

Page 1 J12728767 sh UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE PATENT TRIAL AND APPEAL BOARD SMAXTEC INC. and SMAXTEC ANIMAL CARE GMBH, Petitioner v. ST REPRODUCTIVE TECHNOLOGIES, LLC Patent Owner. Case: IPR2024-00875 Patent No. 9,844,206 -and- Case: IPR2024-00885 Patent No. 8,823,515 ORAL DEPOSITION OF TIMOTHY J. BOWSER, Ph.D. APRIL 23, 2025	Page 3 INDEX Appearances.....5 TIMOTHY J. BOWSER, Ph.D. Examination by Mr. Hackman.....6 Changes and Signature.....165 Reporter's Certificate.....167 EXHIBITS NO. DESCRIPTION FIRST REFERENCE PAGE Exhibit No. 1001 (in 875).....72 US Patent No. 9,844,206 B2 Exhibit No. 1001 (in 885).....145 US Patent No. 8,823,515 B2 Exhibit No. 1005.....XX Article titled "The Importance of Utilising Electronic Identification for Total Farm Management: A Case Study of Dairy Farms on the South Coast of NSW" - Trevarthen Reference Exhibit No. 1006.....137 US Patent No. 7,059,275 B2 Exhibit No. 1009.....122 US Patent Application Publication, Pohlkamp et al Exhibit No. 1010.....131 Liao Reference Exhibit No. 1014.....64 US Patent Application Publication, Meads et al Exhibit No. 1016.....56 Livestock Environment VI - Hicks Reference Exhibit No. 1033.....99 Computers and electronics in agriculture - de Mol Reference Exhibit No. 1034.....148 Hillerton Reference Exhibit No. 2009 (in 875).....9 Declaration of Timothy J. Bowser, Ph.D., in Support of Patent Owner Response
Page 2 ORAL DEPOSITION of TIMOTHY J. BOWSER, Ph.D., produced as a witness at the instance of the Defendant, and duly sworn, was taken in the above-styled and numbered cause on the 23rd of April, 2025, from 9:07 a.m. to 3:11 p.m., Central Time, before Shanon M. Hair, CSR in and for the State of Texas, reported by machine shorthand, at the offices of Akin Gump Strauss Hauer & Feld LLP, 1111 Louisiana Street, 44th Floor, Houston, Texas 77002, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto.	Page 4 INDEX (Continued.) EXHIBITS NO. DESCRIPTION PAGE Exhibit No. 2009 (in 885).....9 Declaration of Timothy J. Bowser, Ph.D., in Support of Patent Owner Response

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1 A P P E A R A N C E S 2 FOR THE PETITIONER: 3 Blaine M. Hackman, Ph.D., Esq. 4 DECHERT LLP 5 Three Bryant Park 6 1095 Avenue of the Americas 7 New York, New York 10036-6767 8 (212) 698-3600 9 blaine.hackman@dechert.com 10 Nathan Curtis, Esq. 11 GIBSON, DUNN & CRUTCHER LLP 12 2001 Ross Avenue, Suite 2100 13 Dallas, Texas 75201 14 (214) 698-3423 15 ncurtis@gibsondunn.com 16 17 18 19 20 21 22 23 24 25 FOR THE PATENT OWNER: Thomas W. Landers, IV, Esq. AKIN GUMP STRAUSS HAUER & FELD LLP 1111 Louisiana Street, 44th Floor Houston, Texas 77002 (713) 250-2137 twlanders@akingump.com	1 about the -- I guess a claim about a sensor that was 2 used on a fryer for oil. 3 Q. Thank you. So, while you've been deposed 4 before and you probably know some of these rules, we'll 5 just go through a few ground rules and -- and guidelines 6 so that we can ensure things go smoothly as possible 7 today. 8 So, the first is that in almost all cases, 9 if I ask a question, you're required to provide an 10 answer. There are times where your counsel will be 11 object -- will object, but unless your counsel expressly 12 instructs you not to answer a question, you must answer 13 the question. And if you answer a question, it is 14 assumed that you understood the question. So, if you 15 need me to either re-ask a question or need 16 clarification, please let me know. 17 Answers need to be verbal. So, gestures or 18 utterances, like "uh-huh, huh-uh" are not amenable to a 19 clear transcript. So, to make the job of our court 20 reporter easy, as well as those reading the transcript, 21 if you could please try to -- to answer in -- in words. 22 And, finally, the generally just to keep 23 the transcript as clear as possible and ensure that the 24 exchanges are clear, we both need to make an effort to 25 ensure that we're not answering over each other or
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1 (9:07 a.m.) 2 TIMOTHY J. BOWSER, Ph.D., 3 having been first duly sworn, testified as follows: 4 EXAMINATION 5 BY MR. HACKMAN: 6 Q. Thank you for being here, Dr. Bowser. Could 7 you please state and spell your name? 8 A. Timothy Bowser, B-o-w-s-e-r. 9 Q. And what's your home address? 10 A. It's 1010 West Osage -- O-s-a-g-e -- Drive in 11 Stillwater, Oklahoma. 12 Q. Have you ever been deposed before? 13 A. Yes, I have. 14 Q. Could you, to the extent you can reveal, 15 describe what the depositions were about? 16 A. Mainly, my specialty area of food processing 17 and processing agricultural products, some -- some 18 with -- be like a -- an accident that might have 19 occurred in a food facility or some with preparation of 20 feed for animals, things like that. 21 Q. Were any of them patent cases? 22 A. Yes. There was one patent case, in particular, 23 I remember. It was about a -- it was more of a trade -- 24 they called it trade secret, of course, because it 25 revolved around patents. And then another one that was	1 talking over each other, so if we could both wait until 2 the other person's done speaking. 3 A. (Moving head up and down.) 4 Q. Are there any reasons that you cannot provide 5 truthful testimony today? 6 A. No -- no reasons at all. 7 Q. Thank you. So, do you understand that you're 8 here to testify in two inter partes review proceedings, 9 IPR2024-00875, which relates to U.S. Patent No. 10 9,844,206; and IPR2024-00885, which relates to U.S. 11 Patent No. 8,823,515? 12 A. Yes, sir, I do. 13 Q. And just for shorthand, I'll refer to "inter 14 partes review," or "IPR" at times. Will -- do you 15 understand that we might refer to an IPR rather than an 16 inter partes review, but they're referring to the same 17 thing? 18 A. Yes, sir. 19 Q. Okay. Thank you. And do you understand that 20 the testimony you'll be providing today will be used in 21 both IPR proceedings? 22 A. Yes, sir, I do. 23 Q. Okay. And you understand that ST Reproductive 24 Technologies, LLC, is the patent owner in these -- in 25 these IPR proceedings?

Page 9 1 A. Yes, that's my understanding. 2 Q. Why don't we mark a couple exhibits just so we 3 have them in advance. So, what I'm going to do is give 4 you your declaration. So, this is Exhibit 2009 in 5 IPR2024-00875. 6 (Discussion off the record at 9:12 a.m.) 7 MR. HACKMAN: I can distribute the exhibit. 8 And, Nathan, do you want a copy? 9 MR. CURTIS: I've got a digital copy. 10 Thanks. 11 MR. HACKMAN: Okay. So, set that aside. 12 Q. (BY MR. HACKMAN) And we'll also mark your 13 declaration Exhibit 2009 in IPR2024-00885. 14 A. Thank you. 15 MR. LANDERS: Thank you. 16 Q. (BY MR. HACKMAN) That's good for now. 17 Okay. So, did you prepare this declaration 18 yourself? 19 MR. LANDERS: I'm going to just jump in 20 real quick. This is Thomas Landers, counsel for patent 21 owner, and I just want to -- before allowing the witness 22 to answer that question, just caution the witness not 23 to -- to the extent possible to answer the question 24 without revealing the substance of any attorney 25 communications or any attorney work product or	Page 11 1 contacted to work on this case? 2 A. I don't -- I don't recall what the -- you know, 3 the date, but I would say, you know, maybe about two 4 years ago approximately, in that range. 5 Q. And who contacted you to work on this case? 6 A. I was contacted by a third-party group and I 7 believe they're called Round -- Round Table. They have 8 several different names, but that's the one -- one I 9 know, and they're like a -- I would say a -- a finder. 10 They find experts. 11 Q. And do you recall who you first spoke to 12 regarding taking on this case, outside of the expert 13 agency? 14 A. I know it was one of Mr. Landers' colleagues at 15 Akin, but I can't remember that person's name. I'm 16 sorry. 17 Q. That's okay. And can you provide approximately 18 how many hours you spent working on -- actually, let me 19 back up. 20 So, you have -- you submitted multiple 21 declarations in both IPRs; is that right? 22 A. Yes. 23 Q. And your first declaration was submitted at the 24 preliminary part of the case, correct? 25 A. Yes, I agree.
Page 10 1 confidential information, and that including any 2 material selected by the attorney for Dr. Bowser's 3 review. 4 To the extent you can answer, you can go 5 ahead and answer. 6 A. Mr. Hackman, would you repeat that question, 7 please? 8 Q. (BY MR. HACKMAN) Sure. Did you prepare your 9 declarations yourself? 10 MR. LANDERS: Same caution. 11 A. So, the declarations were prepared in a -- what 12 I'll call an iterative process. 13 Q. (BY MR. HACKMAN) Could you expand on what you 14 mean by "iterative"? 15 A. Sure. Sure. 16 MR. LANDERS: And I would just make the 17 same caution. 18 THE WITNESS: Yes. 19 A. So -- so, I would meet with counsel to discuss 20 the case, just in general, to get the -- you know, to 21 get a better understanding of what the issues were, 22 and -- and then we -- it would be an iterative process 23 of developing a -- developing a draft and reviewing it. 24 And then when it was correct, I signed it. 25 Q. (BY MR. HACKMAN) And when were you initially	Page 12 1 Q. And then you had a second declaration that you 2 submitted as part of the patent owner response part of 3 the case, right? 4 A. Yes, sir. I think that's correct. 5 Q. And cumulatively how long would you estimate 6 that you spent working on these declarations? 7 MR. LANDERS: Object to form. 8 A. I'm sorry. I never really -- I don't have 9 that -- I -- I didn't keep track of time like that, so 10 I'm not sure. I -- I don't have an estimate right now. 11 Q. (BY MR. HACKMAN) You do bill by the hour for 12 your time, right? 13 A. Yes, sir. 14 Q. So, you would have recorded your time working 15 on the declarations, right? 16 MR. LANDERS: Object to form. 17 A. Pardon me? 18 Q. (BY MR. HACKMAN) You -- you recorded your time 19 working for -- on the declarations, right? 20 A. Right, right, right. So, I would keep a log of 21 my time and then periodically turn that in for -- I 22 guess in a bill, in an invoice. 23 Q. And, so, you just don't recall at the moment 24 what that amount was. 25 A. Yeah. That was a series of invoices and I -- I

