIVE OF FORMOSA PLASTICS CORP.,
17
    TEXAS, Volume 1, produced as a witness at the instance
18
19
    of the Plaintiffs, and duly sworn, was taken in the
    above-styled and numbered cause on the 9th of November,
20
    2018, from 3:17 p.m. to 4:37 p.m., before
21
    Julie A. Jordan, CSR, RPR, in and for the
2.2
    State of Texas, reported by machine shorthand, at
23
    the Formosa Plastics Training and Development Center,
24
    87 Wood Street, Point Comfort, Texas 77978, pursuant to
25
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the Federal Rules of Civil Procedure and any provisions
 1
    stated on the record or attached hereto.
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   ALSO PRESENT:
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         Mr. Bob Lindsey
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2.2
23
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25
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23			
24			
25			

STEVE LEE, 1 having been first duly sworn, testified as follows: 2 EXAMINATION 3 BY MS. JOHNSON: 4 03:17PM Would you please state your name. 5 Q. 03:17PM Α. Steve Lee. 6 03:17PM Mr. Lee, have you ever been deposed before? 7 Ο. 03:17PM Α. No. 8 03:17PM 9 Ο. So I'm sure you've had an opportunity 03:17PM to be briefed on this, but I'm going to ask you some 10 03:17PM questions, and they're just like -- it's just like if 11 03:17PM you were in front of the Court and you're going to 12 03:17PM listen to my questions and answer. Okay? 13 03:17PM Α. 14 Sure. 03:17PM And if there's anything you don't understand 15 03:17PM that I ask, I'd ask you to ask me to rephrase it. Okay? 16 03:17PM Α. Sure. 17 03:17PM And you are doing a great job of giving verbal 18 03:17PM responses, but sometimes people nod their heads, and so 19 03:17PM it's important to give a verbal response. Okay? 20 03:17PM 21 Α. Sure. 03:18PM And the other thing you're really doing a good 22 Ο. 03:18PM job at is we're not stepping on each other, as we say. 23 03:18PM You know, like you're not talking when I'm talking. 24 03:18PM we'll both try to pause and let each other finish their 25 03:18PM

		,
answers.	Okay?	03:18PM
Α.	Sure. That's okay.	03:18PM
Q.	Okay. Mr. Lee	03:18PM
Α.	Yeah.	03:18PM
Q.	where are you from?	03:18PM
Α.	I've been in Texas for 30 years. Well, almost	03:18PM
30 years.		03:18PM
Q.	Almost 30 years.	03:18PM
	You've been here at Formosa Texas?	03:18PM
Α.	26 years.	03:18PM
Q.	Where were you before that?	03:18PM
Α.	I was in South Carolina attending graduate	03:18PM
school.		03:18PM
Q.	Where was that?	03:18PM
Α.	University of South Carolina.	03:18PM
Q.	And what did you get your graduate degree in?	03:18PM
Α.	Chemical engineering.	03:18PM
Q.	Okay. So you have been at Formosa Texas for	03:18PM
26 years?		03:18PM
Α.	Correct.	03:18PM
Q.	So when was that that you came here?	03:18PM
Α.	1992.	03:18PM
Q.	And what was your first job at Formosa?	03:18PM
Α.	It was chemical engineer.	03:18PM
Q.	Is it in the engineering department or is	03:19PM
	A. Q. A. Q. A. 30 years. Q. A. School. Q. A.	A. Sure. That's okay. Q. Okay. Mr. Lee A. Yeah. Q where are you from? A. I've been in Texas for 30 years. Well, almost 30 years. Q. Almost 30 years. You've been here at Formosa Texas? A. 26 years. Q. Where were you before that? A. I was in South Carolina attending graduate school. Q. Where was that? A. University of South Carolina. Q. And what did you get your graduate degree in? A. Chemical engineering. Q. Okay. So you have been at Formosa Texas for 26 years? A. Correct. Q. So when was that that you came here? A. 1992. Q. And what was your first job at Formosa? A. It was chemical engineer.

			_
1	there an e	engineering department or in a lab?	03:19PM
2	Α.	In well, I'm still under the same division	03:19PM
3	we call bu	usiness technology division, and it's in a	03:19PM
4	technical	service group	03:19PM
5	Q.	Okay.	03:19PM
6	Α.	at yeah.	03:19PM
7	Q.	What is your title now?	03:19PM
8	Α.	I'm Polyolefin lab manager.	03:19PM
9	Q.	Okay. And how many people are in your lab?	03:19PM
10	Α.	33.	03:19PM
11	Q.	And what department is your lab in?	03:19PM
12	Α.	We call Laboratory Service and Quality	03:19PM
13	Assurance	Department.	03:19PM
14	Q.	And that's bigger than just the lab?	03:19PM
15	Α.	Yes. Under we call it LSQA. Okay?	03:19PM
16	Laboratory	y Service and Quality Assurance, there are four	03:20PM
17	labs under	that department.	03:20PM
18	Q.	Okay. And so do you does your lab	03:20PM
19	participat	te in quality control for the facility?	03:20PM
20	Α.	Yes.	03:20PM
21	Q.	And when we say "quality control," that means	03:20PM
22	you're lo	oking at the quality of the pellets and the	03:20PM
23	powder tha	at are produced?	03:20PM
24	А.	That's correct.	03:20PM
25	Q.	Okay. And do you do research and development	03:20PM

1	for future products?	03:20PM
2	A. Not in my department.	03:20PM
3	Q. Okay. What besides quality control do you do	03:20PM
4	in your department?	03:20PM
5	A. Well, like this case, there's a special case	03:20PM
6	that's assigned to me, so we do our best based on	03:20PM
7	available equipment, facilities, and power we have.	03:20PM
8	Q. And do you do do you like do you help	03:20PM
9	with the sampling of wastewater? Do any does your	03:20PM
10	lab have any other role besides testing the pellets and	03:21PM
11	powder?	03:21PM
12	A. No, they don't do sampling.	03:21PM
13	Q. Okay. Is there anything else that I'm missing	03:21PM
14	that your lab does besides that quality control?	03:21PM
15	A. Right now many quality control and the product	03:21PM
16	grading. That's probably part of the quality control.	03:21PM
17	Q. Okay.	03:21PM
18	A. Yeah.	03:21PM
19	Q. And so when you grade products, you're trying	03:21PM
20	to determine if they meet certain kind of standards, and	03:21PM
21	if they don't, you might not grade it at the top grade.	03:21PM
22	Is that fair to say?	03:21PM
23	A. Correct.	03:21PM
24	Q. Okay. Do you physically do the testing	03:21PM
25	anymore or do you supervise the testing?	03:21PM

			_
1	Α.	I supervise.	03:21PM
2	Q.	Okay. How long have you been a supervisor?	03:21PM
3	Α.	As a supervisor, probably 23 years.	03:21PM
4	Q.	Okay. So you became a supervisor fairly soon	03:21PM
5	after you	got here?	03:22PM
6	Α.	Yes.	03:22PM
7	Q.	Okay.	03:22PM
8	Α.	Correct.	03:22PM
9	Q.	Do you know what I mean by the	03:22PM
10	Pellet Ide	entification Project?	03:22PM
11	Α.	Kind of.	03:22PM
12	Q.	Is that a project that you've undertaken in	03:22PM
13	this laws	uit to identify pellets?	03:22PM
14		MR. RAVEL: Objection, form.	03:22PM
15		You can answer unless I	03:22PM
16	Q.	(BY MS. JOHNSON) You can answer.	03:22PM
17		MR. RAVEL: instruct you not to.	03:22PM
18	Q.	(BY MS. JOHNSON) You can answer it.	03:22PM
19		MR. RAVEL: You may answer.	03:22PM
20	A.	Okay. This is the project that our	03:22PM
21	environmen	ntal department request us to do, but this is	03:22PM
22	not part o	of our routine job.	03:22PM
23	Q.	(BY MS. JOHNSON) I understand that. Okay.	03:22PM
24		And so who has been the person in the	03:22PM
25	environmen	ntal department that requested you to do the	03:22PM

1	Pellet Identification Project?	03:22P
2	A. The manager.	03:22P
3	Q. Who is that?	03:22P
4	A. Matt Brogger.	03:22P
5	Q. Okay. And when do you remember when he	03:22P
6	asked you to do it?	03:22P
7	A. Probably sometime last year.	03:22P
8	Q. Okay.	03:22P
9	A. Sometime last year.	03:22P
.0	Q. Did he come to meet with you about it or did	03:23P
.1	he send you an e-mail how did he ask you to do it?	03:23P
2	A. He actually brought the samples into my lab	03:23P
.3	and talked to me. And I later, you know, brought the	03:23P
4	sample to talk with our colleagues in the lab and talk	03:23P
.5	about, you know, what's the best way to do this.	03:23P
.6	Q. Okay. Did you when you were thinking about	03:23P
_7	the best way to identify the pellets, did you	03:23P
.8	communicate with anybody with Formosa USA in New Jersey?	03:23P
9	A. No.	03:23P
20	Q. Okay. And on a different note, have you been	03:23P
21	consulted regarding the screen size that is necessary to	03:23P
22	entrap Formosa's pellets at any of the outfalls?	03:23P
23	A. I know the wastewater unit or the civil	03:23P
24	department civil maintenance department from	03:24P
25	different occasions, they have request information from	03:24P

1	the lab about what's the typical particle size	03:24PM
2	distribution for pellets or powder. They have requested	03:24PM
3	that kind of information. As far as the sizing, that's	03:24PM
4	not not my job.	03:24PM
5	Q. So when but when they requested the	03:24PM
6	information about the typical particle size, was that to	03:24PM
7	your lab?	03:24PM
8	A. Correct.	03:24PM
9	Q. Okay. And were you the person that gave them	03:24PM
10	that information or was it somebody else in your lab?	03:24PM
11	A. I assigned a chemist to do a little study, and	03:24PM
12	then they the chemist sent me the information. I	03:24PM
13	review it and I send it to I believe I sent it to	03:24PM
14	maybe John Hyak.	03:25PM
15	THE REPORTER: I'm sorry?	03:25PM
16	MS. JOHNSON: John Hyak.	03:25PM
17	THE WITNESS: John Hyak.	03:25PM
18	THE REPORTER: Thank you.	03:25PM
19	THE WITNESS: Yeah.	03:25PM
20	Q. (BY MS. JOHNSON) And that project just had to	03:25PM
21	do with the size of screens to catch pellets, right, not	03:25PM
22	powder?	03:25PM
23	A. I'm not sure what what they use it for, but	03:25PM
24	we do provide both powder and and the pellet size.	03:25PM
25	Q. Okay. And during this lawsuit we've had these	03:25PM

different discussions of powder, pellets, and the word 1 03:25PM "flakes" has also been used or "shavings." 2 03:25PM Do you think -- do you distinguish -- do 3 N3:25DM the words "flakes" and "shavings" mean anything to you? 4 03:25PM Do they describe anything different than powder and 5 03:25PM pellets? 6 03:25PM A little different. Α. 7 03:25PM Okay. How are they different? Did you say Ο. 8 N3:25DM they're not different? 9 03:26PM A little different. Α. 10 03:26PM Okay. Okay. Thank you. Q. 11 03:26PM They're -- they're a little different. Α. 12 03:26PM Can you describe how they're different to me? Q. 13 03:26PM Flakes is kind of maybe a piece of plastic or Α. 14 03:26PM something. It could be any material that's kind of flat 15 03:26PM in nature. 16 03:26PM Uh-huh. 17 Ο. 03:26PM And maybe a powder stick together or a -- some 18 03:26PM plastic sample, they're being heated and then -- then 19 03:26PM compressed become a flat flake. 20 03:26PM Okay. And how about a shaving? 21 03:26PM Shaving, to me, that's a -- during the 22 03:26PM processing period of time, you know, they generate it 23 03:26PM during the process. I don't know how it's generated, 24 03:26PM but technically, I don't know exact distinguish between 25 03:26PM

