UNITED STATES DISTRICT COURT SOUTHERN DISTRICT OF TEXAS HOUSTON DIVISION WESTERNGECO LLC * 09-CV-1827 * Houston, Texas VS. * * ION GEOPHYSICAL 7:39 a.m. CORPORATION, FUGRO * July 27, 2012 GEOTEAM, INC., ET AL JURY TRIAL Volume 5 BEFORE THE HONORABLE KEITH P. ELLISON UNITED STATES DISTRICT JUDGE APPEARANCES: 15 FOR THE PLAINTIFF: Lee L. Kaplan 16 SMYSER, KAPLAN & VESELKA, LLP 700 Louisiana, Suite 2300 17 Houston, Texas 77002 713.221.2300 19 Gregg F. LoCascio KIRKLAND & ELLIS LLP 20 655 Fifteenth Street Northwest Washington, DC 20005 21 202.879.5290 Sarah Tsou TRUE COPY I CERTIFY 23 Timothy K. Gilman ATTEST KIRKLAND & ELLIS LLP Berk of Cours 24 Citigroup Center 153 East 53rd Street

Johnny C. Sanchez, RMR, CRR - jcscourtreporter@aol.com

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25 New York, New York 10022

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1498 Redirect-Triantafyllou/By Mr. LoCascio 1 claims that pertain to your testimony? 2 Yes, I think it does. Α. 3 MR. LOCASCIO: No further questions, Your 4 Honor. 5 03:02:32 THE COURT: Okay. Anything further? 6 MR. PIERCE: No. 7 THE COURT: Okay. Thank you. You're free to 8 Thank you. go. 9 Do you wish to call another witness? 10 MR. LOCASCIO: We do. At this time, 03:02:39 11 WesternGeco calls Dr. John Leonard. Bring him up. 12 THE COURT: Why don't we take back some of the 13 things we gave the last witness. 14 MR. LOCASCIO: Sure. 15 THE COURT: Yes, sir. If you'd make your way 03:03:16 16 up here. 17 MR. ARNOLD: Are we clear up here? 18 CASE MANAGER: Yes. THE COURT: We're going to have you in the seat 19 20 nearest me, sir. 03:03:24 21 Before you take your seat, Mrs. Loewe will 22 administer the oath. 23 THE CASE MANAGER: Do you solemnly swear that 24 the testimony you are about to give in the matter now 25 before the Court will be the truth, the whole truth and 03:03:30 Johnny C. Sanchez, RMR, CRR - jcscourtreporter@aol.com

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1 nothing but the truth?

THE WITNESS: I do.

THE COURT: Have you been in the courtroom for 4 a while.

03:03:40

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THE WITNESS: Yes.

6 THE COURT: You know the drill, then. Okay. 7 Try to speak into the mike.

8 MR. GILMAN: I know it's late in the day, so 9 I'll try to move quickly, Your Honor.

03:03:49 10 THE COURT: Thank you.

11 MR. GILMAN: For its next witness, WesternGeco 12 calls Dr. John Leonard, who is a professor at MIT.

13 Dr. Leonard is a specialist in navigation and robotics,

14 with an emphasis on underwater vehicles. We heard a little
03:04:06 15 bit with the last two witnesses how some of the defendant's
16 products work.

17Dr. Leonard is here to talk about the18source code that's used, the computer programs that are19used inside of that -- those product and what information03:04:1720is being passed back and forth in those products.

Permission to approach the witness.

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 Permission to approach the witness.

 22
 THE COURT: Yes. You don't need to ask

 23
 permission.

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		Direct-Leonard/By Mr. Gilman
	1	JOHN LEONARD,
	2	after having been first cautioned and duly sworn, testified
	3	as follows:
	4	DIRECT EXAMINATION
03:03:46	5	BY MR. GILMAN:
	6	Q. Good afternoon, Dr. Leonard.
	7	A. Good afternoon.
	8	${f Q}$. Would you please introduce yourself to the jury.
	9	A. My name's John Leonard, and I'm a professor at MIT.
03:05:03	10	Q. What do you do at MIT?
	11	A. I perform research in robotics, and I teach
	12	mechanical engineering.
	13	${f Q}.$ What kind of education do you have to get to where
	14	you are today?
03:05:11	15	A. Undergraduate degree is in electrical engineering
	16	from the University of Pennsylvania, and my Ph.D. is from
	17	the University of Oxford.
	18	Q. What did you study in both of those schools?
	19	A. So electrical engineering as an undergrad, and then I
03:05:25	20	focused in robotics, and my Ph.D. is in engineering
	21	science from Oxford.
	22	Q. What was the topic of your thesis for your Ph.D.
	23	studies?
	24	A. I worked on the problem of how a robot can build a
03:05:38	25	map and concurrently use that map to navigate. And so,
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	1	that involved a lot of advanced work in source code and
	2	Kalman filtering and a lot of the algorithms related to
	3	that.
	4	Q. So if we could take a look at your some of the
03:05:54	5	slides that you put together.
	6	Starting off with your first slide,
	7	Leonard 1, could you describe what it is that you do today
	8	at MIT, what areas do you focus your research on?
	9	A. Yeah. This is a slide I give in talks to give sort
03:06:11	10	after quick overview in the interests of time of some of
	11	my background. So the topics and pictures from underwater
	12	vehicle vehicles, the Arctic, worked on mine-hunting for
	13	the Navy, and also as the team leader for MIT's entry in
	14	something called the DARPA Urban Challenge, which is we
03:06:25	15	built a self-driving car and drove it in traffic. And so,
	16	my research generally addresses these problems of mapping,
	17	navigation and control of autonomous vehicles, with a
	18	special focus on underwater vehicles.
	19	THE COURT: At MIT, are you in a research
03:06:41	20	position, or do you also have teaching responsibilities?
	21	THE WITNESS: Yes. I'm a faculty member, so I
	22	have teaching responsibilities.
	23	THE COURT: Are you an assistant professor or
	24	an associate?
03:06:48	25	THE WITNESS: I'm a full professor.
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