Page 13 1 just didn't -- I never totaled them up or thought -- you 2 know, thought about totaling that up. 3 Q. Okay. So, how did you prepare for this 4 deposition? 5 MR. LANDERS: And I'll just make the 6 similar caution I did earlier. To the extent you can 7 answer that question without revealing any 8 communications between you and any attorneys or any of 9 the attorney work product that you may have seen -- and 10 that includes any materials selected by the attorney for 11 review -- you can answer. 12 THE WITNESS: Okay. 13 A. I reread the documents before me right here, 14 the report -- reports -- and looked at some of the -- 15 reviewed some of the patents that are cited in -- within 16 here, some of the documents -- pardon me -- and met with 17 Mr. Landers yesterday, and I think that's basically the 18 sum total of my preparation. 19 Q. (BY MR. HACKMAN) Thank you. Did you take 20 notes during your preparation meetings with counsel? 21 MR. LANDERS: Object to form. 22 A. So, with yesterday's meeting, I did not take 23 notes. 24 Q. (BY MR. HACKMAN) And did you take notes during 25 any of the other discussions in preparation for your	Page 15 1 Q. (BY MR. HACKMAN) But at the moment, you don't 2 have any. 3 A. That's correct. 4 Q. And do you have any other changes to any part 5 of the declaration, not just your opinions? 6 MR. LANDERS: Object to form. 7 A. No. I can't think of any right now. 8 Q. (BY MR. HACKMAN) Thank you. So, prior to 9 being retained for this matter, did you ever previously 10 work with ST Reproductive Technologies? 11 A. No, sir, I have not. 12 Q. And do you have any sort of relationship with 13 ST Reproductive Technologies, professionally or 14 otherwise? 15 A. No, I don't. 16 Q. Do you know -- are you aware of whether you may 17 have done work with an affiliate of ST Reproductive 18 Technologies? 19 MR. LANDERS: Object to form. 20 A. Yeah. I'm not aware I've done any work with an 21 affiliate. 22 Q. (BY MR. HACKMAN) Okay. All right. So, I 23 think we can go and -- what we'll do here is because we 24 have the two proceedings and we have the two 25 declarations, generally, the questions that I'll be
Page 14 1 deposition? 2 A. No, I did not. 3 Q. So, since signing the two Exhibit 2009 4 declarations, so the declarations submitted in the 5 patent owner response part of the proceeding, have any 6 of your opinions changed? 7 MR. LANDERS: Object to form. 8 A. Are you talking about these right here? 9 Q. (BY MR. HACKMAN) Yes. 10 And just to be clear, the -- Dr. Bowser was 11 pointing at the two Exhibit 2009 declarations. 12 A. I don't believe I have any changes in my 13 opinions, no -- 14 Q. Okay. 15 A. -- since then. You know, I'd like to be able 16 to update them if I need to, but not -- not -- I 17 can't -- I don't have anything to reveal right now. 18 Q. Okay. You said update them if you need to. 19 What sort of things would you anticipate needing to 20 update? 21 MR. LANDERS: Object to form. 22 A. Oh, I was just considering if there's new 23 information, if the case progresses, or there's 24 additional things that I'm asked to do, you know, 25 I'll -- I'll do those.	Page 16 1 asking about your declarations will apply to both -- 2 both proceedings. If there's something that applies to 3 a specific proceeding, I'll make it clear, but I think 4 for these next set of questions, just for simplicity, 5 we'll use your declaration from the IPR2024-875. 6 A. Okay. 7 MR. LANDERS: Is that the '206? 8 MR. HACKMAN: Yeah, the '206 patent. 9 Q. (BY MR. HACKMAN) And you can -- you can set 10 aside the '515 for the time being, just to make your 11 space as -- 12 A. Okay. 13 Q. -- organized -- great. Okay. So, if we can go 14 to Paragraph 11 of your declaration, and it's on Page 5. 15 A. Okay. Yes, sir, I'm there. 16 Q. Thank you. So, in this paragraph, you refer to 17 animal management and tracking and the use of RFID 18 technology in your professional work. So, could you 19 provide a brief description of what sort of work you're 20 referring to in this paragraph? 21 A. Yeah, certainly. So -- so, there -- I've also 22 kind of expounded on in subsequent paragraphs, like 23 Paragraph 13 where we, you know, took part in developing 24 traceability systems for livestock. It was a 25 USDA-sponsored grant from 2011 to 2014, as it shows

Page 17 1 there. 2 THE REPORTER: Can -- would you mind 3 speaking up just a little bit for me? 4 THE WITNESS: Certainly. Sorry about that. 5 THE REPORTER: No problem. 6 A. So, as it says, it talks about a stakeholder 7 agreement whole-chain traceability system for beef 8 cattle. That's right in the middle of the page on Page 9 6. That's one of the objectives for the study. And I 10 helped co-author a whole-chain traceability system for 11 beef, presentation that was presented in China at the 12 China Ag University. 13 I also co-authored a fact sheet on how 14 traceability is used in beef carcass processing. And 15 that's one of the things that -- the university I work 16 at, we have a beef processing facility on site in the 17 building I -- I work in. So, beef carcass traceability 18 is something that has been important for me and -- and 19 the work I do since starting at Oklahoma State 20 University. 21 Q. (BY MR. HACKMAN) So, beef carcass 22 traceability, does that involve the use of RFID tagging 23 when the cows are alive? 24 MR. LANDERS: I'll object to the form. 25 A. Yeah. It can, yes.	Page 19 1 very -- that's very common. That's the -- that's the 2 general location you find something like that. 3 Q. (BY MR. HACKMAN) Okay. So, generally, the 4 tags are done in the ear of the animal. 5 A. Yes. 6 Q. So, when did you start working with the RFID 7 tagging technology? 8 A. I would say that would be back when I worked 9 for a company called Lockwood Greene Engineers -- it was 10 an engineering design firm -- and, you know, we did a 11 lot of work with food processors and pharmaceutical 12 companies and RFID tagging was important to track raw 13 materials and products in those -- in those industries. 14 Q. Thanks. 15 I apologize. I'm just going to pause for a 16 second. 17 (Recess from 9:25 a.m. to 9:28 a.m.) 18 Q. (BY MR. HACKMAN) Okay. All right. So, I 19 wanted to just ask you one other question about your -- 20 your history with RFID. So, when did you -- when did 21 you start working with RFID technologies? 22 A. I would say that would be -- you know, date 23 back to the one -- the example I just mentioned at 24 Lockwood Greene. That would be the early Nineties. 25 Q. Okay. In your time working with RF- -- RFID
Page 18 1 Q. (BY MR. HACKMAN) And are these RFID tags used 2 to collect any sort of health data regarding the 3 animals? 4 MR. LANDERS: Object to form. 5 A. Yeah, in -- in my experience in the industry 6 here, and there in Oklahoma, no, they're primarily 7 used -- I mean, they're only used for identification. 8 Q. (BY MR. HACKMAN) And are any of these RFID 9 devices implanted devices? 10 MR. LANDERS: Object to form. 11 A. Yes. So, if you could be more specific on what 12 you mean by "implanted device." 13 Q. (BY MR. HACKMAN) Sure. So, are any of the 14 devices ingested bolus devices? 15 A. No, they are not. 16 Q. Okay. Are any of the devices implanted under 17 the skin of the animal? 18 A. No, they're not. 19 Q. Is there any sort of devices -- RFID devices 20 that are used that are anything other than tags that are 21 on the outside of the animal? 22 MR. LANDERS: Object to form. 23 A. So, I -- the question was there were tags on 24 the outside of the animal. So, I'm -- I'm -- I would 25 interpret that as an ear tag and -- and that's -- that's	Page 20 1 devices, have you ever worked with implanted sensors? 2 MR. LANDERS: Object to form. 3 A. So, you're talking about a specific implanted 4 sensor? Do you have a -- 5 Q. (BY MR. HACKMAN) Not a specific one, but any 6 sensor that -- so, let me -- I'll -- I'll re-ask the 7 question. 8 Have you worked at all with sensors that 9 are ingestible bolus RFID devices? 10 A. I have not. 11 Q. And have you worked with any RFID devices that 12 were implanted under the skin of an animal? 13 A. No, sir, I haven't. 14 Q. And have you worked with any RFID devices that 15 were otherwise surgically implanted into an animal? 16 A. No, I have not. 17 Q. Okay. If you look to Paragraph 12, you discuss 18 co-founding a company called PetMech, LLC. 19 A. Yes, sir. 20 Q. Were the devices used with the PetMech -- am I 21 pronouncing that correctly, by the way? 22 A. It -- you're doing fine, yes. Thank you. 23 Q. Okay. So, for the devices that were used with 24 PetMech, the smart collars, were those using RFID 25 technology?

Page 21 1 MR. LANDERS: Object to form. 2 A. Yeah. So, I -- I didn't look into the 3 technology. I believe they used Bluetooth to 4 communicate and -- and that's what I recall. 5 Q. (BY MR. HACKMAN) And what sort of psycho -- 6 physiological data was sensed, recorded, and wirelessly 7 recorded from the collar to a remote computer? 8 A. Yeah. I recall there was movement, heartbeat, 9 temperature, and -- see if I wrote anything else here. 10 Yeah. That's it, I think. 11 Q. And when this data that you just described was 12 wirelessly communicated to a remote computer, was that 13 information stored in a database? 14 MR. LANDERS: Object to form. 15 A. Yeah. Can you be specific about the -- a 16 database? Can you be more -- 17 Q. (BY MR. HACKMAN) I'll -- I'll back up. 18 A. Okay. 19 Q. So, it says here that -- that the physiological 20 data was communicated to a remote computer. Once that 21 data was communicated, what happened to it? 22 MR. LANDERS: Object to the 23 characterization of the document. 24 A. So, I -- I don't -- I don't -- you know, I 25 didn't -- I don't know about the inner workings of	Page 23 1 A. I don't really recall any analysis done with 2 the temperature data. 3 Q. So, it was just recorded and stored? 4 A. Well, I mean -- 5 MR. LANDERS: Object to form. 6 A. Okay. So, yes, it's -- it's temperature data 7 that you could just observe, you know. So, you could do 8 what you want with it, but basic temperature data. I 9 don't recall doing anything, in particular, with it. 10 Q. (BY MR. HACKMAN) Was -- were any of the -- the 11 data that was collected in PetMech entered into an 12 equation -- 13 MR. LANDERS: Object to form. 14 Q. (BY MR. HACKMAN) -- to determine an outcome? 15 MR. LANDERS: Sorry. Object to form. 16 A. Yeah. I don't -- I don't recall doing that. 17 Q. Okay. And was any of the data that was 18 collected used for diagnosing a disease or condition in 19 the animal? 20 A. No, sir. 21 Q. Okay. So, you did mention in Paragraph 13 of 22 your declaration that you had worked with dairy 23 projects. 24 A. Yes. 25 Q. So, did any of these dairy products include the
Page 22 1 the -- the system, but I do know that that data was 2 available to -- to -- to look at, to use, to analyze. 3 Q. (BY MR. HACKMAN) Okay. And who would be doing 4 the analysis of the data? 5 A. That would be me. 6 Q. And what sort of analysis did you conduct with 7 that data? 8 A. Oh, so, it would just be to look at -- like -- 9 like, for example, one of the -- one of the items 10 collected was movement. So, you could determine the 11 pet's movements to see if maybe they were excited or 12 busier after a certain treatment was applied, for 13 example. 14 Q. Okay. So, certain treatment, what treatment 15 are you referring to? 16 A. It might be they -- they had a -- a particular 17 food they consumed. 18 Q. Would it -- any of it involve recording data 19 after drug treatment? 20 A. No. 21 Q. Okay. 22 A. No. 23 Q. You've mentioned that temperature was one of 24 the parameters that was recorded. What sort of analysis 25 was done with the temperature data?	Page 24 1 use of RFID devices? 2 MR. LANDERS: Object to form. 3 A. So, you're asking if any of the dairy 4 products -- 5 Q. (BY MR. HACKMAN) Right. 6 A. -- involved RFID devices. Yes. 7 Q. And could you expand upon what sort of work was 8 done with RFID devices with dairy? 9 A. So, a number of the clients that I worked with 10 at that time had -- had dairy -- had herds of dairy 11 cattle, which -- which some of them had RFID devices, 12 tracking devices, that -- that were -- you know, they 13 had ear tags. 14 Q. And were any devices used to collect health 15 data about the animals to which they're attached? 16 A. No, sir. 17 Q. What sort of information was collected by these 18 RFID devices? 19 MR. LANDERS: Object to form. 20 A. It -- just animal ID. 21 Q. (BY MR. HACKMAN) And by "animal ID," it's -- 22 each animal has a unique identification? 23 A. Yeah. I'd say it's more like the tag has a 24 unique identification. The tag belongs to that animal. 25 So, the tag number is used to identify the animal.