1	shaving and the flake.	03:27PM
2	Q. And okay. I understand that.	03:27PM
3	Have you on the project that you did on	03:27PM
4	the pellet identification, have you consulted with	03:27PM
5	anybody outside of Formosa Texas?	03:27PM
6	A. No.	03:27PM
7	Q. Okay. I want to just understand a little bit	03:27PM
8	about the chemistry and the	03:27PM
9	A. Yeah.	03:27PM
10	Q physical structure of the pellets.	03:27PM
11	A. Okay.	03:27PM
12	Q. Okay? So I'm just going to ask you some	03:27PM
13	questions about that.	03:27PM
14	A. Okay.	03:27PM
15	Q. Do you know generally what the density is of	03:27PM
16	the pellets? Do the well, let me ask one question.	03:27PM
17	There are different pellet units, right?	03:27PM
18	A. Correct.	03:27PM
19	Q. Okay. Do you know if the density of the	03:27PM
20	pellets from the pellet-producing units is generally the	03:27PM
21	same?	03:27PM
22	A. It varies.	03:27PM
23	Q. It varies?	03:27PM
24	A. Yes.	03:27PM
25	Q. Okay. And does the density affect the ability	03:27PM

1	to float	on water?	03:28PM
2	A.	Of course.	03:28PM
3	Q.	Do any of the pellets produced not float on	03:28P
4	water?		03:28P
5	A.	Not all Formosa pellets would float.	03:28P
6	Q.	Okay. Do you know what the density is of the	03:28PM
7	pellets o	n average or give me a range?	03:28PM
8	A.	We have a very wide range starting from maybe	03:28P
9	.89 gram	per centimeter cubed or per cc to .96, .97.	03:28P
LO	Q.	And which would be the least dense and the	03:28PM
L1	most dens	e?	03:28PM
L2	Α.	.89, .9.	03:28PM
L3	Q.	Do you know what unit that came from?	03:28P
L 4	Α.	That will be like polypropylene unit.	03:28PM
L5	Q.	And what was the most dense from?	03:29P
L6	Α.	The HDPE.	03:29P
L7	Q.	Okay. Just generally, not in a real chemical	03:29P
L8	way, can	you explain to me why there's such a difference	03:29P
L9	in densit	y?	03:29P
20	Α.	Because polymer is they polymerize by small	03:29P
21	molecule.		03:29PI
22	Q.	Uh-huh.	03:29P
23	Α.	The larger the molecule weight, the larger the	03:29PI
24	size, the	higher the density. Of course it relates to	03:29P
25	the chemi	cal structure also.	03:29Pi

1	Q. Okay.	03:29PI
2	A. You know, the inner molecule distance will	03:29Pl
3	affect the density also.	03:29P
4	Q. Okay. And what is the does the surface of	03:29P
5	a pellet vary depending on which unit produces it?	03:29PI
6	A. Yes.	03:30P
7	Q. Okay. Are the surfaces can you describe	03:30P
8	generally is it smooth, abrasive, rough, porous? What	03:30P
9	are the surfaces like of the pellets?	03:30P
LO	MR. RAVEL: Objection, form.	03:30P
L1	Q. (BY MS. JOHNSON) You can answer.	03:30Pl
L2	MR. RAVEL: You can answer.	03:30P
L3	A. See, our lab, we don't actually use	03:30P
L 4	microscope microscope or microscope to look at the	03:30P
L5	surface.	03:30P
L6	Q. Okay.	03:30P
L7	A. By my naked eyes, it looks smooth to me.	03:30PI
L8	Q. Okay. So you don't really know what the	03:30P
L9	surface is like?	03:30PI
20	A. Our R&D department, they may know, but	03:30PI
21	research and development department, they may know, but	03:30P
22	we we as a quality assurance, we don't use microscope	03:30P
23	to look at the surface.	03:30P
24	Q. So what the surface is isn't relevant to	03:30PI
25	quality assurance?	03.300

		-
1	A. Not not a not part of the quality	03:30PM
2	control.	03:31PM
3	Q. Okay. Is the the shape of the pellets is	03:31PM
4	different depending on the different units that produce	03:31PM
5	them, right?	03:31PM
6	A. Yes.	03:31PM
7	Q. Okay. And did you bring me any pellets today?	03:31PM
8	A. No. I didn't bring any.	03:31PM
9	Q. Did we ask to bring some pellets?	03:31PM
10	A. I sent in some	03:31PM
11	MR. RAVEL: Bags.	03:31PM
12	A. I sent in some pictures.	03:31PM
13	MS. JOHNSON: Huh?	03:31PM
14	MR. RAVEL: In bags for weight, and I	03:31PM
15	told you he's a pellet identification guy.	03:31PM
16	MS. JOHNSON: I have some pellets. Just	03:31PM
17	a minute. We'll just mark this as	03:31PM
18	THE REPORTER: 70.	03:31PM
19	MS. JOHNSON: I don't have a copy of it.	03:31PM
20	MR. RAVEL: I'll look at it along with	03:31PM
21	him.	03:31PM
22	MS. JOHNSON: All righty.	03:31PM
23	MR. RAVEL: He can teach me how to	03:31PM
24	MS. JOHNSON: How to identify pellets.	03:31PM
25	(Exhibit 70 marked)	03:31PM

(BY MS. JOHNSON) Okay. I am showing you what Ο. 1 03:31PM has been marked as Exhibit 70. 2 03:31 PM Would you identify that as a bag of 3 03:32PM 4 pellets? 03:32PM Can I touch it? Α. 5 03:32PM Oh, you can touch it. You can do whatever --Ο. 6 03:32PM there's nothing -- it's just a bag of pellets. 7 03:32PM Α. Yeah. 8 03:32PM Okay. Can you -- by looking at those pellets, 9 Ο. 03:32PM can you tell -- I mean, there are different shapes of 10 03:32PM pellets in that bag, is that right? 11 03:32PM Α. Yes. 12 03:32PM That the naked eye can see the Ο. 13 03:32PM different shapes, right? 14 03:32PM Α. Correct. 15 03:32PM Okay. Can you tell me which unit they're from 16 Ο. 03:32PM by what shape they're in? 17 03:32PM MR. RAVEL: Objection, form. 18 03:32PM Possible. Α. 19 03:32PM (BY MS. JOHNSON) Okay. So there are these 20 Q. 03:32PM pellets, I call them M&M shapes. 21 03:32PM Α. Yeah. 22 03:32PM I don't -- do you have a different description 23 03:32PM of what you would call that shape? 24 03:32PM Α. Well, again, shape is not part of the quality 25 03:32PM

1	control.	03:33P
2	Q. Okay. But in your Pellet Identification	03:33PI
3	Project you were looking at the shapes	03:33PI
4	A. Correct.	03:33PI
5	Q right?	03:33PI
6	A. That is correct.	03:33PI
7	Q. So are you familiar with the shapes?	03:33PI
8	A. Kind of, yes.	03:33PI
9	Q. Okay. So do you	03:33PI
LO	A. I'm not the the actual person to do the	03:33PI
L1	identification by shape because we are assigned a very	03:33PI
L2	experienced technician who does the job all the time.	03:33PI
L3	They they look at the powder inspection all the time	03:33P
L4	pellet. We assign them to do it.	03:33PI
L5	Q. So you didn't do the you didn't do the	03:33PI
L6	visual look at the pellets in the pellet	03:33P
L7	identification	03:33P
L8	A. I kind of have some idea from what units. By	03:33P
L9	comparison, I can tell. But when you mix all them	03:33Pl
20	together, then it's it's very subjective to tell.	03:33Pl
21	Yeah.	03:33P
22	Q. Well, some of the pellets have kind of a	03:33PI
23	cylindrical shape?	03:33PI
24	A. Correct.	03:33PI
25	Q. Do you know what unit the cylindrical pellets	03:33PM

1	are from?	03:34Pi
2	MR. RAVEL: Objection, form.	03:34P
3	THE WITNESS: I can answer?	03:34P
4	MR. RAVEL: You can answer.	03:34PI
5	A. Yeah. That could be from our polyethylene	03:34P
6	plant. They have similar shape.	03:34P
7	Q. (BY MS. JOHNSON) Okay. And do you know what	03:34P
8	the rounder pellets what unit they might be from?	03:34P
9	A. That will be hard to identify. It could be	03:34P
L O	PE or PPE. They have similar.	03:34P
L1	Q. Okay. So are you familiar with the general	03:34P
L2	color of the pellets or how the color changes from unit	03:34PI
L3	to unit or from over time?	03:34PI
L4	MR. RAVEL: Objection, form.	03:34P
L5	A. Color is a quality assurance item	03:34P
L6	Q. (BY MS. JOHNSON) Uh-huh.	03:34P
L7	A that we use a meter to a color meter to	03:34P
L8	measure because human eyes can only tell, you know, very	03:34P
L9	little range of color difference.	03:35P
20	The product I don't know if you have	03:35P
21	seen the fresh product we produced. Those are very	03:35Pl
22	white, just yeah, they're the whiteness is high.	03:35P
23	Q. A bright white?	03:35P
24	A. Very bright white. Yeah. It's not like this.	03:35PI
25	Q. Okay. So for instance, when we were talking	03:35PI

03:35PM

03:35PM

03:35PM

03:35PM

03:35PM

03:35PM

03:35PM

03:35PM

03:35PM

03:36PM

03:37PM

03:37PM

03:37PM

03:37PM

#### STEVE LEE - VOLUME 1 - November 09, 2018

bright white versus not as white, a bright white has -is kind of -- it has little opaqueness to it maybe or less brownness? There are examples in this bag of things that are more white than others, right? All these look aged.

- Ο. Okay.