Page 25 1 Q. And where was the information correlating the 2 RFID tag identifier with the animal ID? 3 MR. LANDERS: Object to form. 4 A. Yeah. I'm not -- I'm not sure I follow that 5 question. Can you -- 6 Q. (BY MR. HACKMAN) Yeah. So, you mentioned that 7 each -- each device has its own unique identification. 8 Was that unique identification for the device associated 9 with a specific animal? 10 MR. LANDERS: Object to the 11 characterization of the testimony and the form. 12 THE REPORTER: The characterization of the 13 testimony and the -- I didn't hear the rest of it. 14 MR. LANDERS: And the form. 15 THE REPORTER: Oh, thank you. 16 A. Okay. So, the question was: Does -- does the 17 ID -- excuse me -- the -- may I please refer you -- 18 Q. (BY MR. HACKMAN) That's okay. 19 A. Sorry. 20 Q. So -- so, you mentioned -- so, each RFID device 21 has a unique identifier, right? And, so, was there a 22 way to know which device was associated with a specific 23 animal? 24 MR. LANDERS: I'll -- same objections. 25 A. So -- so, you're asking if there were -- if	Page 27 1 from my understanding, it is available and searchable. 2 Q. (BY MR. HACKMAN) And what was that 3 understanding about availability and searchability from? 4 MR. LANDERS: Object to form. 5 A. My experience with the -- the system. 6 Q. (BY MR. HACKMAN) And by "experience with 7 the -- with the system," what do you mean? 8 A. So, I mean, the university, the Oklahoma State 9 University, they have a -- a system to make their fact 10 sheets available to the public. So, it's searchable, 11 it's -- it's well-known, and -- and our constituents in 12 the state especially, but around the country, they 13 can -- they can find those fact sheets and download 14 them. 15 Q. And if a member of the public outside of 16 Oklahoma was looking for information about RFID 17 technology that was published in your fact sheet, would 18 that be something that they could find through the 19 website? 20 MR. LANDERS: Object to form. 21 A. And, so, if -- if a person from outside of 22 Oklahoma was -- did -- did a -- a search on a -- you 23 know, the internet and they used the -- the correct 24 terms, they -- they might land on that -- that sheet -- 25 it's possible -- and they could download if they -- if
Page 26 1 that -- if that device number was linked to the -- to 2 the animals, particular animal, yes, it was. 3 Q. (BY MR. HACKMAN) And where was that 4 information kept regarding associating the RFID device 5 with the animal identity? 6 A. So, I -- I don't really recall, but I believe 7 there was a -- you know, there's ledgers and it may 8 have -- you know, there may have been -- but I'm not -- 9 I'm not certain, so I can't speculate, so -- 10 Q. Okay. You don't recall whether it was kept in 11 a computer or a database? 12 A. I don't recall, no. 13 Q. Have you ever published an article on the use 14 of RFID devices? 15 MR. LANDERS: Object to form. 16 A. I -- I think I mentioned the fact sheet when I 17 talked earlier. That would be an article that's 18 published through the university's publication engines. 19 Q. (BY MR. HACKMAN) And if somebody who worked in 20 the field wanted to find a fact sheet or was looking for 21 information about RFID devices, was that fact sheet 22 available for public review? 23 MR. LANDERS: Object to form. 24 A. So, I've never downloaded that particular fact 25 sheet from our -- from the university's website, but	Page 28 1 they did. 2 Q. (BY MR. HACKMAN) Do you know whether your fact 3 sheet's ever been cited in another publication? 4 A. I don't know. 5 Q. And do you know whether it's been cited in a 6 patent? 7 A. No, sir, I don't. 8 Q. Okay. So, you're not aware of anybody outside 9 who may have cited your -- your fact sheet? 10 MR. LANDERS: Object to form. 11 A. No, I'm not. I don't keep tabs on that. 12 Q. (BY MR. HACKMAN) And -- and do you know 13 whether the university records downloads for the fact 14 sheet? 15 A. I'm vaguely aware of that, but I don't have 16 a -- you know, inside knowledge of that. 17 Q. So, did you in -- in coming to your opinions, 18 did you consider any of the work that you had done with 19 RFID technology as -- as part of -- let me strike that. 20 So, did you consider this particular fact 21 sheet as part of the materials you considered in coming 22 to your opinion in these declarations? 23 MR. LANDERS: Object to form. 24 A. I -- I didn't use anything specific from the 25 fact sheet, but it -- you know, just it's a part of my

Page 29 1 understanding of how RFID, you know, works and what it's 2 used for, but I don't recall using anything specific 3 from that fact sheet, but I can't say that didn't help 4 inform my opinion. 5 Q. (BY MR. HACKMAN) So, in Paragraph 13 you 6 mention that you taught workshops on dairy herd 7 management? 8 A. Paragraph 13? 9 Q. Yeah. Hopefully, I have that correct. 10 Yes. At the bottom of Page 6 you say, "I 11 have taught workshops on dairy herd management and 12 cheese-making internationally." 13 A. Yes. That's true. 14 Q. And did your workshops include any teachings 15 related to RFID technology? 16 MR. LANDERS: Object to form. 17 A. No, they did not. 18 Q. (BY MR. HACKMAN) Did the workshops teach 19 anything regarding monitoring dairy cow health? 20 MR. LANDERS: Object to form. 21 A. Yes. 22 Q. (BY MR. HACKMAN) Okay. And what sort of 23 things did the workshop teach regarding dairy cow 24 health? 25 A. They -- we mainly taught, you know, very simple	Page 31 1 on -- on cattle, but also for materials that are moved 2 in food processing field. 3 Q. (BY MR. HACKMAN) So, the tags were included in 4 the materials that were being used for food processing? 5 A. They could be in the materials or on the 6 containers that -- that -- that were holding those 7 materials. 8 Q. Okay. All right. So, in your work, do you 9 often consult peer-reviewed publications? 10 MR. LANDERS: Object to form. 11 A. So, I -- I do look at peer-reviewed 12 publications. 13 Q. (BY MR. HACKMAN) And do you do searches using 14 internet search engines in order to find these 15 publications? 16 A. Yes. I -- I frequently use the internet to 17 search publications, just like I've outlined here in my 18 report. 19 Q. Do you consult patent documents as part of your 20 work? 21 MR. LANDERS: Object to form. 22 A. So, in general, I try to find patent documents 23 that pertain to the work I'm doing to gain additional 24 information. 25 Q. (BY MR. HACKMAN) And are there particular
Page 30 1 concepts like cleanliness and consistent diet and 2 quality of diet. 3 Q. And did any of the workshops teach anything 4 with regard to diagnosing illness in dairy cows? 5 MR. LANDERS: Object to form. 6 A. No, they did not. 7 Q. (BY MR. HACKMAN) And did any of the teachings 8 relate to dairy cow breeding? 9 A. I don't recall that, no. 10 Q. And was there anything taught in the workshop 11 about monitoring the treatment of dairy cows with 12 medicines? 13 MR. LANDERS: Object to form. 14 A. There was not. 15 Q. (BY MR. HACKMAN) Okay. So, just to confirm, 16 you were working with RFID technologies prior to 2008, 17 right? 18 A. Yes. 19 Q. But this work was confined mostly to RFID ear 20 tags? 21 A. That's correct. 22 MR. LANDERS: Object to form. 23 Sorry. Let me get my objections in. 24 Object to form. 25 A. So, I didn't exactly say that it was ear tags	Page 32 1 search engines that you rely on when searching for 2 patents? 3 MR. LANDERS: Object to form. 4 A. So -- so, there's a number of different search 5 engines and, you know, lately, most recently, I would 6 use -- you know, Google Patents is very effective for me 7 at finding patents, but there's others I -- I use and 8 have used. 9 Q. (BY MR. HACKMAN) Do you recall what those 10 others are? 11 A. Oh, like -- like, Google and Yahoo! or -- I 12 can't think of any other names right now, but -- but 13 sometimes it's very helpful to look at, you know, a 14 wide -- as wide array as possible. 15 Q. And when you're looking at patent documents, 16 have you ever -- strike that. I'll start again. 17 So, on patent documents have you noticed 18 that they include references that have been cited during 19 the examination or as part of the patent? 20 MR. LANDERS: Object to form. 21 A. Can you be more specific on, like, what 22 references you mean, like -- 23 Q. (BY MR. HACKMAN) Sure. Well, I'll -- I'll -- 24 I'll back up to a higher level here. 25 A. Uh-huh.

Page 33 1 Q. So, with any peer-reviewed or patent reference, 2 there's often references that are cited within those, 3 right? 4 A. Yes, sir, that's true. 5 Q. And do you ever, as part of a research -- 6 literature research, use those citations and then go 7 find those additional references that are cited? 8 MR. LANDERS: Object to form. 9 A. So, like, on a peer-reviewed publication, like 10 you mention -- so -- so, as I'm reading it and I want to 11 find out more details about a particular concept or idea 12 there -- a backup with a reference, I will go look for 13 that reference to -- to get -- get those details. 14 Q. (BY MR. HACKMAN) And do you do a similar 15 process with patents? If a patent has a reference that 16 it cites, do you go look at those cited references in 17 certain instances? 18 MR. LANDERS: Object to form. 19 A. And -- and -- and the references in the patents 20 you're talking about are, like, another patent number 21 or -- or is that -- 22 Q. (BY MR. HACKMAN) Could -- any sort of -- it 23 could be a patent, it could be a peer-reviewed 24 reference. 25 A. So, I -- I will look at other -- other patents,	Page 35 1 Q. (BY MR. HACKMAN) Not going to -- I couldn't 2 tell you off the -- 3 MR. LANDERS: I don't even know how to 4 pronounce it. 5 Q. (BY MR. HACKMAN) -- off the hand. We'll -- 6 we'll sort it out at the break. So, if you're looking 7 for a peer-reviewed reference, is there particular 8 search engines that you -- search engine that you find 9 to be the most useful? 10 MR. LANDERS: Object to form. 11 MR. HACKMAN: Excuse me. 12 A. Well, my -- my default is actually to go to 13 the -- the library at the Oklahoma State University and, 14 you know, they have a number of index catalogs available 15 online and that's generally where I start. 16 Q. (BY MR. HACKMAN) Okay. And after that you 17 start with that, do you ever consult a search engine 18 after that? 19 A. Yeah. I -- I mentioned that I like to look at 20 a -- a broad variety of -- you know, I like to make a 21 broad sweep of possible locations. So, if I -- 22 especially if I can't find a reference, I will, you 23 know, branch out and try -- try to find a few other 24 places that would logically be -- that might -- that 25 might be available.
Page 34 1 especially when I'm reviewing a patent, and I don't 2 recall too many that have, like, a journal article or 3 something referred, so I can't really speak to that, 4 but -- but, you know, I might. I mean depends on -- 5 depends on the circumstances. 6 Q. Okay. So, if a particular reference that's 7 cited in another patent is of interest, then you would 8 potentially go look for that. 9 MR. LANDERS: Object to form. 10 A. I mean, the -- I -- I need to know a little bit 11 more about what it was or what your specific example is, 12 but it's possible I would do that, yes. 13 Q. (BY MR. HACKMAN) Okay. So, you mentioned in 14 your declaration and I think here that you have worked 15 with search engines quite a bit, right? 16 A. Yes. 17 MR. LANDERS: Object to form, 18 characterization of the document. 19 A. That -- that was one of the things I was asked 20 to do is to, you know, look at the availability of one 21 particular document, the Trevvarthen thesis -- 22 THE REPORTER: The what thesis? 23 THE WITNESS: Trevvarthen. And I'm going to 24 spell that wrong. T-r-e-v-a-r-t-h-e-n, I think it is. 25 MR. LANDERS: Sounded right.	Page 36 1 For example, if I'm looking for an 2 agricultural -- and I frequently am -- an agricultural 3 reference, has to do with agriculture, there's a 4 particular database called Agricola and they have a lot 5 of the agricultural references already pre- -- 6 pre-populated in their database. It's easy to find 7 and -- they've done the work for you is what I'm trying 8 to say. 9 Q. And, so, you mentioned your own experience. 10 So, you teach, right? 11 A. I do. I have students and I teach. I don't 12 have a formal teaching appointment, but I -- I teach 13 graduate students and advise them. 14 Q. And do you have a -- a research group? 15 MR. LANDERS: Object to form. 16 A. Yeah. I'm not sure what you mean by "research 17 group," but I do research and I have some students that 18 I employ that do research as well that -- you know, 19 we're not a formal -- like a business group or anything 20 like that. 21 Q. (BY MR. HACKMAN) Okay. So, you're regularly 22 working with -- with students and individuals who are 23 not as experienced as you in the field. 24 MR. LANDERS: Object to form. 25 A. Yeah. I'm -- I mean, I'm generally working

Page 37 1 with students and other people, yes. 2 Q. (BY MR. HACKMAN) And, so, do you advise them 3 on how to search for literature resources as part of 4 their -- their studies? 5 A. Yes. I think that's one of the things that I 6 mentioned here in my -- my declaration. I -- I do that. 7 Q. Okay. And, so, you advise them to use similar 8 approaches to doing literature research that you do, 9 right? 10 MR. LANDERS: Object to form. 11 A. You know, so, I advise them on -- on how to do 12 that. I don't tell them how to do that. You know, I 13 don't tell them, "Do exactly what I do." That's not 14 what I do. I -- I give them some guidelines. 15 Q. (BY MR. HACKMAN) And of the search engines 16 that are used in your field, what do you -- what's your 17 opinion on what the most useful internet search engine 18 is? 19 MR. LANDERS: Object to form and scope. 20 Q. (BY MR. HACKMAN) I'm sorry. I'm going to 21 re-ask that question actually. So, of the search 22 engines that you use for searching for peer-reviewed 23 publications, what is generally the most useful search 24 engine that you've found? 25 MR. LANDERS: Object to form.	Page 39 1 Q. (BY MR. HACKMAN) Okay. So -- so, you've used 2 Google Scholar as part of your work, according to this, 3 right? 4 A. Yes. 5 Q. And in your experience, do -- do students use 6 Google Scholar as part of their literature search? 7 MR. LANDERS: Object to form. 8 A. Yeah. I don't know. I don't ask them those 9 questions. They may or they may not. 10 Q. (BY MR. HACKMAN) You feel that persons of 11 ordinary skill in the art in your field use Google 12 Scholar among the search engines when doing literature 13 research? 14 MR. LANDERS: Object -- object to form. 15 A. I mean, that depends. I don't -- I don't know 16 what they use for certain, but they -- they could for 17 sure. I don't know for certain. 18 Q. (BY MR. HACKMAN) Okay. Do you ever consult 19 dissertation thesis documents as part of your review of 20 literature? 21 MR. LANDERS: Object to form. 22 A. On occasion, I have looked at a thesis and a 23 dissertation, yes. 24 Q. (BY MR. HACKMAN) And do you recall how to find 25 these thesis documents?
Page 38 1 A. Okay. So, I mean, like I said earlier, it's a 2 whole variety of search engines. But like I mentioned, 3 the one I like to go for first is the -- is the library, 4 right? They have indexed search engines that have 5 already done the work for you. They pull all of the -- 6 the, let's say, agricultural references together in one 7 space, so that makes it very easy. 8 Q. (BY MR. HACKMAN) You've mentioned you use 9 Google Scholar in your research, right? 10 A. I don't think I mentioned that, so -- did I 11 just -- did I say "Google Scholar"? 12 Q. I -- I think in your declaration. I'd have to 13 look. 14 So, if we go to Paragraph 88, looks like 15 starts on Page 42 and goes to Page 43 of your -- your 16 declaration. 17 A. Paragraph 88, Page 42? 18 Q. Yeah. 19 A. Yes, sir. 20 Q. And I'll give you a second to review that. 21 A. Okay. 22 (Reviewing document.) 23 A. Okay. I see it there, Google Scholar listed 24 on -- yeah, towards the end of that paragraph, Paragraph 25 88.	Page 40 1 MR. LANDERS: Object to form. 2 A. So, you're asking me where I find the thesis? 3 Q. (BY MR. HACKMAN) That's right. 4 A. So, at -- at -- at the university, you know, 5 where I work, they have a repository for the theses 6 (sic) developed at Oklahoma State. So, those are right 7 there at the library, like I mentioned. So, that's 8 the -- again, one of my, of course, favorite places to 9 go. And after that, I know that -- there you can 10 sometimes find a thesis or dissertation on one of these 11 search engines like are listed there in -- in Paragraph 12 88. 13 Q. So, these search engines -- excuse me -- that 14 you reference in Paragraph 88, do you know whether the 15 capabilities of these search engines have changed over 16 time? 17 MR. LANDERS: Object to form. 18 A. So, I don't know the inner workings of those -- 19 of those search engines. I'm sorry. 20 Q. (BY MR. HACKMAN) So, you can't say whether a 21 search conducted in 2008 uses the same technology as a 22 search conducted in 2024 or 2025? 23 MR. LANDERS: Object to the form and the 24 characterization of the testimony. 25 A. Yeah. So, you're asking me if I know the

Page 41 1 technology's the same? 2 Q. (BY MR. HACKMAN) Right. 3 A. I mean, I -- I don't. I don't know. I haven't 4 looked at that. 5 Q. Would you expect the -- the capabilities of a 6 search engine to have changed over time from 2008 to 7 2025? 8 MR. LANDERS: Object to form. 9 A. Yeah. I'm not sure what you mean by 10 "capabilities." A search engine is a search engine. 11 So, I mean, it -- it would be doing the same thing. You 12 know, maybe -- maybe -- maybe it has indexed more -- 13 additional documents as time goes by, but that's still 14 the same thing. It's doing the same thing. 15 Q. (BY MR. HACKMAN) Do you know how search 16 engines assign a date for when a document was available 17 on the search engine? 18 MR. LANDERS: Object to form. 19 A. I don't know physically how that's done or 20 internally to the -- to search engines. I don't know. 21 Q. (BY MR. HACKMAN) Okay. Let's go to Paragraphs 22 23 and 24 of your declaration. 23 A. Okay. Yes, sir. I'm there. 24 Q. Okay. And this is the section on obviousness, 25 right?	Page 43 1 MR. LANDERS: -- built into the question. 2 MR. HACKMAN: Okay. I'll ask it in another 3 way. 4 Q. (BY MR. HACKMAN) So, you're not an expert in 5 patent law, right? 6 MR. LANDERS: Object to form. 7 A. I'm not an expert in patent law. 8 Q. (BY MR. HACKMAN) So that the obviousness 9 standard that you have here had to have been provided by 10 another person to you, right? 11 MR. LANDERS: Object to form. 12 A. Yeah. I didn't -- I -- I agree with this 13 definition and I don't recall if I made any edits to it, 14 but I worked with counsel. 15 Q. (BY MR. HACKMAN) Okay. I mean, I'm not asking 16 for -- for, you know, the detail, but this was -- 17 A. Uh-huh. 18 Q. I think if you rely on something in your 19 report, you have to tell us where the information came 20 from. That's all the question is. 21 A. Okay. 22 MR. LANDERS: But at the same time, he 23 can't reveal the substance. There's -- you've got to be 24 careful with these kind of questions. You're -- 25 MR. HACKMAN: I understand. I don't think
Page 42 1 A. Yes. Section C, Obviousness. 2 Q. Okay. So, you wrote that you understand that 3 this standard of obviousness is -- let me back up a 4 second. 5 So, where did you receive your 6 understanding of obviousness from? 7 MR. LANDERS: And I'll just make a caution 8 similar to what I did earlier. Do not reveal any 9 communications with attorneys or any work product 10 provided by the attorneys; but to the extent you can 11 answer, go ahead. 12 A. Yeah. I guess I really can't answer that one. 13 I -- I -- you know, I worked with the attorneys to help 14 understand that aspect. 15 Q. (BY MR. HACKMAN) Okay. I -- I'll 16 short-circuit. So, the -- the standard that you have 17 here was provided to you by the counsel that you worked 18 with? 19 MR. LANDERS: Same exact caution. 20 A. Is that a question? 21 Q. (BY MR. HACKMAN) Yeah. 22 MR. LANDERS: I don't think he can answer. 23 That's directly calling for something provided to him by 24 the attorney -- 25 MR. HACKMAN: Okay.	Page 44 1 you'd be waiving privilege if you just said that counsel 2 provided me with this standard of obviousness. I mean, 3 it's got to come from somewhere, right? 4 MR. LANDERS: If you can agree to no waiver 5 and -- he can try his best to answer. Maybe ask it 6 differently, but -- 7 MR. HACKMAN: Yeah. 8 Q. (BY MR. HACKMAN) So -- so, the -- the question 9 is where -- how did you -- where did you get the 10 standard of obviousness that you've applied in these two 11 paragraphs? 12 A. Yeah. I worked with counsel to get that. 13 Q. Okay. That's all. I wasn't trying to do 14 anything tricky there. 15 A. Okay. Okay. Thank you. 16 MR. LANDERS: I hope you understand my 17 concern with -- 18 MR. HACKMAN: Right. Oh, no. I -- that 19 was not the goal was to get a waiver. I just said I 20 understand rather than counsel provided, so I -- that's 21 why I was wanting to -- to make sure I understood that, 22 yeah. 23 Q. (BY MR. HACKMAN) So, you understand that -- 24 actually, you refer to this person of ordinary skill in 25 the art in the relevant time frame, right?

Page 45 1 A. Yes. 2 Q. And is it your understanding that every person 3 of ordinary skill in the art has some background 4 knowledge that's available in the field? 5 MR. LANDERS: Object to form. 6 A. Yeah. We'd have to go to the way we define the 7 person of ordinary skill in the art -- 8 Q. (BY MR. HACKMAN) Sure. 9 A. -- for this -- for this thing, but -- but, yes, 10 I believe that's in there, right? 11 Q. Sure. 12 A. Let's do it. Gives a -- 13 Q. I will tell you where it is. It's on Page 7, 14 couple pages back. 15 So, in Paragraph 16 through 19, you 16 describe what your understanding of a person of ordinary 17 skill in the art is for the purposes of this 18 declaration, right? 19 A. Yes, sir, I have. Yes. 20 Q. And, so, my question is: Is it your opinion 21 that any person of ordinary skill in the art's going to 22 have certain background knowledge that's available in 23 the field to which you're applying testimony? 24 MR. LANDERS: Object to form. 25 A. Yes. So, you know, what I've written here was,	Page 47 1 library that you might have access to that has a 2 compilation of sources. You might ask colleagues and 3 you could look at articles, trade -- trade -- trade 4 magazines, or you might go to a -- a trade show where 5 you could find some information. 6 Q. (BY MR. HACKMAN) And when the person of 7 ordinary skill in the art is developing a system, is it 8 expected that there's going to be some experimentation 9 needed in order to develop a system? 10 MR. LANDERS: Object to form. 11 A. Okay. So, you have to really be more 12 specific -- specific on the system, but development 13 itself deems there is -- usually an iterative process -- 14 THE REPORTER: I couldn't hear you. 15 Deem -- 16 THE WITNESS: Be more specific on what 17 system that he's talking about developing. 18 (Sotto voce discussion.) 19 Q. (BY MR. HACKMAN) Okay. Why don't we go to 20 Paragraph 24. We'll try to make it a little more 21 specific here. 22 A. Okay. 23 Q. And we'll talk about the last sentence of 24 Paragraph 24. 25 A. Okay. I have it.
Page 46 1 you know, three years of experience researching, 2 developing, or designing and/or evaluating the RFID 3 tracking and sensor systems for livestock management. 4 Q. (BY MR. HACKMAN) Okay. And what sort of 5 references would a -- would a person of ordinary skill 6 in the art seek out when trying to address a problem in 7 the agricultural engineering field? 8 MR. LANDERS: Object to the form. 9 A. Yeah, sure. Can you be more specific on 10 that -- on that problem? 11 Q. Sure. 12 A. Because -- 13 Q. Well, we'll talk about the -- the problem that 14 we have here, right? So, we're looking at -- at RFID 15 devices used in dairy cattle. 16 A. Okay. 17 Q. So, if a person of ordinary skill in the art 18 was developing a system for using RFID devices in dairy 19 cattle, what sort of sources would they consult in order 20 to better understand the field that they were working 21 in? 22 MR. LANDERS: Object to form. 23 A. So -- so, sources like we've been talking 24 about, sources that are available, internet search 25 sources, sources like I was talking about, like a	Page 48 1 Q. It says "And I understand obviousness does not 2 require absolute predictability of success, only a 3 reasonable expectation." So, I'll ask this question: 4 Would a reasonable expectation of success still require 5 potentially some experimentation? 6 MR. LANDERS: I'll object to the form. 7 A. Well, I -- I would say that it might not. It 8 depends. 9 Q. (BY MR. HACKMAN) Okay. What does it depend 10 on? 11 A. Well, let's say if -- if you had a resource 12 that said it didn't work for them, then you wouldn't 13 have to repeat that experiment. So, it -- it would be 14 something you -- you wouldn't have to try again. 15 Q. So, you never replicate the experiments of 16 other people that you see? 17 MR. LANDERS: Object to form. 18 A. Well, there's certainly circumstances where you 19 might do that, but if you had good valid information 20 that showed that something didn't work as expected or 21 was a -- you know, the wrong path to take, it would be a 22 waste of time to try that again. 23 Q. (BY MR. HACKMAN) Okay. So, you mean wrong 24 path -- how do you know whether something's the wrong 25 path to take?