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- Not fresh pellets. Even this one, our white Α. is not like that. That look like there's a lot of chemicals in there. Like by our term is additive -additive pellet. "Additive" means it may have some higher concentration of additive.
- So when you say "additive," are you saying Ο. that the chemical composition is different or that it's been out in the environment and it has changed?
- It means that the chemical we add to the Α. plastic to -- to give certain design quality of the plastic, that's the stuff -- that's the chemical we add to the plastic during the manufacturing process.
  - Okay. So I'm not understanding. Q.
- So you add a chemical to give it a white color, is that what you're talking about as the additive?
- Not to give the white color. It's to say Α. antiaging. We call antioxidant.
  - Okay. Q.

03:38PM

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Or anti-UV, the UV light, or anticorrosion. 1 03:37PM If you use the plastic, it touch with metal, it won't 2 03:37PM give corrosion, that kind of purpose. 3 03:37PM Okay. And so if the pellet's color have O. 4 03:37PM changed over time, is that because something has worked 5 03:37PM on the antioxidation -- oxidant, for instance, or the 6 03:37PM something has -- the antioxidant has been diminished in 7 03:37PM some way, for instance? 8 03:37PM Possible. 9 Α. 03:37PM Okay. You mentioned anti- -- what was it that Q. 10 03:37PM was antisunlight? What was --11 03:37PM Α. UV. UV light. 12 03:37PM What is used for -- to protect the Yeah. Ο. 13 03:37PM pellets from UV light? 14 03:37PM It has a sort of number -- technical number, Α. 15 03:38PM It's a special term, you know. you know. 16 03:38PM What's it called? 17 Ο. 03:38PM We have UV with a number. I don't remember 18 03:38PM exact number. It's a number, like UV123 or --19 03:38PM 20 O. Okay. 03:38PM -- UV -- yeah, that kind of thing. 21 03:38PM Okay. If the pellets are left in -- out in 22 Ο. 03:38PM the environment, does the chemical quality of the pellet 23 03:38PM change over time? 24 03:38PM

Chemical quality.

Α.

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1	Q. Does the composition do these does	03:38P
2	anything happen chemically to the pellets for instance	03:38P
3	in rain and water, in sediment?	03:38P
4	MR. RAVEL: Objection, form.	03:38P
5	A. I think it's possible.	03:38PM
6	Q. (BY MS. JOHNSON) Could you tell me what you	03:38P
7	would imagine possibly could happen to them?	03:38P
8	A. Well, you know, if it's in the sea water, you	03:39P
9	know, you're under erosion, you know, sunlight, you	03:39P
LO	know, that kind of thing. You know what nature can do	03:39P
L1	to these pellets.	03:39P
L2	I haven't done my any study myself.	03:39P
L3	That's not part of my job to do that. But I know with	03:39P
L 4	time, you know, anything in the sea will be degraded.	03:39P
L5	Q. Do you know if microorganisms can attach to	03:39P
L6	the surface of the pellets?	03:39P
L7	A. I have no idea.	03:39P
L8	Q. Okay. Do you know whether algae can grow on	03:39P
L9	the pellets?	03:39P
20	A. I have no idea.	03:39P
21	Q. Okay. Do you know can you describe for me	03:39P
22	the durability of the pellets, like how long they are	03:39P
23	designed to last?	03:39₽1
24	A. I don't have I don't have any idea.	03:39P
25	Q. You don't have any idea?	03:40P

1	A. No.	03:4
2	Q. Do you know how the pellet's durability is	03:4
3	affected by the natural environment?	03:4
4	A. No.	03:4
5	Q. And so you don't have any opinion about how	03:4
6	exposure to air, sunlight, water, or sediment affects	03:4
7	the pellets?	03:4
8	A. No.	03:4
9	Q. And you don't you haven't looked at any	03:4
LO	studies about those issues either?	03:4
L1	A. (Nods negatively.)	03:4
L2	MR. RAVEL: You have answer out loud.	03:4
L3	Q. (BY MS. JOHNSON) Yeah. Sorry.	03:4
L4	MR. RAVEL: Say no.	03:
L5	A. Oh. Oh, say no. Okay. Sorry. I yeah,	03:
L6	no.	03:
L7	Q. (BY MS. JOHNSON) Okay. And do you have any	03:
L8	studies or any evidence about how the color of the	03:
L9	pellets might change over time?	03:
20	A. No.	03:
21	Q. And Formosa makes specialty pellets too, is	03:
22	that right?	03:
23	A. Well, we have product called specialty PVC,	03:
24	but that's not tested by our lab.	03:
25	Q. But there so there are no pellets that are	03:

specially designed for special customers? 1 03:40PM Yeah, but the production process is also 2 03:41PM different. 3 03:41 PM Ο. Okay. 4 03:41PM Α. Yeah. 5 03:41PM And the descriptions we've had about the Ο. 6 03:41PM pellets and the color, do you know whether specialty 7 03:41PM pellets differ in any of those qualities? 8 03:41 PM These are not SPVC. SPVC, it -- there is 9 No. 03:41PM like a very fine plastic. These are not. These are 10 03:41PM poly- -- what we call polyolefins. Polyethylene or 11 03:41PM polypropylene, these look like that. 12 03:41PM Okay. Ο. 13 03:41 PM Α. Yeah. 14 03:41PM I think I'm not being clear because I Yeah. Ο. 15 03:41PM think you're talking about powder when you're saying 16 03:41PM SPVC. 17 03:41PM Well, SPVC, their look -- appearance more look 18 03:41PM like powder form because they're -- they're very fine, 19 03:41PM fine plastic. 20 03:41PM Okay. Do -- are all of the pellets that are 21 03:41PM tested in your lab white or are there any colors? 22 03:41PM Α. We don't test color -- color pellets. We --23 03:42PM we -- Formosa don't add color to the pellets. 24 03:42PM 25 So all the pellets are white? Q. 03:42PM

1	A.	Yes.	03:42PM
2	Q.	Okay.	03:42P
3	Α.	Whenever there is color, it means abnormal.	03:42PM
4	Q.	Okay.	03:42PI
5	Α.	Yeah.	03:42PM
6	Q.	It means it's abnormal?	03:42P
7	A.	Abnormal, yes.	03:42P
8	Q.	And do they are pellets ever colored in	03:42PI
9	their abno	ormal in the production process?	03:42PI
L O	Α.	Yes. Say if it turn blue, means there's	03:42PM
L1	something	wrong in the production process.	03:42P
L2	Q.	Have you ever seen blue pellets out here	03:42P
L3	sometimes	?	03:42P
L4		MR. RAVEL: Objection, form.	03:42PI
L5	Α.	Very few, but I did see it before.	03:42PI
L6	Q.	(BY MS. JOHNSON) Have you ever seen a pink	03:42PI
L7	pellet pro	oduced here at Formosa?	03:42PI
L8	Α.	No.	03:42P
L9	Q.	Okay. Any other colors?	03:42PI
20	Α.	We have black pellet we call black, you	03:42PI
21	know, that	that's contaminated by something.	03:42PI
22	Q.	And are you familiar with the term "sorb"?	03:43PI
23	Like it's	are you familiar with the term "sorb"?	03:43PI
24	Α.	Yes.	03:43PI
25	Q.	Okay. What does that mean to you?	03.430

Sorb -- sorb means a -- a temporary absorption 1 03:43PM of the surface. 2 03:43PM Okay. Can it also mean to absorb, to go 3 Q. 03:43PM beneath the surface? I mean, there are two words. 4 03:43PM There's "adsorb" and "absorb." 5 03:43PM Are you familiar with those two terms? 6 03:43PM Adsorption, absorption. I used to know very Α. 7 03:43PM clear on the definition. I'm confused now. 8 03:43PM So are you aware of any studies about any 9 03:43PM chemicals that might bond or attach to Formosa's 10 03:44PM pellets? 11 03:44PM I didn't do any study. I never did any study Α. 12 03:44PM on that. 13 03:44PM And you haven't read any studies about that? 14 O. 03:44PM No, I haven't. Α. 15 03:44PM Okay. So -- or any chemicals that might 16 Ο. 03:44PM absorb, go beneath the surface? Do you -- are you aware 17 03:44PM of any studies or --18 03:44PM Α. No. 19 No. 03:44PM Thank you. 20 Q. Okay. 03:44PM I want to talk a minute about powder. 21 03:44PM 22 Α. Sure. 03:44PM Okay. So powder -- plastic powder is used in 23 Q. 03:44PM the production of pellets, right? 24 03:44PM Α. Correct. 25 03:44PM

1	Q. But there and there also are some units	03:44P
2	that just produce powder as an end product.	03:44P
3	Like the PVC unit makes powder, right?	03:44P
4	A. Yeah. PVC, their final product, they call	03:45P
5	well, it's in the powder form, yes.	03:45P
6	Q. Okay. And do you know the general density of	03:45P
7	PVC powder?	03:45P
8	A. I don't test those are under different	03:45P
9	labs. I think it's less than one also.	03:45P
LO	Q. So do you know whether PVC powder floats on	03:45P
L1	water?	03:45P
L2	A. If it's less than one, yes.	03:45P
L3	Q. Okay. Do you know the general density of	03:45P
L4	polypropylene powder?	03:45P
L5	A. 5.9.	03:45P
L6	Q. Okay. So that will float on water?	03:45P
L7	A. Yes.	03:45P
L8	Q. Okay. Do you know the size of a particle of	03:45P
L9	powder?	03:45P
20	A. Powder, by our our lab's definition for	03:45P
21	polyolefin, polypropylene, or polypropylene means size	03:45P
22	ranging from maybe 500 to 2,000 micron micrometer.	03:46P
23	Q. Okay.	03:46P
24	A. 2,000 micrometer means 2 millimeter, if you	03:46PM
25	use a ruler. 2 millimeter.	03:46P

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03:48PM

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- Q. Okay. And the -- you just gave me a whole bunch of different powder. PP -- it sounded like --
  - A. PE, PP and PE.
  - Q. Okay.

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- A. That's the many product I -- my lab testing.
- Q. Okay. Can you tell the -- if you look at those powders, can you tell the difference between what unit they're produced from by looking at them?

If I saw a handful of powder from the PP unit and a handful of powder from the PE unit, could you look at them and go, Well, that's some PE powder over there and that's some PP powder over there?

A. Yes, but -- but again, like these -- some of them are similar.

Our lab, when we test it, they always give you a bag and then label. They tell you what it is. We don't identify what that is. It tells us what that is. And so we assume everything in the bag is what they label as labeled.

And then we -- we perform at least more than ten different type of tests to confirm the quality meets the specification. That's our routine job to do. But we don't actually identify whether this is from what pellet -- from what -- what grade from what unit, no. That's not our routine job to do.