Page 49 1 A. Well, you take -- we're talking about 2 references, right, resources you look at -- 3 Q. That's right. 4 A. -- and you would -- you would review the 5 resource and -- and they -- they would -- the 6 information would be there and it would tell you. 7 Q. I'll ask a little different question. 8 So, you distinguish between absolutely 9 predictability of success and a reasonable expectation 10 of success. What's your understanding of the difference 11 between those two terms there? 12 A. Okay. So, we'll start with the absolute 13 predictability, and just it's just the ordinary, you 14 know, understanding, something that you know for sure is 15 going to work as you expect it to. That's -- that's 16 what I believe that is, is the ordinary understanding of 17 that. 18 And then a reasonable expectation of 19 success, well, you know, you might believe that someone 20 else has done this or someone else has done parts of 21 this and you've seen that and they're successful, they 22 reported a success; or maybe there's two or three very 23 successful things, you're going to combine them 24 together, and that's not been done before, but you think 25 that, you know, you have enough evidence there and	Page 51 1 of a reasonable expectation of success if some 2 independent sources have done the same thing and were 3 successful. That's what I was referring to. 4 Q. Okay. So, why do researchers publish their 5 work? You know, we'll talk -- let's talk about 6 peer-reviewed publications first. So, why do 7 researchers publish? 8 MR. LANDERS: Object to form. 9 A. So, you -- you've heard the -- the adage 10 "Publish or perish," right? That's the -- that's the 11 mantra for academics like myself. And, so, if you are 12 going to progress in academic circles and progress 13 through the ranks, you -- with -- there's certainly 14 some -- some exceptions, but you have to publish. 15 Q. (BY MR. HACKMAN) And when you publish 16 something, is it generally considered important that 17 others be able to replicate the work in a publication? 18 MR. LANDERS: Object to form. 19 A. So, you know, a high-quality publication is -- 20 you can replicate it, yes. Now, there's certain 21 publications which might just be review of, you know, 22 like, you're doing a review of something in the field 23 and that's not something you're -- I mean, it wouldn't 24 apply. So, there's some that don't apply. 25 Q. (BY MR. HACKMAN) So, if you're publishing a
Page 50 1 you're not wasting your time. That may be a -- that's 2 what I'm talking about may be a reasonable expectation 3 of success. 4 Q. That's helpful. So, you mentioned combining 5 things that hadn't been combined before, right, with -- 6 with your -- with your discussion? 7 MR. LANDERS: I'll object to the form and 8 characterization. 9 A. Yeah. I mentioned you might be looking at 10 several different sources. That's what I was meaning 11 about combining some of those sources together. 12 Q. (BY MR. HACKMAN) Okay. And if you're 13 combining those sources together that nobody's done 14 before, would you expect that there may need to be some 15 experimentation in order to successfully combine those 16 things together? 17 MR. LANDERS: Object to the form. 18 A. Oh, okay. So, I was talking about, like, 19 combining references, you know, information 20 references -- 21 Q. (BY MR. HACKMAN) Okay. 22 A. -- not, like, necessarily things that weren't 23 done before, but -- so -- so that's a different 24 question, I think. So, you know, if you're looking 25 at -- I think it strengthens your -- your understanding	Page 52 1 new -- new research, it's important that others are able 2 to replicate the work to verify that your publication is 3 sound, right? 4 MR. LANDERS: Object to form. 5 A. Okay. So, I think what you're saying -- what 6 I'm hearing is when you publish, you want to make sure 7 your publication has -- you know, it's -- it's -- you 8 know, follows accepted standards that other people are 9 aware of and they can practice and to reproduce -- there 10 is the same results, yeah. That's -- that's sort of 11 the -- that is the -- I guess the standard for good 12 research. 13 Q. (BY MR. HACKMAN) Okay. And do others 14 sometimes improve upon the work that's in a publication? 15 MR. LANDERS: Object to form. 16 Also, we've been going over an hour. So, 17 Dr. Bowser, if you need a break -- 18 THE WITNESS: Yeah, a break -- a break 19 pretty soon. Thanks. 20 A. But I'd like -- I'd like to answer that one, so 21 can you repeat it again? I'm sorry. 22 Q. (BY MR. HACKMAN) Sure. So -- so, is it also 23 expected that -- that people will be improving upon 24 peer-reviewed published works? 25 MR. LANDERS: Sorry. I lost my realtime.

Page 53 1 THE REPORTER: Okay. 2 MR. HACKMAN: Well, why don't we pause here 3 since we're -- we'll give her a chance to -- to -- to 4 fix the technical glitches and we'll -- we'll start up 5 on this in a few minutes. 6 MR. LANDERS: I appreciate that. 7 (Recess from 10:12 a.m. to 10:27 a.m.) 8 Q. (BY MR. HACKMAN) So, want to switch gears a 9 little bit and talk about temperature. So, the body 10 temperature of an animal is understood to be an 11 indicator of the health status of that animal, right? 12 MR. LANDERS: Object to form. 13 A. So, can you give me more details, like -- 14 Q. (BY MR. HACKMAN) Sure. 15 A. You're talking about, I'm assuming, a cow, 16 right, or -- can you give me -- 17 Q. Yeah, sure. So, let's talk about -- when I 18 refer to "animal," I'm meaning cow in this case, but, 19 yeah. If a cow -- if a cow had elevated body 20 temperature, that can be a side that that cow is dealing 21 with some sort of health issue; is that right? 22 MR. LANDERS: Object to form. 23 A. Not necessarily. So, it could be a sign -- you 24 know, could be several -- signs of several things, like, 25 you know, maybe is the cow standing out in the sun, for	Page 55 1 don't know if that's -- if "risk" is the right word. I 2 mean, I guess it depends on what the situation is, but, 3 yeah, you don't know for certain if that's the case. 4 Q. (BY MR. HACKMAN) So, an animal presents with 5 elevated temperature, you'd want to go investigate that 6 animal, right? 7 MR. LANDERS: Object to form. 8 A. Again, it depends. So -- so, if I was looking 9 at the data, I could tell you, but, you know, just -- 10 just right here, without any information set before me, 11 it has to be it depends. I -- I don't know. 12 Q. (BY MR. HACKMAN) Okay. So, if you see 13 elevated temperature in a cow, then you may want to 14 examine other variables to determine why that 15 temperature is elevated. 16 MR. LANDERS: Object to form. 17 A. Again, without a concrete example, yes and no. 18 It depends. So, I -- you know, I don't know. 19 Q. (BY MR. HACKMAN) Okay. So, would you agree 20 that there's scientific literature indicating that 21 temperature can be an indicator of the health of an 22 animal? 23 MR. LANDERS: Object to form. 24 A. Can you show me the -- that literature? I -- I 25 mean, I was trying to say that earlier the health --
Page 54 1 example, or the cow is -- it's a lower temperature, it 2 could be in a -- in a pool of water, things -- things 3 that are environmentally associated with it, too. So, 4 not necessarily. Or could be, like, a malfunction with 5 the -- with the sensor. 6 Q. (BY MR. HACKMAN) So, ask a little bit 7 different, but temperature can be an indicator of the 8 health -- animal's health, right? 9 MR. LANDERS: Object to form. 10 A. Yeah. I think that -- that's right. I think 11 that temperature can be. I mean, you -- you definitely 12 want to look at that in -- in conjunction with other 13 things, too. You wouldn't want to look at it just by 14 itself. You'd want to -- like I mentioned, you'd want 15 to make sure that the sensor's working well and what the 16 environmental factors are and what other conditions 17 might be there, too, the other sensed conditions perhaps 18 or observed conditions, too. 19 Q. (BY MR. HACKMAN) Okay. So, looking at 20 temperature as a variable alone carries a risk that you 21 may misinterpret what the elevated temperature means. 22 MR. LANDERS: Object to form. 23 A. I'm going to try to restate that. I think that 24 that's -- you know, that the -- you know, like I said 25 earlier, just depends. You don't know for certain. I	Page 56 1 Q. (BY MR. HACKMAN) Yeah. 2 A. -- you know, can be, but usually in combination 3 with other things. 4 Q. Okay. All right. Okay. I'm going to mark an 5 exhibit. Okay. So, I'm marking Exhibit 1016. 6 A. Thank you. 7 MR. HACKMAN: There you go. 8 Q. (BY MR. HACKMAN) And I'll refer to this 9 exhibit as the Hicks reference. If you take a moment, 10 Dr. Bowser, and just take a look at that. 11 A. Okay. 12 (Reviewing document.) 13 Q. (BY MR. HACKMAN) And let me know when you're 14 ready. 15 A. Okay. I -- I see the reference. I just paged 16 through it. 17 Q. Sure. I'll try to ask questions to specific 18 parts of it. So, you reviewed the Hicks reference as 19 part of -- let me re-ask that. Sorry. 20 So, the Hicks reference was one of the 21 materials you considered in developing your opinion, 22 right? 23 A. I believe that's one of the ones that are 24 listed on here, yes. I've got to confirm that. 25 Q. It's Exhibit 1016.

Page 57 1 A. 1016. Thank you. L. C. Hicks, yes. 2 Comparison of Methods, yes. 3 Q. Okay. 4 A. All right. 5 Q. So, if you look at the -- Page 433 of Hicks, 6 there's a discussion starting with the second full 7 paragraph regarding heat stress on an animal. 8 Do you see that? 9 A. I do. Where it says "A cow uses three primary 10 means"? 11 Q. That's right. And, so, in this paragraph, 12 would you agree it's discussing risks associated with 13 elevated body temperature in a cow? 14 A. I'm reading it right now. 15 Q. Sure. 16 (Reviewing document.) 17 A. And I've got -- sorry. This is very small 18 print and I've got my readers on, but -- 19 Q. (BY MR. HACKMAN) Yeah. 20 A. -- it is difficult to read. 21 Q. Understood. Should bring a magnifying glass. 22 A. I should have brought one, yeah. 23 MR. LANDERS: I have pulled one out at a 24 deposition before. 25 MR. HACKMAN: Yeah. I have, too, actually.	Page 59 1 line before, I want to say that it says -- I think it 2 says there is a decrease in hormone secretion. I 3 believe that the things it's talking about here are 4 related to hormones -- 5 Q. (BY MR. HACKMAN) Okay. 6 A. -- so -- 7 Q. Well, why don't we look at the -- the follow 8 paragraph -- 9 A. Okay. 10 Q. -- that starts "It has been shown that heat 11 stress predisposes cows to develop diseases, such as 12 mastitis, by increasing susceptibility to infection." 13 A. Okay. Yes, I see that. 14 Q. Yeah. So, why don't you just read this 15 paragraph and I'll ask a couple questions. 16 A. Okay. Want me to read it out loud? 17 Q. No, no, you don't need to read it out loud. 18 A. Okay. 19 (Reviewing document.) 20 A. Okay. Yes, I've read it. 21 Q. (BY MR. HACKMAN) And, so, would you agree with 22 the proposition there that body temperature -- elevated 23 body temperature can lead to adverse medical 24 consequences for a cow? 25 MR. LANDERS: Object to form.
Page 58 1 Haven't done it in a long time, but -- 2 MR. LANDERS: Interestingly, he didn't use 3 it, so might have called his bluff a little bit. 4 A. Okay. I read the paragraph. And your question 5 was it -- can you please repeat that? 6 Q. (BY MR. HACKMAN) Right. So -- so, this 7 paragraph describes some of the health risks associated 8 with elevated body temperature, right? 9 MR. LANDERS: Object to form. 10 A. I mean, it has some -- it lists some things 11 like thyroid stimulation hormone, growth hormone. I'm 12 not sure I can read -- I mean, it's tight -- tight -- 13 tiny. Is that prolactin -- so, it has some things like 14 that that -- that I'm reading here. 15 Q. (BY MR. HACKMAN) Uh-huh. 16 A. Is that what you're referring to? 17 Q. That's right, yeah. 18 A. Okay. Okay. And did I answer that question? 19 Q. Yeah, yeah. And so -- so I guess would you 20 agree with this paragraph that when a cow exhibits 21 elevated body temperature, there are health issues that 22 can be caused by that? 23 MR. LANDERS: Object to form. 24 A. So, I mean, in this paragraph, I mean, I -- I 25 can only read it for what it says and, you know, in the	Page 60 1 A. So, I -- you know, what I -- what I read here 2 is that it predisposes cows. And -- and you said it 3 leads to, so I -- and I don't know if I necessarily 4 agree with that because, I mean, a disease has to be -- 5 it would be something you would either be genetically 6 predisposed to get or you would, you know, catch it as, 7 like, a virus as -- for example, from another animal and 8 that's really -- I think what it's staying is that heat 9 stress doesn't cause that disease, but it just makes 10 it -- you know, if -- if that -- if that cow catches a 11 virus from another -- another animal, then -- then it's 12 maybe more likely to manifest faster maybe or maybe 13 manifest more fully. I'm not sure. Doesn't say that -- 14 it doesn't describe that fully. 15 So, I guess I'm saying I'm a little bit 16 confused about your question -- 17 Q. (BY MR. HACKMAN) Sure. 18 A. -- and how to relate those two together. 19 Q. Sure. Okay. I'll -- I'll -- I'll ask a 20 different question then. Does this paragraph indicated 21 (sic) that elevated body temperature makes a cow more 22 susceptible to infection? 23 MR. LANDERS: Object to form. 24 A. You know, it does -- it does say it has shown 25 that heat stress predisposes -- then I'm -- then I'm