03:49PM

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Okay. And so when you did this Pellet Ο. 1 03:48PM Identification Project, you were not looking at powder, 2 03:48PM were you? 3 03:48PM Yeah, because I remember all the samples Α. 4 03:48PM we received were in pellet form. 5 03:48PM Do you know the characteristics of powder and 6 03:48PM Would the powder adhere to each other or do 7 03:48PM the -- do the particles spread out? 8 03:48PM It -- you know, I know I think it depends. 9 03:48PM powder, if they have some additives added -- added in 10 03:48PM there, they may spread it out. But if they don't, then 11 03:48PM they may stick together. 12 03:49PM Do you know what kind of additives might make 13 N3:49DM 14 them spread out? 03:49PM I don't know. Α. 15 03:49PM Okay. And do you know whether anything 16 03:49PM adheres or grows on powder when it's out in the 17 03:49PM environment? 18 03:49PM Α. 19 No. 03:49PM Okay. Do you know anything about the density 20 Q. 03:49PM of flakes or shavings? 21 03:49PM Α. 22 No. 03:49PM Okay. Do you know if they float? 23 Q. 03:49PM Well, if it's plastic, it will float. 24 Α. 03:49PM I'm going to talk to you now -- I know 25 Q.

1	the thing we're here for is the Pellet Identification	03:49PI
2	Project.	03:50P
3	A. Okay. Sure.	03:50P
4	Q. So I'm going to hand you what we're going to	03:50P
5	mark as 71.	03:50P
6	(Exhibit 71 marked)	03:50P
7	Q. (BY MS. JOHNSON) Okay. So Document 71 is	03:50P
8	entitled "Analysis of pellets from outside the plant."	03:50PI
9	Did you prepare this document?	03:50P
LO	A. Actually, my chemist prepare it. I review it.	03:50P
L1	I kind of edited a little bit and then I sent it out.	03:50P
L2	Q. Okay. Who's the chemist that prepared it?	03:50P
L3	A. Sunny. Sunny Chen.	03:50P
L4	Q. Sunny Chen. Okay.	03:50P
L5	So I just want to just walk through the	03:50P
L6	study.	03:50P
L7	A. Sure.	03:50P
L8	Q. Okay?	03:50P
L9	A. Sure.	03:50P
20	Q. So when was this prepared? When was this	03:50P
21	document prepared?	03:50P
22	A. Sometime last year. Should look at look at	03:51P
23	these dates. May 16. I think it was around that time.	03:51P
24	Q. Okay. On the first page there are 17 sample	03:51P
25	sites.	03:51P

03:52PM

03:52PM

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Α. Correct. 1 03:51PM How did you choose the physical location for 2 Ο. 03:51pm gathering samples? 3 03:51 PM Α. That's -- that's not our decision. That's 4 03:51PM probably environmental. I don't know who made that 5 03:51PM decision. We just receive the samples. 6 03:51PM Okay. So you don't know where the samples 7 Ο. 03:51PM were gathered? 8 03:51pm No, we don't. 9 03:51PM Okay. And do you know how the -- let's say I Ο. 10 03:51PM went to the Big Jetties, for instance, okay, the first 11 03:51PM one on there. 12 03:51PM Do you know how the samples were gathered? 13 03:51 PM We don't know. 14 Α. 03:51PM So do you know -- so you don't know whether 15 Ο. 03:51PM they went to one place or three places to gather 16 03:51PM samples? 17 03:51PM Α. No. 18 03:51PM How do you know that the samples were 19 03:51PM representative of what was on that -- at that location? 20 03:52PM That's not our job. I mean, that -- for the 21 03:52PM project, that's -- they just give us a sample and they 22 03:52PM want us to identify it. So I don't know -- like our 23 03:52PM

routine QA/QC job is the same thing. We're not

responsible for how you sample it, whether this is

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1	representative or not.	03:52P
2	The production, they're responsible to	03:52PI
3	tell us, This is this grade. This sam this sampling	03:52P
4	representing your quality. That's because our job is to	03:52P
5	do testing.	03:52P
6	Q. So you so what happened is somebody brought	03:52PI
7	you a sample and your job was to say, I'm looking at	03:52PI
8	these pellets and I'm going to tell you where they're	03:52P
9	from, right?	03:52PI
LO	A. Well, I'm going to tell you, but I routine	03:52PI
L1	tell you whether they're meeting the Formosa	03:52PI
L2	specification or not.	03:52P
L3	Q. Okay. But you don't you can't testify that	03:52P
L 4	those samples represent what was at any of these	03:52P
L5	locations?	03:53PI
L6	A. No, I can't.	03:53P
L7	Q. Okay. And you do you know who took the	03:53PI
L8	samples?	03:53PI
L9	A. I don't.	03:53P
20	Q. And do you know whether they took photos of	03:53P
21	the where they took the samples?	03:53P
22	A. I don't.	03:53P
23	Q. You don't know how they were gathered, by	03:53P
24	rake, by hand, or anything like that?	03:53PI
25	A. I have no idea.	03:53P

Do you know how many times samples were taken Ο. 1 03:53PM at these locations? 2 03:53PM Α. No. 3 03:53PM You don't know whether there was powder when O. 4 03:53PM they took these samples either, do you? 5 03:53PM Α. No. 6 03:53PM Okay. Do you know how the samples were stored 7 Ο. 03:53PM before they came to you? 8 03:53PM 9 Α. No. 03:53PM What were they -- what were the samples given Ο. 10 03:53PM to you in? A jar? 11 03:53PM In a plastic baq. Α. 12 03:53PM Okay. Was there any debris in the plastic bag Ο. 13 03:53PM besides the pellets? 14 03:53PM Well, there are some like this. Α. 15 03:53PM Little bits of --0. 16 03:53PM Α. Yeah. 17 03:54PM -- of grass or --18 Q. 03:54PM Oh, yeah. 19 Α. 03:54PM Okay. Did you -- after you were given the 20 Ο. 03:54PM bags of pellets, did you wash them? 21 03:54PM Α. In order to -- to do testing and do 22 03:54PM identification, we have to soak in water. 23 03:54PM 24 Q. In water, just plain --03:54PM Just potable water. 25 Α. 03:54PM

03:54PM

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03:55PM

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Q. Okay.

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- A. Just to -- to wash out the mud so we can see the original shape and color.
  - Q. And did you photograph all of the samples?
- A. I'm not sure exactly. I think they took some pictures, but I don't know we photograph all of them.

  I'm not sure.
- Q. Okay. Let's go to the next page. This says "Methods Used." And the first bullet says "Visual Inspection and Categorization."
  - A. Yeah.
- Q. It says, "Pellets from each location are separated into PP," and the rest of them, and "Unknowns" -- "or Unknowns based on pellet shape."
- A. Yes.
  - Q. Can you explain to me what that means?
- A. Okay. So like this bag, you have different shape. So our -- our lab technician who does the lab -- the pellet inspection every day, you know, they can look, okay, well, this -- this group may be -- they pick it out maybe very closer to the -- this particular unit, the LLDPE. This group may be closer to PE1. So they group them together by shape.
- Q. Okay. So somebody physically separated whatever was in a little baggy --

Α. Correct. 1 03:56PM -- by shape? Ο. 2 03:56PM Correct. Α. 3 03:56PM Okay. And then a rough percentage based on Q. 4 03:56PM pellet count is given of how much of each was found in 5 03:56PM each location. 6 03:56PM What does that mean? 7 03:56PM So like this group, if I have a hundred Α. 8 03:56PM 9 pellets --03:56PM Uh-huh. 0. 10 03:56PM -- if I find five pellets belongs to LLDPE, 11 03:56PM then it's 5 percent. If 15 pellets for -- belong to 12 03:56PM PE1, I say 15 percent. 13 03:56PM 14 O. Okay. 03:56PM That's by count. Α. 15 03:56PM But when you say "found in each location," 16 03:56PM what you really mean is found in the bag because you 17 03:56PM don't know how many pellets were out there at the sample 18 03:56PM site, do you? 19 03:56PM It's location means one of these locations 20 Α. 03:56PM (indicating). 21 03:56PM Okay. But remember you didn't manage the 22 Ο. 03:56PM sampling. So you don't know if there were -- if the 23 03:56PM baggy was given to you as a representative sample of 24 03:56PM where the pellets came from, do you? 25 03:56PM

No, I have no idea. Α. 1 03:57PM So basically it's a representage of 2 Ο. Right. 03:57PM how much of each was found in each baggy, is that right? 3 03:57PM Α. That's correct. 4 03:57PM Now, you're going to have to explain to Ο. 5 03:57PM me what FTIR full spectrum comparisons means. 6 03:57PM Can you explain that just generally? 7 03:57PM Okay. First of all, FTIR we call Fourier Α. 8 03:57PM transform infrared spectroscopy. 9 03:57PM What was that first word? 0. 10 03:57PM Fourier, F-O-U-R-I-E-R. Fourier transform. 11 03:57PM It's a mathematic transmotation method --12 03:57PM Okay. 13 Q. 03:57PM -- to convert this light spectrum to -- to 14 03:57PM eliminate out some noise in order to be able to analyze 15 03:57PM It's -- it's a math -- math treatment to... it. 16 03:57PM I think I have an example of it that we're 17 03:57PM going to go ahead and label. 18 03:58PM Is this what --19 03:58PM That's fine. Α. 20 03:58PM Is that what this is? Ο. Okav. 21 03:58PM Yeah. 22 Α. 03:58PM 23 Q. Okay. 03:58PM 24 Α. That's FTIR spectrum. 03:58PM Let's go ahead and label that so we can talk 25 Q. 03:58PM