Page 61 1 going to paraphrase -- increasing susceptibility to 2 infection and, I mean, that's -- it doesn't say what the 3 infection is necessarily. Says "such as mastitis," but 4 that's -- you know, again, infection's a broad range. 5 Q. (BY MR. HACKMAN) So, would this "increases 6 susceptibility" be the reason why a person of ordinary 7 skill in the art would want to monitor cow temperature? 8 MR. LANDERS: Object to form. 9 A. What -- you know, I think one of the -- you 10 know, one of the features of the -- the patent we're 11 discussing is it -- it monitors temperature. I mean, 12 it's a good thing to monitor. And whether it's disease 13 or not, it's a valuable -- can provide good information. 14 Q. (BY MR. HACKMAN) And prior to the patent 15 issuing -- and you're referring to the '206 patent and 16 the '515 patent -- 17 A. Yes. Yes. 18 Q. -- would the person of ordinary skill in the 19 art been -- had reason to want to continuously monitor a 20 cow's temperature? 21 MR. LANDERS: Object to form. 22 A. So, I -- so, the word -- I think "continuous" 23 is an important word in that sentence. You know, I -- I 24 don't know if that was, you know, before, like -- before 25 these implanted or external devices were available, you	Page 63 1 A. I'm sorry. It's really hard for me to read 2 this thing. 3 Q. Yeah. 4 A. I can't read that number. Patent -- what did 5 you say that was? 6 Q. Patent by -- 7 A. Oh, it's not numbers. HT -- what did you call 8 it? 9 Q. HTI Technologies. 10 A. Okay. HTI. It's a wireless transmitter in the 11 shape of a pill. Okay. I've got it. 12 Q. Okay. And if we go down a few more sentences, 13 it says "The transmitter pill can be ingested by the cow 14 or implanted." 15 Do you see that? It's about three 16 sentences after. 17 A. Yes, the transmitter pill can be ingested by 18 the cow or implanted. 19 Q. So, is this the sort of device that you're 20 referring to that would permit the continuous monitoring 21 of cow temperature? 22 MR. LANDERS: Object to form. 23 A. So, like the device referred to in the patents 24 in play here, yes, I think so. It would have an RFID 25 capability or some kind -- you know, the transmission
Page 62 1 know, you would have to make those readings manually, 2 like, with an inserted thermometer and, you know, a 3 rectal temperature. So, it's kind of gross and it's 4 hard to do and whether you want to do it continuously or 5 not, it just wasn't on the table, right? 6 Q. (BY MR. HACKMAN) Right. 7 A. So, I hope that answered your question. I hope 8 I'm answering your question that, you know, that wasn't 9 something you would consider doing before you had 10 automated options. 11 Q. So, in your opinion, there were not options 12 available prior to the patent being filed that permitted 13 the continuous monitoring of temperature of a cow. 14 MR. LANDERS: Object to form. 15 A. Well, I didn't study that specifically, but 16 right now sitting here, I can't think of anything. I 17 just mentioned, like, a -- like, a rectal temperature 18 would be the most reliable with classic means to -- to 19 collect a temperature. 20 Q. (BY MR. HACKMAN) So, this particular article, 21 Exhibit 1016, Hicks, on Page 432, it describes in the 22 second paragraph the CorTemp sensor, patented by HTI 23 Technologies, is a wireless transmitter in the shape of 24 a pill. 25 You see that?	Page 64 1 capability, it says here, and it's ingested or implanted 2 within. 3 Q. (BY MR. HACKMAN) Okay. All right. I just 4 want to ask one more question. 5 A. But I do -- I do want to qualify that I'm not 6 familiar with that CorTemp, but, you know, this is -- 7 just from this reference, I'm -- I'm not familiar with 8 that sensor. 9 Q. Understood. Okay. You can set that aside. 10 I'm going to pull -- bear with me for a second. 11 Okay. I'm going to pull out -- this is 12 Exhibit 1014. 13 MR. LANDERS: Thank you. 14 MR. HACKMAN: Uh-huh. 15 A. Thank you, sir. 16 Q. (BY MR. HACKMAN) Dr. Bowser, was this a 17 reference that you considered in preparing your 18 declaration? 19 A. Yeah. I'm looking at that right now. 20 (Reviewing document.) 21 A. Yeah. It's Exhibit 1014? 22 Q. (BY MR. HACKMAN) That's right. 23 (Pausing.) 24 Q. (BY MR. HACKMAN) Oh, you ready? 25 A. Yeah.

Page 65 1 Q. Oh. 2 A. I'm waiting for you. 3 Q. Yeah. So, if we go to Page 6 of this 4 reference -- 5 A. Okay. 6 Q. -- there at the top of the page -- 7 A. Just -- this is -- 8 Q. Yeah, yeah, that number. 9 A. Okay. 10 Q. If you go to Page 6. I know it's confusing 11 because it has different exhibit -- so, we'll do the six 12 at the top of the page so it's clear on the record. 13 A. Okay. 14 Q. And we go to Paragraph 70 -- why don't you just 15 read that paragraph to yourself and then I'll ask some 16 questions about it. 17 A. Okay. 18 (Reviewing document.) 19 A. Okay. Yes, I've read it. 20 Q. (BY MR. HACKMAN) All right. And, so, I think 21 it's the last sentence of that paragraph. It says, "For 22 example, a number of suitable temperature sensing 23 devices are known in the art, including, but not limited 24 to the Cattle Temperature RFID bolus from Phase IV 25 Engineering in Boulder, Colorado, the MAGIIX Bolus, Post	Page 67 1 your opinion then that it needs to be -- have some sort 2 of approval. Is that reasonable? 3 MR. LANDERS: Object to form. 4 A. So, I'm speaking from the viewpoint of a POSA 5 who would, you know, want -- want to use this 6 information, use the device. And, you know, when a POSA 7 discovered that, you know, it was not accepted in the 8 country, the locality he was -- he or she was in, you 9 know, that's off the table, right -- it's not something 10 they would consider -- and that's -- that's the 11 viewpoint that I'm looking at. 12 Q. (BY MR. HACKMAN) Okay. 13 A. And beyond that, too, I mean, maybe it's not 14 available to purchase or, you know, it's a really 15 untested item that you just don't know about, you don't 16 know how -- if you had that reasonable chance of 17 success. 18 Q. Understood. So, you said "reasonable chance of 19 success." So, it's your opinion then for something to 20 have a reasonable chance of success, it would need to 21 have regulatory approval. Is that reasonable? 22 MR. LANDERS: Object to form. 23 A. Well, so, we're talking about on a commercial 24 dairy farm and you have to have -- I mean, by law, you'd 25 have to have something that you could -- you -- you
Page 66 1 Falls, Idaho, and the BIOTHERM device from Digital Angel 2 Corp, St. Paul, Minnesota." 3 Do you see that? 4 A. Yes, sir, I do. 5 Q. So, do you agree that this is saying that there 6 are examples of implantable temperature devices that 7 were available at the time that this patent published? 8 MR. LANDERS: Object to form. 9 A. Okay. So, it certainly says there are 10 temperature sensing devices, but it doesn't say anything 11 about availability. Can you help me with that? Is that 12 something -- I don't -- I'm not reading that here. 13 Q. (BY MR. HACKMAN) Okay. So, let's expand that. 14 So, your opinion is there's not evidence 15 here that these were commercially available? 16 A. Well, even past that, I mean, maybe evidence 17 they were commercially feasible or produced. Like, you 18 know, Trevarthen described similar sensors that -- that 19 he would like to use, but they weren't accepted, they 20 weren't approved for use in cattle. So, that's an 21 important issue, I think. 22 Q. Okay. You said "weren't accepted or approved 23 for use in cattle," right? 24 A. Yes. 25 Q. For something to be available in the art, it's	Page 68 1 could use, right? So, there's -- there's regulations, 2 so you have to be able to meet those. So, yes, you -- 3 you really couldn't consider something that wasn't 4 approved for use. And that -- Trevarthen, he explains 5 that very well in his thesis. 6 Q. (BY MR. HACKMAN) Okay. Come back to a 7 little -- a topic we were talking about, body 8 temperature, before. So, would a POSA have understood 9 that elevated body temperature could be a sign of estrus 10 in a cow? 11 MR. LANDERS: Object to form. 12 A. I mean -- I mean, there's so many built-in 13 things, right, there? You know, so -- so, the answer is 14 it could be, right? I mean, we obviously have to be 15 looking at a female, right? So, there's so many things 16 that we have to line up there, but -- so -- so the 17 answer is, yes, but it depends. 18 Q. (BY MR. HACKMAN) Okay. It depends. So, 19 would -- in order to determine whether a cow is in 20 estrus, a female cow, elevated temperature would be one 21 potential sign, right? 22 MR. LANDERS: Object to form. 23 A. I mean, it could be. So, you start looking at 24 the -- you know, some of the patent literature and some 25 of the -- some of this in -- in this case and there's

Page 69 1 lots of different ways to do that. And, you know, the 2 one patent -- is it the -- the Liao patent -- I'm 3 probably not pronouncing that right -- you know, they 4 looked at a -- some sort of a neural network, some kind 5 of a predictive model to do that because it's a very -- 6 as they described it in there, a very difficult 7 condition to predict or to just -- you know, for -- for 8 a neophyte or someone who is not with those cows, you 9 know, milking them every day for months, they don't -- 10 or years, they don't have that background and couldn't 11 pick that out. 12 So, I think there's a lot of nuances that 13 it -- exists in determining whether an animal is in 14 heat. 15 Q. (BY MR. HACKMAN) So, it sounds like a POSA 16 would need to consider several factors in order to 17 determine whether a cow is in heat. 18 A. Yeah. And with those several factors, you 19 still wouldn't know for sure. I mean, like I said, 20 you -- that particular patent described looking at the 21 farmer, the expert farmer, who's familiar with those 22 cows and has that day-to-day understanding. And I would 23 also like to believe in that patent that that might be 24 different for different breeds, different locations, 25 different management techniques. So, there's -- all	Page 71 1 in this -- in this expression, right? 2 MR. LANDERS: Object to form. 3 A. Yeah. So, you know, right away you're -- 4 you're applying an expression. So, I don't know -- I 5 don't know what that is. I'll just mention to you that 6 in the patent literature we just referenced, Liao, if 7 I'm pronouncing that correctly -- L- -- L-i-a-o, I 8 believe it is -- 9 Q. (BY MR. HACKMAN) Uh-huh. 10 A. -- you know, they -- they weren't -- you know, 11 they -- they didn't have an expression. They had a 12 neural network. They had some kind of an intelligent -- 13 artificial intelligence they were trying to apply. 14 So, you know, I -- there's acknowledgment 15 that you really can't -- or they don't have or didn't 16 have access to an expression. 17 Q. Okay. 18 A. And that's just in the -- in the standard 19 mathematical kind of functions. I'm not talking 20 about -- I mean, they're seeking to do some kind of 21 solution with neural networks. 22 Q. Got it. All right. Let me mark another 23 exhibit. 24 (Pausing.) 25 MR. HACKMAN: Oh, having a panic attack
Page 70 1 that has to be taken into account. 2 Q. So, this leads to another question I have. So, 3 it sounds like there -- there are several variables you 4 have to consider when you're examining an animal to 5 determine their health status. Is that reasonable? 6 MR. LANDERS: Object to form. 7 A. Yeah. I mean, that's very, like, unspecified, 8 "several variables," but there -- there's -- there's -- 9 for sure, there's more than one variable. 10 Q. (BY MR. HACKMAN) Sure. Okay. Let's -- let's 11 stick with estrus now. Let's start with this specific 12 example. So, you said that there's several things that 13 you would need to -- that the POSA would need to examine 14 to determine whether a cow is in estrus, right? 15 A. Yes, I did. 16 Q. Okay. And, so, would you say if you were 17 developing -- sorry. Let me start that -- a person of 18 ordinary skill in the art is developing an expression in 19 order to -- to diagnose whether an animal may have a 20 particular -- may be in estrus, let's say -- let me 21 restart it. 22 So, if a -- a POSA was designing -- a 23 person of ordinary skill in the art was designing an 24 expression to determine whether a cow was in estrus, 25 they would want to include several different variables	Page 72 1 because I'm not seeing the patents and they're already 2 out. 3 Q. (BY MR. HACKMAN) Okay. No, I'm not going 4 to -- all right. Okay. So, this is Exhibit 1001 in 5 IPR2024-00875 and this is the -- the U.S. Patent 6 9,844,206. 7 A. Wow. 8 Q. Okay. So, Dr. Bowser, you're familiar with the 9 '206 patent from preparing your declaration; is that 10 right? 11 A. Yes. Yes, I am. 12 Q. So, I'd like us to go to Claim 1. It's on 13 Column 18 of the '206 patent. 14 A. Okay. Column 18, Page 24? 15 Q. Yes. 16 A. Got it. 17 Q. Is it Page 20 -- yes, that's right. And if we 18 go down to -- to Claim 1, that starts at Line 22. Do 19 you see that? 20 A. I do, sir. 21 Q. And then if we go down further in Column 18 to 22 Line 36 -- do you see where I am -- it starts "enter 23 said sensed animal information retrieved from said RFID 24 device and said animal information stored in said 25 database as logical variables into at least one logical

Page 73 1 expression." 2 Do you see that? 3 A. Yes, I do. Yes. 4 Q. Okay. And we were just talking about an 5 expression and you'd mentioned what is and what isn't an 6 expression. Is that a reasonable characterization? 7 MR. LANDERS: Object to form. 8 A. I wasn't making a definition of expression. I 9 was just talking about, you know, the example in that 10 patent and, you know, the -- trying to answer your 11 question as best -- best I could. 12 Q. (BY MR. HACKMAN) Understood. So, let's 13 discuss what logical expression means in this claim. 14 So, what is your understanding of what this logical 15 expression would include? 16 MR. LANDERS: Object to form. 17 A. Okay. I -- I didn't really -- I didn't -- I 18 wasn't tasked with defining logical expression, so I -- 19 you know, I didn't -- that wasn't one of my requests 20 here for my reports, but -- but I -- you know, but I -- 21 I would just use a simple definition that a POSA would 22 use, and I take that to mean a mathematical expression. 23 Q. (BY MR. HACKMAN) Okay. So, a mathematical 24 expression meaning -- 25 A. Okay. Let me -- let me -- so -- so logic can	Page 75 1 Q. -- but I want to go to Paragraph 30 of your 2 declaration for the 875 proceeding. 3 MR. LANDERS: Is that the '206 patent? 4 MR. HACKMAN: The '206 patent, yeah. 5 A. And then Paragraph 30, you said? 6 Q. (BY MR. HACKMAN) Yeah, Paragraph 30. 7 A. Okay. 8 Q. So, read through that. Let me know when you're 9 ready. 10 A. I have Paragraph 30 and I'm on Page 22, Columns 11 13 and 14, the -- 12 Q. Okay. We'll do one at a time so we're -- 13 we're -- we're clear. 14 A. Okay. 15 Q. So, in Column 30 -- 16 A. Column 30? You mean -- 17 Q. I'm sorry. Paragraph 30. I'm -- I apologize. 18 At the very bottom of Page 13, you write about -- I'm 19 sorry. It's sort of the middle of this paragraph. I 20 apologize. 21 A. Okay. 22 Q. So, it says "After being retrieved, the sensed 23 animal information is integrated into a logical 24 expression with additional information stored in the -- 25 in a database," right?
Page 74 1 be, I guess, a "and" or "or" and I'm -- I'm going to, 2 you know, group that all together; but, again, I didn't 3 do this -- I didn't set forth a definition. I'm just -- 4 just off the cuff right here. 5 Q. Okay. But you -- you did analyze whether the 6 prior art rendered Claim 1 anticipated or obvious, 7 right? 8 A. Yes, like -- like Trevvarthen. He didn't have 9 an expression, right, so he didn't even include that. 10 So, that would be one I wouldn't even -- I didn't go 11 further than that. I didn't see an expression, so that 12 would -- that would be as far as I'd go. 13 Q. And -- and so -- okay. Let's go -- let's go 14 to -- same exhibit -- 15 A. Okay. 16 Q. -- Column 14. All right. And I -- bear with 17 me just a second here. 18 Okay. So, actually, also, you have your 19 declaration? Sorry. I'm going to -- 20 A. That's okay. 21 Q. -- do two. 22 A. Yes. 23 Q. Keep that -- keep that open to the page that 24 we're at -- 25 A. Yes, sir.	Page 76 1 A. Yes. I see that. 2 Q. And then I'll -- I'll continue to read. "In 3 most of the claims, the additional information from the 4 database must include an amount of milk production or 5 number of days in milk. See, for example, Claim 1. The 6 logical expression is then solved to provide alerts to 7 farmers that are specific to the animals in their herd, 8 including alerts that signal when a cow is ill." 9 Do you see that? 10 A. Yes, I do see that. 11 Q. And, so, you cite to this passage of Exhibit 12 1001, which is the '206 patent. Is that the example 13 that you're providing for the patent's logical 14 expression? 15 MR. LANDERS: Object to form. 16 A. So, you're asking if the Citation 14, 4 through 17 63, is -- that's -- that's what you're asking about 18 that, that particular citation right there? 19 Q. (BY MR. HACKMAN) Right. 20 A. And you're asking if that is the citation to 21 the logical expression? 22 Q. In the '206 patent. 23 A. Have to read that. 24 Q. Go ahead. 25 (Reviewing document.)

Page 77 1 A. Okay. 2 Q. (BY MR. HACKMAN) Okay. 3 A. Yeah, that's -- that's it for sure. 4 Q. Okay. So, this is a logical expression; is 5 that right? 6 MR. LANDERS: Object to form. 7 Q. (BY MR. HACKMAN) I'm going to re-ask it. 8 That's going to be unclear on the record. 9 So, the -- the -- Column 14, Lines 4 10 through 63, is an example of the logical expression of 11 Claim 1 of the '206 patent; is that correct? 12 MR. LANDERS: Object to form. 13 A. Yeah. So, this is mainly relating to the 14 alert, the alert function. 15 Q. (BY MR. HACKMAN) Okay. And can an alert 16 function be a logical expression of Claim 1? 17 A. An alert can be a -- a -- an action taken based 18 on a logical expression. 19 Q. Okay. And -- and the logical expression here 20 involves temperature, right? 21 MR. LANDERS: Object to form. 22 A. You're talking about here in Paragraph 30 or on 23 the patent in Column 14? 24 Q. (BY MR. HACKMAN) Column 14, Lines 4 through 25 63 --	Page 79 1 and compared to the corresponding threshold range and it 2 can be the basis for populating an alert." 3 Q. (BY MR. HACKMAN) So, the way this particular 4 alert function works, would you agree that it 5 establishes a mean based on several temperature 6 readings? 7 MR. LANDERS: Object to form. 8 A. Well, this is just an example, right, of an 9 alert? I guess, you know, Figure 9, would be fair to 10 look at that figure. 11 Q. (BY MR. HACKMAN) Okay. Let's go to Figure 9 12 of the '206 patent. 13 A. Uh-huh. Yeah, and it shows an averaging 14 function there in 135a; a deviation algorithm function, 15 135a also; and then a high threshold established, 143, 16 and for the low threshold established, then the -- the 17 threshold function, just like we were talking about, and 18 then it becomes an alert there on Item 75. 19 So, that's -- yeah, that shows clearly the 20 example of using temperature and comparing temperatures 21 to generate an alert. 22 Q. And this figure that you just described or the 23 portion of the figure -- 24 A. Yes. 25 Q. -- is a representation of the logical
Page 78 1 A. Yeah. Okay. Okay. 2 Q. -- the logical expression relates to 3 temperature, right? 4 A. Yeah. The example they're talking about 5 relates to temperature. 6 Q. And temperature's the only input, right? 7 MR. LANDERS: Object to form. 8 A. Okay. Says "on sensed RFID object 9 characteristic." So, that would -- that could 10 include -- would include more than temperature, but 11 temperature would be included. 12 Q. (BY MR. HACKMAN) What else would the sensed 13 RFID characteristic include? 14 MR. LANDERS: Object to form. 15 A. So, it could include the identification number, 16 could include other information. 17 Q. (BY MR. HACKMAN) Okay. What -- what other 18 information would it include? 19 MR. LANDERS: Object to form. 20 A. These are just examples. It doesn't list 21 something specific. Does say "temperature," like you 22 said above, in -- on Line -- Line 8, but it also says 23 "The invention is not so limited that any sensed RFID 24 object characteristic for which RFID object 25 characteristic -- characteristic value can be generated	Page 80 1 expression? 2 MR. LANDERS: Object to form. 3 A. That's the best of my understanding. It 4 represents a logical expression. Shows -- there's an 5 algorithm function right here in 146, an averaging 6 function on 145. Those, in my opinion, are definitely 7 logical expressions and then it continues with the high 8 and low threshold and threshold function. Could all be 9 considered, I believe, a logical expression. 10 Q. (BY MR. HACKMAN) Okay. Dr. Bowser, I'm going 11 to -- I can mark another exhibit or if you want to take 12 a break, we can start off with that after the break. 13 Your -- your choice. 14 A. How much time do you think you'll take? 15 Q. This one may take a little while. 16 A. Oh, okay. Let's take a break then. 17 Q. All right. 18 A. Yeah. Thanks for offering. Appreciate that. 19 Q. No problem. 20 (Recess from 11:12 a.m. to 11:26 a.m.) 21 Q. (BY MR. HACKMAN) All right. So, we have 22 Exhibit 2005 (sic) in both proceedings. 23 MR. LANDERS: Are you saying he can set 24 this aside? Sorry. 25 MR. HACKMAN: Set it aside for now, yeah.

Page 81 1 Yeah. We might come back to that, but -- 2 Q. (BY MR. HACKMAN) Exhibit 2005 (sic) in both 3 proceedings. Dr. Bowser, so this is the Trevarthen 4 thesis and, Dr. Bowser, this is one of the references 5 that you considered as part of your declaration, right? 6 A. Let me look at it here quickly. 7 Q. Of course. 8 (Reviewing document.) 9 A. Yes, I recognize this as the Trevarthen -- 10 Trevarthen thesis. 11 Q. (BY MR. HACKMAN) Can you please turn to Page 12 109 of Trevarthen? 13 A. Yes, sir. I have it, Page 109. 14 MR. LANDERS: Were we using his numbers or 15 the exhibit -- 16 MR. HACKMAN: Oh, sorry. Yeah. So, this 17 is the Trevarthen reference -- the original reference's 18 page numbering -- sorry -- not the exhibit numbering. 19 Apologies. 20 A. So, 109, original reference number. 21 Q. (BY MR. HACKMAN) Yes. 22 A. Okay. Chapter 6. 23 Q. That's right. 24 A. Yes. 25 Q. And, so, if you could go down to the last	Page 83 1 utilized in calculating the amount of feed to provide 2 for each cow. So, he's using these milk meters in 3 conjunction with a decision to provide a certain amount 4 of feed. That's -- that's what I read here. 5 Q. (BY MR. HACKMAN) Okay. All right. And -- so, 6 would you consider this to be a logical expression for 7 determining feed? 8 MR. LANDERS: Object to form. Sorry. 9 THE WITNESS: Oh, no -- no problem. 10 A. I am -- if you can show me a logical expression 11 here, I'd love -- I would like to see that. I -- I 12 don't -- I mean, I don't see one. 13 Q. (BY MR. HACKMAN) Okay. So -- so, there -- 14 would you agree that they're averaging a milk production 15 value by entering several different milk volumes and 16 determining the average of those? Is that right? 17 MR. LANDERS: Object to form. 18 A. Well, it said that -- that using milk meters 19 will allow an average milk production. He -- he's not 20 describing how that's calculated or how it's obtained. 21 Q. (BY MR. HACKMAN) Would a person of ordinary 22 skill in the art know how to calculate an average milk 23 production value? 24 MR. LANDERS: Object to form. 25 A. So, the question is would a POSA know how to --
Page 82 1 paragraph of this page starting "Utilising milk meters." 2 Why don't you just read that to yourself -- 3 A. Okay. 4 Q. -- and then I'll ask some questions. 5 (Reviewing document.) 6 Q. (BY MR. HACKMAN) Let me know when you're 7 ready. 8 A. I'm just about ready. I'm just getting a -- 9 kind of a -- making sure I know where this is overall in 10 the thesis. Just check the table of contents. I did 11 read the paragraph and I see this -- this Total Farm 12 Management chapter, kind of just hypothetical system 13 that he doesn't define. Okay. 14 MR. HACKMAN: I'm going to strike the last 15 comment as nonresponsive. 16 A. Okay. 17 Q. (BY MR. HACKMAN) So, in this paragraph it 18 describes determining an average milk production value 19 from milk readings over a period of time. Is that 20 reasonable characterization? 21 MR. LANDERS: Object to the 22 characterization and form. 23 A. Yeah. Says here that he's utilizing -- you 24 know, he's hypothesizing the use of milk meters to allow 25 an average milk production value to be derived and	Page 84 1 how to calculate an average milk production value? Yes, 2 I think they would. 3 Q. (BY MR. HACKMAN) Okay. And would you be able 4 to compare an average milk production value with a 5 specific value that's obtained? 6 MR. LANDERS: Object to form. 7 A. Oh, okay. So -- 8 Q. (BY MR. HACKMAN) Actually, I'm going re-ask 9 it. 10 So, would a person of ordinary skill in the 11 art be able to take the average milk production value 12 that they've calculated and do a comparison with a 13 specific milk production value? 14 MR. LANDERS: Object to form. 15 A. So, this is outside of the scope of Trevarthen? 16 Are you asking me about specifically to this paragraph? 17 Q. (BY MR. HACKMAN) The POSA's understanding 18 about how to -- to deal with averages, yeah. 19 A. So, outside of Trevarthen, not -- not 20 discussing this hypothetical -- 21 Q. We'll -- sure. We'll discuss it first in the 22 hypothetical, sure. 23 A. Okay. So, are we discussing the -- I'm sorry. 24 I don't mean to be picky. Are we discussing 25 Trevarthen's hypothetically or are we discussing