	1
about that document.	03:58PM
Okay. So this is going to be Exhibit 72.	03:58PM
(Exhibit 72 marked)	03:58PM
Q. (BY MS. JOHNSON) Okay. So I'm giving you	03:58PM
Exhibit 72.	03:58PM
Can you is this the FTIR is this a	03:58PM
result of an FTIR I don't know what you would call	03:58PM
it. A test? An FTIR test on pellets?	03:58PM
A. This is what we call spectrum.	03:58PM
Q. Okay.	03:58PM
A. Yeah.	03:58PM
Q. And the can you tell me, what does "ABS"	03:58PM
mean on this side? What's that stand for?	03:58PM
A. Absorbance. Light light absorbance.	03:58PM
Q. How like how much light is absorbed by the	03:59PM
pellet?	03:59PM
A. Actually, we use we we take around like	03:59PM
ten pellets of this. We make it like a circle. We	03:59PM
we melt it and compress it, make a thin thin film.	03:59PM
Q. Uh-huh.	03:59PM
A. And then use that film, we put into the	03:59PM
instrument like a plate and let light go bombarded on	03:59PM
the film. And then this absorbance means percentage of	03:59PM
light absolved by this plastic film.	03:59PM
Q. Okay. You're saying "film"? It's a you	03:59PM
	(Exhibit 72 marked) Q. (BY MS. JOHNSON) Okay. So I'm giving you Exhibit 72.  Can you is this the FTIR is this a result of an FTIR I don't know what you would call it. A test? An FTIR test on pellets? A. This is what we call spectrum. Q. Okay. A. Yeah. Q. And the can you tell me, what does "ABS" mean on this side? What's that stand for? A. Absorbance. Light light absorbance. Q. How like how much light is absorbed by the pellet? A. Actually, we use we we take around like ten pellets of this. We make it like a circle. We we melt it and compress it, make a thin thin film. Q. Uh-huh. A. And then use that film, we put into the instrument like a plate and let light go bombarded on the film. And then this absorbance means percentage of light absolved by this plastic film.

```
make kind of a film?
 1
                                                                          03:59PM
          Α.
                Yeah, make a film out of these pellets.
 2
                                                                          03:59PM
                How thin is it?
          Ο.
 3
                                                                          03:59PM
                500 microns.
          Α.
 4
                                                                          03:59PM
                Okay. And the -- so when you made the film --
          Ο.
 5
                                                                          03:59PM
    so, for instance, on Exhibit 72 it says "LLDPE" and it's
 6
                                                                          03:59PM
    got some number, right? Do you see that?
 7
                                                                          03:59PM
          Α.
                72?
 8
                                                                          04:00PM
                       So it says LL -- oh, goodness gracious.
 9
          Ο.
                                                                          04:00PM
                                    There is several of them.
                      MR. RAVEL:
10
                                                                          04:00PM
                      MS. JOHNSON:
                                      I've not got the same
11
                                                                          04:00PM
    document that you do. Okay. Well, it doesn't matter.
12
                                                                          04:00PM
    I can use this one.
13
                                                                          04:00PM
                (BY MS. JOHNSON) Okay. So it says PP1 --
14
          Ο.
                                                                          04:00PM
                      MR. RAVEL:
                                    The ones that are attached to
15
                                                                          04:00PM
    the graph will be all consistent, yours and mine.
16
                                                                          04:00PM
                      MS. JOHNSON:
                                       Okay.
17
                                                                          04:00PM
                      MR. RAVEL: I wouldn't want to help if --
18
                                                                          04:00PM
                      MS. JOHNSON: But it would make things go
19
                                                                          04:00PM
    smoother.
20
                                                                          04:00PM
                                   Much smoother.
                      MR. RAVEL:
21
                                                                          04:00PM
                (BY MS. JOHNSON) Let's do that, Mr. Lee.
22
          Ο.
                                                                          04:00PM
    Hold on.
23
                Let's --
                                                                          04:00PM
                      MR. RAVEL: Here, I'll give -- you find
24
                                                                          04:00PM
25
    yours.
                                                                          04:00PM
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		1
1	MS. JOHNSON: Okay.	04:00PM
2	MR. RAVEL: We'll take care of ours.	04:00PM
3	MS. JOHNSON: Okay. I don't know where	04:00PM
4	ours is.	04:00PM
5	MR. RAVEL: I brought it to you.	04:00PM
6	MS. JOHNSON: I know you did. I know you	04:00PM
7	did. I'm just	04:00PM
8	MR. RAVEL: There you go.	04:00PM
9	MS. JOHNSON: There we go. Okay. Let's	04:00PM
10	mark this as 73. I'm going to mark yours as 73. Excuse	04:00PM
11	me.	04:00PM
12	MR. RAVEL: And the spectroscopy is	04:00PM
13	attached.	04:00PM
14	(Exhibit 73 marked)	04:00PM
15	Q. (BY MS. JOHNSON) So let's use Document 73 to	04:00PM
16	talk about this process. Okay?	04:01PM
17	A. Sure.	04:01PM
18	Q. Okay. So when was Document 73 made?	04:01PM
19	A. It was yesterday.	04:01PM
20	Q. Okay. So this is a recent document?	04:01PM
21	A. Correct.	04:01PM
22	Q. Okay. Let's look at Page 2 of that.	04:01PM
23	A. Yes. Yesterday just the summary page.	04:01PM
24	Q. Yesterday made the summary and then	04:01PM
25	A. But these was maybe	04:01PM
		1

MR. RAVEL: Week ago. 1 04:01PM -- one week ago. Yeah. 2 Α. 04:01PM (BY MS. JOHNSON) It says, "Monday, 3 Q. 04:01 PM October 29th." So I take it that was 2018. 4 04:01PM Α. Yeah. 5 04:01PM On the next page, on Page 2. Can you look at Ο. 6 04:01PM Page 2? 7 04:01PM So let me ask -- so the first --8 Okay. 04:01 PM the first -- it says, "Run 1," and then under that it 9 04:01PM says "LLDPE," is that right? 10 04:01PM Α. Yes. 11 04:01PM Okay. 12 Ο. 04:01PM LLDPE, correct. Α. 13 04:01 PM So when you melt the pellets together, did you 14 O. 04:01PM melt the pellets that looked like LLDPE pellets 15 04:02PM together? 16 04:02PM Α. No. 17 04:02PM Tell me how that works. Ο. Okay. 18 04:02PM The -- on this graph, you can see there 19 Α. Okay. 04:02PM are four spectrums. 20 04:02PM Uh-huh. 21 Ο. 04:02PM The first spectrum representing a nonFormosa 22 04:02PM polyethylene sample. It means it is not Formosa 23 04:02PM 24 product. 04:02PM How do you know it wasn't a Formosa product? 25 Q. 04:02PM

I got it from our R&D group. They -- they try Α. 1 04:02PM to analyze the competitor's sample for product 2 04:02PM development purpose. I just randomly asked them to give 3 04:02PM me one and then, you know, they -- of course, they have 4 04:02PM a label. For sure that's not Formosa's. 5 04:02PM So you knew that wasn't a Formosa Ο. 6 04:03PM product? 7 04:03PM Α. Not Formosa. 8 04:03PM This wasn't anything gathered in the baggy? 9 O. 04:03PM Α. No, no, no. 10 04:03PM This was for comparison? Ο. 11 04:03PM This is nonFormosa's --Α. 12 04:03PM Got it. Okay. Q. 13 04:03PM -- polyethylene. Α. 14 04:03PM Okay. 15 Q. 04:03PM And then we -- of course, all of those Α. 16 04:03PM pellets, we have plenty of sample. And we made a film 17 04:03PM and we test it with FTIR. We do a scanning. And this 18 04:03PM 19 is a spectrum we got. 04:03PM And then we compare with the Formosa 20 04:03PM polyethylene FTIR spectrum library. We have a lot of 21 04:03PM different spectrums saved in the library. And we try to 22 04:03PM match how close the spectrum matched one of these 23 04:03PM 24 Formosa spectrum. And the top match is this LLDPE, 04:03PM which means it matched Formosa spectrum. For this 25 04:03PM

1	particular LLDPE grade, it matched 67 percent.	04:03PM
2	Q. So the nonFormosa pellet matched the Formosa	04:04PM
3	LLDPE 67 percent of the time?	04:04PM
4	A. The spectrum. Comparing the spectrum.	04:04PM
5	Q. The spectrum matched 67	04:04PM
6	A. Matched 67 percent.	04:04PM
7	Q. So what does that mean?	04:04PM
8	A. That means the nonFormosa polyethylene	04:04PM
9	product, the majority of the base polymer is very	04:04PM
10	similar to Formosa's.	04:04PM
11	Q. Okay. So when let's go to the first	04:04PM
12	page of Document 73. So, for instance, when I look at	04:04PM
13	Cox Creek let's just go across.	04:04PM
14	Did you make this chart?	04:05PM
15	A. Yes, I did.	04:05PM
16	Q. Okay.	04:05PM
17	A. Well, I just summarized all the results here	04:05PM
18	to make it in this chart.	04:05PM
19	Q. So "PP Pellet % Visual" it says "20."	04:05PM
20	What does that mean?	04:05PM
21	A. 20 percent means like say this is Cox Creek	04:05PM
22	sample.	04:05PM
23	Q. Uh-huh.	04:05PM
24	A they gave us.	04:05PM
25	Q. Uh-huh.	04:05PM

20 percent of the pellets in -- in this bag by 1 04:05PM count were identified as possibly Formosa polypropylene 2 04:05PM pellets. 3 04:05PM Okay. As possible or as polypropylene O. 4 04:05PM pellets? 5 04:05PM Possible. Α. 6 04:05PM Okay. Why --7 Ο. 04:05PM By -- by cut, by -- by shape. Α. 8 04:05PM Okay. And then when you say, "PP FTIR 9 Ο. 04:05PM Matching, NA, " you didn't have enough samples to test? 10 04:05PM Α. Correct. 11 04:06PM And how many do you need to -- because you Ο. 12 04:06PM have to make the film, right? 13 04:06PM Α. Yeah. 14 04:06PM How many do you need? 15 04:06PM Typically it's 10 to 15 pellets, but in some Α. 16 04:06PM cases at least we needed 6, but -- so when they say "NA" 17 04:06PM means more than likely it's probably less than 6. 18 04:06PM Probably 3 or so. I don't know. 19 04:06PM Just not enough to --20 Q. Okay. 04:06PM Not enough to -- to do the test. Α. 21 04:06PM Okay. And then let's go to "LLDPE Visual." 22 Ο. 04:06PM The so 5 percent -- when you looked in the baggy, 5 23 04:06PM percent were -- looked like they came from LLDPE, right? 24 04:06PM Α. Correct. 25 04:06PM

But that was enough to do an FTIR for LLDPE? Q. 1 04:06PM 5 percent -- that's a good question. That's a 2 04:06PM good question. I know some of these if -- if you have 3 04:07PM enough, they may have some other reason they can't do 4 04:07PM it. 5 04:07PM Q. Okay. 6 04:07PM I have to check with our chemist. It may have 7 04:07PM other reason --8 04:07PM 9 Ο. Okay. 04:07PM -- they can't do it. Α. 10 04:07PM Okay. 11 Ο. 04:07PM Yeah. Α. 12 04:07PM And so -- but it's the same kind of test for Ο. 13 04:07PM PP versus LLDPE, right? 14 04:07PM Same test, correct. Α. 15 04:07PM Right. Okay. O. 16 04:07PM And so then it says the percentage for 17 04:07PM LLDPE matching in that Cox Creek was 43. 18 04:07PM So what does that mean? 19 04:07PM 43 means say if I have a spectrum for that 20 Α. 04:07PM sample, I -- I scan it. I match same thing. 21 04:08PM Formosa library. I only -- the best match I could get 22 04:08PM was 43 percent to the Formosa library. 23 04:08PM Does that tell you that they were or were not 24 04:08PM Formosa's pellets? 25 04:08PM

Well, it's -- I can't make a conclusive --Α. 1 04:08PM Yeah. Ο. 2 04:08PM -- conclusion, but on this, if you want me to Α. 3 04:08PM give you educated estimate, say if I randomly pick one 4 04:08PM of the nonFormosa polyethylene sample and I scan it, I 5 04:08PM tested it and I compare with Formosa, I could get 67. 6 04:08PM So 43 means to me is that sample is less 7 04:09PM likely to be Formosa's because to be Formosa's, anything 8 04:09PM needs -- based on this reference, needs to be greater 9 04:09PM than 67 percent match. Formosa's -- because it's a 10 04:09PM Formosa product, your matching percent should be higher 11 04:09PM than nonFormosa product. 12 04:09PM Have you tested how exposure to any of the 13 04:09PM elements affects the FTIR process? 14 04:09PM No, I haven't. Α. 15 04:09PM So is it possible that exposure to water could 16 Ο. 04:09PM affect the FTIR process? 17 04:09PM Α. It could. 18 04:09PM And could exposure to sediment affect the FTIR 19 04:09PM 20 process? 04:10PM To what? Sediment? 21 Α. 04:10PM Sediment. Could -- if they were -- if the 22 Ο. 04:10PM pellet were embedded in sediment, could that affect the 23 04:10PM 24 FTIR process? 04:10PM It could, but like I said, we -- we soak it in 25 Α. 04:10PM

```
water to wash away the mud before we do the testing.
 1
                                                                          04:10PM
                Does exposure to sunlight affect the FTIR
          Ο.
 2
                                                                          04:10PM
    process?
 3
                                                                          04:10PM
          Α.
                It could.
 4
                                                                          04:10PM
          Ο.
                Okay.
 5
                                                                          04:10PM
          Α.
                Yes.
 6
                                                                          04:10PM
                I want to compare Chart 73 to Page -- these
 7
          Ο.
                                                                          04:10PM
                                 If you look at this document, it
    pages aren't numbered.
 8
                                                                          04:10PM
    says "Visual Inspection and Categorization Cox Creek."
 9
                                                                          04:10PM
    Just keep looking until you find Cox Creek.
10
                                                                          04:10PM
                                    It's like this.
                                                        There you
                      MR. RAVEL:
11
                                                                          04:11PM
12
    go.
                                                                          04:11PM
                                     Okay. Are you there with
                (BY MS. JOHNSON)
13
          Q.
                                                                          04:11pm
14
    me?
                                                                          04:11PM
          Α.
                Yes.
15
                                                                          04:11PM
                Okay. So let's just -- in this visual
16
                                                                          04:11PM
    inspection in Document 72 where we're looking at the
17
                                                                          04:11PM
    Cox Creek "Retain Sample" it says on the left and
18
                                                                          04:11PM
    "Unknown" it says on the right, right?
19
                                                                          04:11PM
                      MS. GAINES:
                                     (Indicating.)
20
                                                                          04:11PM
                      MS. JOHNSON:
                                       I'm sorry. 71.
21
                                                                          04:11PM
    Sorry. We're on the same page, aren't we? Oh, hold on.
22
                                                                          04:11PM
                      (Recess from 4:11 p.m. to 4:12 p.m.)
23
                                                                          04:11PM
24
          Ο.
                (BY MS. JOHNSON)
                                     So we're going to just kind
                                                                          04:12PM
    of go back and forth between these two --
25
                                                                          04:12PM
```

			_
1	Α.	Okay.	04:12PM
2	Q.	documents to kind of compare. We're just	04:12PM
3	going to	look at Cox Creek.	04:12PM
4		So on Document 73, the colorful one	04:12PM
5	this cold	orful chart, it says "PP by Visual" is	04:12PM
6	20 percer	nt.	04:12PM
7		And is that the same number as on the	04:12PM
8	bottom vi	isual PP?	04:12PM
9	Α.	Yeah.	04:13PM
10	Q.	Okay. So these numbers on the chart you gave	04:13PM
11	me today		04:13PM
12	Α.	It's from here.	04:13PM
13	Q.	it's from here. Okay.	04:13PM
14	Α.	Correct.	04:13PM
15	Q.	And then the spectrum matching percentages are	04:13PM
16	the yello	ow numbers here?	04:13PM
17	Α.	Should match.	04:13PM
18	Q.	And they should match, and I see that	04:13PM
19	they do.		04:13PM
20		Okay. So on the right you say	04:13PM
21	"FPC Pell	lets, Inconclusive," and you can't say that any	04:13PM
22	of these	are FPC pellets?	04:13PM
23	Α.	Yes. I put a reason under No. 3 there.	04:13PM
24	Q.	Okay. "'Inconclusive' means the Visual shape	04:13PM
25	and the s	spectra matching analysis could not definitely	04:13PM

1	conclude these pellets are Formosa's."	04:13P
2	Now are these reasons? Are these your	04:13P
3	reasons why they're not Formosa's pellets or are they	04:13P
4	A. Yeah, the 1, 2, 3 reason underneath.	04:14P
5	Q. "It may not be uncommon for other plants to	04:14P
6	also have plastic pellets with similar shapes and cuts."	04:14P
7	What's the basis for that statement?	04:14P
8	A. Well, we have seen other units well, other	04:14P
9	plants in the area, their pellets, they look similar to	04:14P
0	Formosa's.	04:14P
.1	Q. Can you tell me what plants those are?	04:14P
.2	A. I can't I mean, these these particular	04:14P
.3	sample I got from R&D group. I don't want to point a	04:14P
4	finger. That's why I blacked it out.	04:14P
.5	Q. I'm sorry, but I need you to tell me.	04:14P
6	A. I have to find out which one.	04:14P
.7	MR. RAVEL: And it's kept confidential.	04:14P
8.	Let's mark this let's at least mark this one	04:14P
9	confidential.	04:14P
20	MS. JOHNSON: Okay.	04:14P
21	A. Yeah. I I didn't I try not to point a	04:14P
22	finger to whose is that. But I can tell you when I find	04:15P
23	out.	04:15P
24	Q. (BY MS. JOHNSON) Okay. So do you know that	04:15P
25	there are do you know whether there are any plants	04:15P

```
that are within 50 miles of Formosa that make pellets
1
                                                                       04:15PM
    that are shaped like the PP pellets made at Formosa?
 2
                                                                       04:15PM
         Α.
               I haven't done any study or comparison myself,
 3
                                                                       04:15PM
    but just based only a general idea, because Formosa's
4
                                                                       04:15PM
    li- -- our process is we are licensed from a know how
5
                                                                       04:15PM
              Our -- our process -- manufacturing process is
6
                                                                       04:15PM
    not proprietary. So there are many different plants
7
                                                                       04:15PM
    that are using similar process we're using --
8
                                                                       04:15PM
               Uh-huh.
9
         Ο.
                                                                       04:15PM
               -- to produce plastic.
         Α.
10
                                                                       04:15PM
               Okay. But you're a scientist and you
11
         Ο.
                                                                       04:15PM
    understand the scientific method, and I'm trying to
12
                                                                       04:16PM
    understand if there is any basis for this conclusion
13
                                                                       04:16PM
    that there are other plants you say in the area.
14
                                                                       04:16PM
                     So what do you define as "in the area"?
15
                                                                       04:16PM
               "In the area" means, you know, in this -- in
         Α.
16
                                                                       04:16PM
    this bay area, in this Formosa Calhoun County
17
                                                                       04:16PM
    neighborhood.
18
                                                                       04:16PM
         Q.
               Okay.
19
                     THE REPORTER:
20
                                      Formosa --
                     MR. RAVEL:
                                 Calhoun County,
21
    C-a-l-h-o-u-n.
22
                                     Calhoun County
23
                     THE WITNESS:
    neighborhood, you know --
24
                     THE REPORTER:
                                      Okay.
25
```

1	THE WITNESS: in this area.	04:16P
2	THE REPORTER: Thank you.	04:16P
3	Q. (BY MS. JOHNSON) The only other plant that	04:16P
4	has pellets in Calhoun County is Nan-Ya Plastics, isn't	04:16P
5	it?	04:16P
6	A. Well, as I know, Dow Chemical and. Of course,	04:16P
7	Victoria there are some some plants they have plastic	04:16P
8	product too.	04:16P
9	Q. In Calhoun County?	04:16P
.0	A. Not Calhoun County.	04:16P
.1	Q. Okay.	04:16P
2	A. In Victoria. I don't know if Victoria County	04:16P
.3	or in Victoria area.	04:16P
4	MS. WILSON: In the barge canal.	04:16P
.5	Q. (BY MS. JOHNSON) Okay. So when you're saying	04:16P
6	"in the area," your area goes all the way to Victoria?	04:17P
7	A. Well, it is in this neighborhood of in this	04:17P
-8	neighborhood of Formosa. I didn't I didn't scope	04:17P
9	it you know, the mileage, you know, I didn't scope	04:17P
20	that.	04:17P
21	Q. Okay. Did so so when you say it's not	04:17P
22	uncommon for other plants in the area, "the area" is not	04:17P
23	a defined term in your study?	04:17P
24	A. No. No. Well, this is not a study. This is	04:17P
25	just by by my like I just said, Formosa is not	04:17P

using a proprietary process --1 04:17PM Ο. Uh-huh. 2 04:17PM Α. -- to make plastic. 3 04:17PM O. Right. 4 04:17PM So the equipment we're using like extruder, 5 04:17PM the cutter, we're using is just an industry standard 6 04:17PM equipment. 7 04:17PM Uh-huh. 0. 8 04:17PM So if we can buy, other people can use it --9 04:17PM can buy it. If they use the equipment, they can get 10 04:17PM similar shape and cut we have. That's the base I have. 11 04:18PM I didn't do any study myself by comparison, okay, this 12 04:18PM neighborhood, their -- their pellets, yeah, they look 13 04:18PM 14 the same, no. 04:18PM So you can't tell the Court -- it's not your Ο. 15 04:18PM opinion that you know you have identified these as 16 04:18PM pellets from other companies, have you? 17 04:18PM Α. I have seen -- I have seen other competitors 18 04:18PM in the past that their -- if you go to a show -- plastic 19 04:18PM show, they'll give you all kinds of pellets, you know. 20 04:18PM They all look similar to me, you know. It's not just 21 04:18PM Formosa look like that. It all looks similar. 22 04:18PM Uh-huh. 23 Q. 04:18PM 24 Α. That's what I mean. 04:18PM Okay. So -- okay. Inconclusive No. ii says, 25 Q. 04:18PM

04:20PM

04:20PM

## STEVE LEE - VOLUME 1 - November 09, 2018

"FTIR testing of a Non-FPC PE sample shows a spectrum 1 04:19PM pattern match up to 67%." 2 04:19PM What does that mean? 3 04:19PM In this study we -- we do two tests. Α. 4 04:19PM One is the individual. The other is the FTIR scan. 5 04:19PM And the attachment for this Document 73 to show 6 04:19PM us -- I just randomly picked one, nonFormosa 7 04:19PM polyethylene. Their -- the FTIR scan spectrum just 8 04:19PM match one of the Formosa spectrum by 67 percent. 9 04:19PM Uh-huh. 0. 10 04:20PM So that tells me if you want to use FTIR to 11 04:20PM identify Formosa's, in my opinion, by educated guess, in 12 04:20PM order to be Formosa, the -- the matching percent has to 13 04:20PM be better than 67 percent because our own product 14 04:20PM compare with own library, it should match better. 15 04:20PM Have you com- -- have you run a base analysis 16 04:20PM to test random samples, for instance, of PP pellets to 17 04:20PM see if they match a hundred percent a hundred percent of 18 04:20PM the time? 19 04:20PM For Formosa, we have done our own sample we 20 Α. 04:20PM can match a hundred percent. But not nonFormosa. 21 04:20PM haven't done any study. This is just a random sample 22 04:20PM we -- we got it from our R&D group. 23 04:20PM

24

25

Q.

Α.

Okay.

Just picked one.

04:22PM

04:22PM

# STEVE LEE - VOLUME 1 - November 09, 2018

		_
1	Q. I'm just asking like a baseline for	04:20
2	comparison.	04:21
3	When you did this test, did you do take	04:21
4	any other samples, like from PP, and run two or three	04:21
5	times doing this film to see if each time you ran the	04:21
6	PP, you got a hundred percent match?	04:21
7	A. Okay. Theoretically, you will never get a	04:21
8	hundred percent match, just like you make a cake.	04:21
9	Q. Right.	04:21
10	A. You'll never make exactly the same each time.	04:21
11	You can get a high percentage match, but you'll never	04:21
12	get hundred percent match. But the higher percent match	04:21
13	means they're you know.	04:21
14	Q. I understand that.	04:21
15	A. Yeah.	04:21
16	Q. So I guess what I'm asking is, did you run any	04:21
17	baselines on all these different types of pellets to see	04:21
18	what the variability and the match is on pellets that	04:21
19	you know are Formosa's?	04:21
20	A. Baseline?	04:21
21	Q. Yes.	04:22
22	A. No. I the only reference sample I ran was	04:22
23	these two. Randomly pick one just to see, you know, in	04:221

general how is Formosa's product compared to any other

vendor's product on the market, what kind of matching.

24

25

I understand. And I'm asking you and I just Ο. 1 04:22PM want to be clear that there's never been -- you've never 2 04:22PM run this --3 04:22PM Α. Baseline. 4 04:22PM -- baseline to make sure that's pellets match 5 04:22PM more than 67 percent of the time? 6 04:22PM Α. No. 7 04:22PM Q. Okay. 8 04:22PM 9 Α. I have not. 04:22PM You didn't do that for PP, PE1, or any of the Ο. 10 04:22PM different pellets? 11 04:22PM Α. Yes. 12 04:22PM Okay. Yes, you did or --Q. 13 04:22PM Α. No, no. 14 04:22PM You didn't do it? 15 Ο. 04:22PM Yeah. Α. 16 04:22PM Okay. 17 Ο. 04:22PM No, I didn't do it. Α. 18 04:22PM Sorry. Sometimes when we're doing yes 19 Q. Yeah. 04:22PM and nos, it's confusing. Okay. 20 04:22PM Did you do any additional testing to the 21 04:22PM pellets you determined not to be Formosa's or is all you 22 04:23PM did was this FTIR? 23 04:23PM All we did was FTIR because again, the samples 24 04:23PM we received were very limited. 25 04:23PM

04:24PM

#### STEVE LEE - VOLUME 1 - November 09, 2018

I understand. Q. 1 04:23PM Very limited amount. You know, for our Α. 2 04:23PM quality control, typically we get 10-pound bag to do all 3 04:23PM the tests. 4 04:23PM I understand. Ο. 5 04:23PM What's the margin of error of this test? 6 04:23PM This (indicating)? Α. 7 04:23PM Yes. Ο. 8 04:23PM Like I said, inconclusive means I couldn't --9 04:23PM what did I say? Inconclusive means I could not -- I 10 04:23PM could not definitely conclude these pellets are 11 04:23PM Formosa's. By the same token, I cannot conclude they 12 04:23PM are not Formosa's. 13 04:23PM Right. Because it's not a big enough sample? 14 Ο. 04:23PM Not big enough sample and the testing we 15 04:24PM This is only very vague. But this is probably perform. 16 04:24PM the best conclusion I can give you. But if you want me 17 04:24PM to give you educated guess, this is a guess I can give 18 04:24PM you based on the variable data I have. 19 04:24PM I understand. 20 O. 04:24PM Is FTIR also a spectrum microscope or no? 21 04:24PM It's a spectrum test. It's not a microscope. 22 Α. 04:24PM Does it like shoot lasers or what does it do? 23 Q. 04:24PM Α. It shoots infrared light. 24 04:24PM

And how long does it take to run

Okay.

25

Q.

Okay.

that test?	04:24PM
A. Very quick. Like three minutes.	04:24PM
Q. Oh.	04:24PM
A. But you have to altogether probably less	04:24PM
than ten minutes.	04:24PM
Q. Is it an expensive test to run?	04:24PM
A. Not really.	04:24PM
Q. Okay. Do you test your pellets do you know	04:24PM
whether you test your pellets differently than pellets	04:24PM
from other facilities?	04:24PM
MR. RAVEL: Objection, form.	04:25PM
Q. (BY MS. JOHNSON) Yeah. That's not a	04:25PM
well-written question. Sorry. That was bad example of	04:25PM
lawyering.	04:25PM
Do you have more than one I guess I	04:25PM
would call it signature of pellets from other plants?	04:25PM
You had this you started with the pellets from	04:25PM
another plant that you compared it to. Do you have more	04:25PM
than one of those?	04:25PM
A. Not that I know of. I haven't done studies	04:25PM
like that.	04:25PM
Q. Okay. And have you run this FTIR test on any	04:25PM
older pellets of Formosa's?	04:25PM
A. For this study?	04:25PM
Q. Yes.	04:25PM
	A. Very quick. Like three minutes.  Q. Oh.  A. But you have to altogether probably less than ten minutes.  Q. Is it an expensive test to run?  A. Not really.  Q. Okay. Do you test your pellets do you know whether you test your pellets differently than pellets from other facilities?  MR. RAVEL: Objection, form.  Q. (BY MS. JOHNSON) Yeah. That's not a well-written question. Sorry. That was bad example of lawyering.  Do you have more than one I guess I would call it signature of pellets from other plants? You had this you started with the pellets from another plant that you compared it to. Do you have more than one of those?  A. Not that I know of. I haven't done studies like that.  Q. Okay. And have you run this FTIR test on any older pellets of Formosa's?  A. For this study?

Α. No. 1 04:25PM Q. Okay. 2 04:25PM All we did was compare by -- to the existing Α. 3 04:25 DM library. 4 04:25PM I understand. Ο. 5 04:25PM These are older scans. Α. 6 04:25PM Okay. Do you know something called a Fourier, 7 Ο. 04:25PM F-O-U-R-I-E-R, transform infrared microspectroscopy? 8 04:25PM I'll show it to you. 9 04:26PM Α. That's an FTIR. Yeah. 10 04:26PM Oh, that's what --11 04:26PM But -- but the micro- -- well, maybe somebody 12 04:26PM called microspec- -- I just call it Fourier transform 13 04:26PM infrared spectroscopy. I -- we don't use "micro." 14 04:26PM if you want to add "micro," well, you can say, I guess. 15 04:26PM Is that different? Would that be the same 0. 16 04:26PM thing? 17 04:26PM I'm not sure exactly the same or not, but we 18 04:26PM don't use microspectroscopy. 19 04:26PM 20 Ο. Okay. 04:26PM I just use spectroscopy. 21 04:26PM Okay. And I talked to you a little bit about 22 Ο. 04:26PM absorption, but are you aware that plaintiffs have 23 04:26PM shared preliminary information about mercury potentially 24 04:26PM being on pellets found in Lavaca Bay? 25 04:26PM

Α. I read a document. 1 04:26PM 2 O. Okay. 04:27PM Α. Yeah. 3 04:27PM And you read the document that had Ο. 4 04:27PM concentrations? Is that what it was? 5 04:27PM There's a --No. It was just Steve show me. 6 04:27PM the plaintiff documentation showing suspect it could 7 04:27PM have mercury in the bay. 8 04:27PM Okay. And has -- does that -- have you done 9 Ο. 04:27PM anything about that? 10 04:27PM Α. No. 11 04:27PM Have you been asked to do anything about that? Ο. 12 04:27PM Α. No. 13 04:27PM Do you have any opinion about the potential 14 O. 04:27PM for mercury to attach to the pellets? 15 04:27PM Should I answer this? THE WITNESS: 16 04:27PM Yeah. If you have an MR. RAVEL: 17 04:27PM opinion, you can tell her. 18 04:27PM Yeah. (BY MS. JOHNSON) Yeah. 19 Ο. 04:27PM Well, in order for mercury to attach to 20 04:27PM plastic, somehow you have -- need to have a mechanism to 21 04:27PM have a plastic to -- to touch mercury because mercury is 22 04:28PM heavy. 23 04:28PM 24 Q. Right. 04:28PM So more than likely, it will stay at the 25 Α. 04:28PM

bottom unless somehow your plastic is trapped for some 1 04:28PM reason at the bottom. I don't know. 2 04:28PM There is mercury in Formosa's discharge in Ο. 3 04:28PM Lavaca Bay, isn't there? 4 04:28PM Not that I know of. Formosa doesn't use 5 04:28PM We don't use mercury like Alcoa does. 6 04:28PM Okay. Well, let's assume that the pellets 7 Ο. 04:28PM tested with some mercury. 8 04:28PM Would -- what would you want to know about 9 that? 10 04:28PM Pellets tested with --Α. 11 04:28PM Let's assume that the pellets were run through Ο. 12 04:28PM a process and came back with mercury. 13 04:28PM 14 Α. Okay. 04:28PM What would you -- what questions would you ask 15 04:28PM about that? 16 04:28PM In terms of? Α. 17 04:28PM What would you be curious about? 18 Ο. 04:29PM As -- as a scientist, I would -- if you're 19 Α. 04:29PM give me a sample, I will test it. 20 04:29PM How would you test it? 21 Ο. 04:29PM In one of our labs we have a mercury analyzer. 22 Α. 04:29PM A direct mercury analyzer? Is that what it's 23 Q. 04:29PM called? 24 04:29PM Α. Well, it -- it can use acid to -- to digest 25 04:29PM

out -- to dissolve mercury in acid and then test the 1 04:29PM mercury concentration in acid. 2 04:29PM Why do you have a mercury analyzer? 3 Ο. 04:29PM That's part of the permit requirement to test Α. 4 04:29PM the mercury concentration in the wastewater. 5 04:29PM Ο. Okay. 6 04:29PM Part of permit for wastewater discharge. 7 04:29PM So that's what I was asking you about Ο. 8 04:29 DM when I was saying about the permit has allowed some 9 04:29PM mercury to be discharged, is that right? 10 04:30PM Well, preferably it's zero. Α. 11 04:30PM I agree. Ο. 12 04:30PM Yeah. Α. 13 04:30PM 14 O. I agree. 04:30PM But, you know, whether we have that 15 Α. 04:30PM source or not, it still need to be monitored. 16 04:30PM Okay. So you have a lab -- is the lab Right. 17 Ο. 04:30PM that tests for mercury one that you run? 18 04:30PM There's a different lab from -- from mine. Α. 19 04:30PM Is -- what I've been told is there's 20 Ο. 04:30PM something that uses combustion gold amalgamation and 21 04:30PM atomic absorption to test for mercury. 22 04:30PM Does that sound like how you do it here? 23 04:30PM 24 Α. No. 04:30PM And are you familiar with a method to 25 Q. 04:30PM

speciate mercury using alkaline extraction? Do you know 1 04:30PM what I would mean by speciating mercury? 2 04:30PM Α. To identify it's mercury. 3 04:30PM Well, to identify what kind of mercury it Ο. 4 04:31PM would be. 5 04:31PM Α. What kind of mercury. 6 04:31PM Ο. Right. 7 04:31PM The test that I know that Formosa would test, Α. 8 04:31 PM we just test mercury itself. 9 04:31PM Ο. Okay. 10 04:31PM When -- when you guy digest it in the acid, 11 04:31PM it's -- it's dissolved as mercury form. 12 04:31PM Okay. And methyl- -- does Formosa -- does 13 Ο. 04:31 PM your lab, sorry, have the capacity to distinguish 14 04:31PM between methyl and ethyl mercury? 15 04:31PM No, not that I know of. Α. 16 04:31PM Okay. Do you have any other questions that 17 Ο. 04:31PM you would ask about the mercury? 18 04:31PM Do I have other questions --Α. 19 04:31PM 20 Ο. Yes. 04:31PM -- I would ask? 21 Α. 04:31PM 22 Ο. Yes. 04:31PM I mean, this is a very wide question. I mean, 23 Α. 04:31PM it -- is it related to the testing on my -- my job or 24 04:32PM just general as a citizen? 25 04:32PM

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04:33PM

### STEVE LEE - VOLUME 1 - November 09, 2018

- Q. However you want to answer it.

  MR. RAVEL: If the answer is none, you

  can say "none."
  - A. Yeah, I don't have any.
  - Q. (BY MS. JOHNSON) You don't have any questions?
    - A. No.

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- Q. No scientific questions about the test -- the mercury testing or anything?
- A. Well, if you can be more specific, I can answer my opinion. But if this question is -- I don't know what area you're trying to get answer for.
- Q. No. I'm really just trying to understand if there is any question that if you were sitting across from the scientist who did the test, you would say, Tell me about X, if there's anything you would want to know about that testing.
- A. You're talking about ethyl mercury and methyl mercury to --
  - Q. Or any kind of mercury. Yeah.
- A. Well, as a scientist, I would first Google it out to find out where those ethyl or methyl mercury are coming from. And then I can find out, you know, what kind of instrument would be able to do the test like you said.

1	Q. Okay. And do you have any opinion whether	04:33PI
2	polyethylene could attach to Formosa's pellets?	04:33P
3	A. On Formosa pellet polyethylene is a Formosa	04:33P
4	pellet.	04:33P
5	Q. Okay. They're made of polyethylene.	04:33P
6	A. Yeah.	04:33P
7	Q. So it wouldn't be on the outside of them?	04:33P
8	A. Yeah. Like PE means polyethylene, so	04:33PI
9	Q. Okay. I forgot to ask you this when we were	04:33P
LO	talking about the pellets.	04:34PI
L1	Do they have any kind of powder on the	04:34P
L2	outside of them or are they solid?	04:34P
L3	A. Solid.	04:34P
L4	Q. Okay. Do you have an opinion about whether	04:34P
L5	vinyl chloride can attach to Formosa's plastic?	04:34PI
L6	A. I have no idea.	04:34PI
L 7	Q. Okay. Have you looked at the testimony of	04:34PI
L8	Jeremy Conkle, who's been hired by plaintiffs as an	04:34PI
L9	expert in this case?	04:34P
20	A. No.	04:34P
21	Q. Okay. Have you been consulted by Robert Hale	04:34P
22	who's been	04:34P
23	A. No.	04:34P
24	Q. Okay.	04:34P
25	MS. JOHNSON: You know what, I want to	04:34PI

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take like a five-minute break and we may almost be
1
                                                                        04:34PM
    finished.
 2
                                                                        04:34PM
                     THE WITNESS:
                                     Okay.
                                              That sounds good.
 3
                                                                        04:34PM
                                      I'd rather -- I'll be more
                     MS. JOHNSON:
 4
                                                                        04:34PM
    efficient if I just break and --
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                                                                        04:34PM
                                      That's fine.
                     THE WITNESS:
6
                                                                        04:34PM
                                    -- let you take a rest.
                     MS. JOHNSON:
7
                                                                        04:34PM
    Okay?
8
                                                                        04:34PM
9
                     THE WITNESS:
                                      Sure.
                                              I appreciate that.
                                                                        04:34PM
                     MS. JOHNSON:
                                     Okay.
                                              Sure.
10
                                                                        04:34PM
                      (Recess from 4:34 p.m. to 4:37 p.m.)
11
                                                                        04:34PM
                                    Okay. Mr. Lee, you're going
                (BY MS. JOHNSON)
          Ο.
12
                                                                        04:37PM
    to get a chance to look at your deposition, but as we're
13
                                                                        04:37PM
    sitting here, are there any of the questions that I've
14
                                                                        04:37PM
    asked you or any that you want me to ask in a different
15
                                                                        04:37PM
    way or do you have any answers you've given you'd like
16
                                                                        04:37PM
    to clarify for me?
17
                                                                        04:37PM
          Α.
               No, unless you're -- you're not clear about
18
                                                                        04:37PM
    what I said. I can re-explain it to you.
19
                                                                        04:37PM
                                      I very much appreciate your
20
                     MS. JOHNSON:
                                                                        04:37PM
    time and thank you for coming and I know that we delayed
21
                                                                        04:37PM
    your coming out, but I appreciate your time and I hope
22
                                                                        04:37PM
    you have a good weekend. We're finished.
23
                                                                        04:37PM
24
                     THE WITNESS:
                                     Oh, okay.
                                                                        04:37PM
                     MR. RAVEL:
                                   We'll reserve our questions
25
                                                                        04:37PM
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until time of trial. Let's go off the record for a
 1
                                                                              04:37PM
    second.
 2
                                                                              04:37PM
                       (Deposition concluded 4:37 p.m.)
 3
                                                                              04:37PM
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1	CHANGES AND SIGNATURE
2	WITNESS NAME: STEVE LEE
3	DATE OF DEPOSITION: NOVEMBER 9, 2018
4	PAGE LINE CHANGE REASON
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1	I, STEVE LEE, have read the foregoing
2	deposition and hereby affix my signature that same is
3	true and correct, except as noted above.
4	
5	
6	STEVE LEE
7	
8	THE STATE OF)
9	COUNTY OF)
10	
11	Before me,, on this day
12	personally appeared STEVE LEE, known to me (or proved to
13	me under oath or through)
14	(description of identity card or other document)) to be
15	the person whose name is subscribed to the foregoing
16	instrument and acknowledged to me that they executed the
17	same for the purposes and consideration therein
18	expressed.
19	Given under my hand and seal of office this
20	, day of,,
21	
22	
23	NOTARY PUBLIC IN AND FOR
24	THE STATE OF
25	COMMISSION EXPIRES:

```
IN THE UNITED STATES DISTRICT COURT
1
               FOR THE SOUTHERN DISTRICT OF TEXAS
                        VICTORIA DIVISION
2.
      SAN ANTONIO BAY ESTUARINE
3
     WATERKEEPER, et al,
4
              Plaintiffs,
                                    CIVIL ACTION
5
     VS.
                                    NO. 6:17-cv-00047
6
     FORMOSA PLASTICS CORP.,
     TEXAS, et al,
7
              Defendants.
8
9
                    REPORTER'S CERTIFICATION
            THE CONFIDENTIAL AND ATTORNEYS' EYES ONLY
10
                       ORAL DEPOSITION OF
                            STEVE LEE
11
                        November 9, 2018
                            Volume 1
12
         I, Julie A. Jordan, Certified Shorthand Reporter in
13
   and for the State of Texas, hereby certify to the
14
   following:
15
         That the witness, STEVE LEE, was duly sworn by the
16
   officer and that the transcript of the oral deposition
17
   is a true record of the testimony given by the witness;
18
19
         That the original deposition was delivered to
   Ms. Erin L. Gaines, attorney for the Plaintiffs;
20
         That a copy of this certificate was served on all
21
   parties and/or the witness shown herein on _____
2.2
         That the amount of time used by each party at the
23
   deposition is as follows:
24
         Ms. Amy R. Johnson - 01 HOUR(S):17 MINUTE(S)
25
```

1	Ms. Erin L. Gaines - NONE
2	Mr. J. Stephen Ravel - NONE
3	
4	I further certify that pursuant to FRCP Rule 30 (f)
5	(1) that the signature of the deponent:
6	XXXXX was requested by the deponent or a party
7	before the completion of the deposition and that the
8	signature is to be before any notary public and returned
9	within 30 days from date of receipt of the transcript.
10	If returned, the attached Changes and Signature Pages
11	contain any changes and reasons therefore:
12	was not requested by the deponent or a party
13	before the completion of the deposition.
14	I further certify that I am neither counsel for,
15	related to, nor employed by any of the parties or
16	attorneys in the action in which this proceeding was
17	taken, and further that I am not financially or
18	otherwise interested in the outcome of the action.
19	Certified to by me this 27th of December, 2018.
20	Julie A. Jordan, Texas CSR 3203
21	Expiration Date: 12/31/19 Firm Registration No. 280
22	JULIE A. JORDAN & COMPANY 7800 North MoPac Expressway
23	Suite 120 Austin, Texas 78759
24	(512) 451-8243 (512) 451-7583 (Fax)
25	E-MAIL: info@jordanreporting.com

1	COUNTY OF TRAVIS )
2	STATE OF TEXAS )
3	
4	I hereby certify that the witness was notified on
5	that the witness has 30 days
6	(or days per agreement of counsel) after being
7	notified by the officer that the transcript is available
8	for review by the witness and if there are changes in
9	the form or substance to be made, then the witness shall
LO	sign a statement reciting such changes and the reasons
L1	given by the witness for making them;
L2	That the witness' signature was/was not returned as
L3	of
L4	Subscribed and sworn to on this day of
L5	·
L6	
L7	
L8	Julie A. Jordan, Texas CSR 3203
L9	Expiration Date: 12/31/19 Firm Registration No. 280
20	JULIE A. JORDAN & COMPANY 7800 North MoPac Expressway
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24	
25	