Page 85 1 hypothetically what a -- a POSA -- 2 Q. Well, let's talk about hypothetically what a 3 POSA would do. So, they have this average value. Let's 4 say they -- they calculate an average value that's the 5 way that Trevarthen says you can calculate an average 6 value, and then they do a next step, which is to take 7 that average value and compare it with specific milk 8 measurement. 9 A. And, so, you -- you're asking -- 10 MR. LANDERS: Hold on. Is there a question 11 pending? 12 A. Yeah. That was my question. 13 Q. (BY MR. HACKMAN) Okay. 14 A. You're asking me -- 15 Q. All right. So, let me back up. 16 So, you agree here that a POSA could follow 17 what Trevarthen's example is here and calculate a milk 18 production -- an average milk production value from 19 multiple milk production readings; is that right? 20 MR. LANDERS: Object to form. 21 A. I mean, so, a POSA would -- would look at this 22 and -- and -- I -- you know, I don't know -- since this 23 is a hypothetical situation, there's -- there's no 24 physical milk meters, right, there's no system that's 25 set up to read the milk meters, input data, things like	Page 87 1 each individual cow; is that right? 2 MR. LANDERS: Object to form and scope. 3 A. Not necessarily. So, in many instances 4 where -- you know, meters are expensive, so you might 5 have a meter which would measure the collective milk 6 produced by, you know, a herd. That would be very 7 common, I think. 8 Q. (BY MR. HACKMAN) Okay. Understood. So, there 9 were meters that would only measure the milk volume of 10 several cattle. Is that what you -- what you're saying? 11 MR. LANDERS: Object to form and scope. 12 A. Yeah. Like I said, there's no real discussion 13 in here, what these meters are and how they're arranged. 14 That's what I was saying. So, a milk meter could be 15 just a single meter measuring the collective milk 16 produced by the cattle, but you just can't tell. I 17 mean, it's -- it's speculation. I don't want to do 18 that, but -- because there's no -- there's not enough 19 information here. Again, it's very hypothetical, so I 20 don't know. 21 Q. (BY MR. HACKMAN) So, would a -- a POSA have 22 been aware of examples of milk meters that measured the 23 volume of milk produced by an individual cow in a single 24 milking? 25 MR. LANDERS: Object to form and scope.
Page 86 1 that. This is -- it's not described. 2 So, you know, if I was a -- I am a POSA, I 3 would want to know more about this system, how -- what 4 it really is and if it is a system. You know, it seems 5 like there's not enough information here to -- like I 6 was saying, to determine how this -- any of this 7 information is handled and where it comes from. 8 Q. (BY MR. HACKMAN) Okay. All right. We'll 9 start -- we'll take -- take one thing here. 10 A. Okay. 11 Q. Okay. So, were milk meters known at the time 12 of the Trevarthen thesis, let's say, 2005? Were milk 13 meters a technology that was available in 2005? 14 MR. LANDERS: Object to form. 15 A. Yeah, certainly milk meters were available to 16 purchase. 17 Q. (BY MR. HACKMAN) And could those milk meters 18 determine the volume of milk produced? 19 MR. LANDERS: Object to form and scope. 20 A. So, again, it doesn't specify a particular milk 21 meter in here. There's no -- there's no -- no, you 22 know, definition or there's no description of it. But 23 that's what meters do, they measure -- they can measure 24 volume or flow. 25 Q. (BY MR. HACKMAN) And they measure volume for	Page 88 1 A. Yeah. So, you're asking me whether a POSA's 2 aware about -- I believe they would be aware of that 3 meters exist and you can use them in different ways for 4 certain. 5 Q. (BY MR. HACKMAN) Okay. 6 A. But, again, using them in this context is 7 not -- there's no real -- there's not enough flesh here 8 on the bone, so to speak, to understand how they're 9 being used. 10 Q. So, you're saying that a POSA looking at 11 Trevarthen would not have understood how to calculate 12 the average milk production value over ten milking 13 sessions of a cow? 14 MR. LANDERS: Object to form. 15 A. No. That -- I didn't say that. I was saying 16 that a POSA wouldn't know how this equipment is arranged 17 and -- and, you know, like I mentioned, if it's just a 18 single meter, it wouldn't be useful for a single cow, 19 the data, and it doesn't give you enough background to 20 know how these things are set up. 21 Q. (BY MR. HACKMAN) I mean, would a -- would a 22 POSA be incapable of setting up a system that could 23 collect this milk production value information? 24 A. No, I'm not -- 25 MR. LANDERS: Object to form.

Page 89 1 A. Okay. Yeah, I'm not saying that. I'm just 2 saying that a POSA didn't design this, didn't write this 3 thesis. He's just reading it, he or she, and you have 4 to look at it and say, well, you know, what -- what do 5 we have here, what -- what's available, and it's just 6 not much. 7 Q. (BY MR. HACKMAN) So, we're working the 8 hypothetical then. 9 A. Right. Right, exactly. 10 Q. So -- so, a POSA follows -- or -- or designs a 11 system that permits them to determine the average milk 12 production value over ten milkings, is that -- let's use 13 that hypothetical. So, under that hypothetical, would 14 the POSA be able to compare the milk volume from a 15 single volume -- single milking to that average value? 16 MR. LANDERS: Object to form. 17 A. So, you're asking me if a POSA could set up a 18 system that would measure milk for an individual cow and 19 compare it to an average for that individual cow over a 20 period of time? 21 Q. (BY MR. HACKMAN) Correct. 22 A. Yeah. I -- I don't see why they couldn't do 23 that. I didn't analyze that, but I'm not -- you know, 24 I'm not saying that's out of the realm of possibility. 25 Q. And could a deviation in the milk production	Page 91 1 cup slipped off the teat or, like I said, a -- there was 2 a spill, I mean, there's a -- an error in the 3 instrument, it was clogged, things like that. So, 4 there's other options, too. 5 Q. (BY MR. HACKMAN) I don't think that was my 6 question though. My question is whether the 7 significantly lower milk volume could be an indicator of 8 illness. Could it be an indicator of illness? 9 A. Yeah. I said it depends on, you know, what -- 10 what caused the significantly lower reading. So, if 11 it's caused by an illness, you're saying it was an 12 illness. So, there's no real question there, I don't 13 think. 14 Q. Okay. So -- so, significantly lower milk 15 volume than average can be a -- can be an indicator of 16 illness, right? 17 MR. LANDERS: Objection. Asked and 18 answered. 19 A. Yeah. Like I said, it depends, and that's -- 20 that was my answer, and I gave you some things it 21 depended on. 22 Q. (BY MR. HACKMAN) Can we go to Page 115 of 23 Trevarthen, Trevarthen's original numbering? 24 A. Page 114? 25 Q. 115.
Page 90 1 value for a single milking -- sorry. Let me start 2 again. 3 So, if the volume of a single milking 4 deviates significantly from the average value that had 5 been calculated, would that tell a POSA anything about 6 the health status of that cow? 7 MR. LANDERS: Object to form. 8 A. Okay. So, now just another -- I guess this is 9 a different situation versus in this hypothetical system 10 perhaps the POSA finds a reading that's out of normal, 11 out of spec. And, so, you know, it could mean a number 12 of things. It depends on -- on what you have. So, it 13 could mean that the meter was clogged or there was a -- 14 you know, a spill. Those are things you would be 15 indicating to check to get further information. 16 Q. (BY MR. HACKMAN) Could the -- could the 17 significantly -- let me back up. 18 So, for example, if the milk production 19 value of a single milking is significantly below that of 20 the average milk production, could that be an indicator 21 that the cow is ill? 22 A. Like I said -- 23 MR. LANDERS: Object to form. 24 A. Like I said earlier, it depends. Like, the -- 25 it could be, like I mentioned, a teat slipped off -- the	Page 92 1 A. 115. Okay. I have it. 2 Q. And take a moment and read the paragraph at the 3 top of that page. 4 A. Okay. 5 Q. Just through the -- just Section 3 -- 6355. 6 A. Okay. 7 (Reviewing document.) 8 A. Okay. I've read it. 9 Q. (BY MR. HACKMAN) So, you see the sentence in 10 here where it says, "For example, if a cow provides 11 significantly lower amount of milk than their usual 12 output, the system will be able to identify this 13 disparity and alert the operators to check this cow when 14 milking has completed." 15 Do you see that sentence? 16 A. I do, yes. 17 Q. So, do you understand this sentence to be 18 saying that Trevarthen's proposed system would include 19 an indicator of potential illness if the milk it output 20 is significantly lower than the average milk output? 21 MR. LANDERS: Object to the 22 characterization of the text. 23 A. Okay. That -- I'm sorry. That was a lot of 24 words for me to digest there -- 25 Q. (BY MR. HACKMAN) Sure.

Page 93 1 A. -- and -- but, you know, in general, what I'm 2 seeing here is, again, another hypothetical situation 3 that Mr. Trevarthen has written about, but it has, like, 4 no -- I'm going to say meat on the bones. He talks 5 about an alert. You know, what is that, you know, or 6 how is that done? It talks about disparity. I mean -- 7 I mean, I'm not sure exactly what that is. He doesn't 8 define these things. 9 He does say "significantly lower amount of 10 milk than their usual output." Now, that's -- I think I 11 follow that, but the rest of it is just hard to put 12 together. It's not well organized. 13 Q. How do you think a POSA would -- actually, 14 strike that. 15 So, would you understand Trevarthen here to 16 be saying that milk production can be used as an 17 indicator of illness? 18 MR. LANDERS: Objection. Asked and 19 answered. 20 A. Yeah. I -- I said earlier it depends. And, 21 you know, I think a POSA would look at this and he 22 would -- he would -- he or she would read the entire 23 thesis. And, you know, there's these different sections 24 in this thesis. This section is about, you know, a -- 25 some kind of hypothetical system that's used for -- and	Page 95 1 MR. LANDERS: Object to form. 2 A. Okay. I'm -- I need to find out what these 3 injuries are to be more specific. I'm not sure -- can 4 you point out where they are? I'm not -- I'm not 5 finding them here. 6 Q. (BY MR. HACKMAN) Well, just from the 7 perspective of a POSA -- 8 A. Okay. 9 Q. -- would a POSA understand that injuries can 10 potentially impact milk production? 11 A. Okay. 12 MR. LANDERS: Object to form. 13 A. From a perspective of a POSA, I'd want to know 14 what those injuries were before I provided an answer. 15 Q. (BY MR. HACKMAN) Ask it a little bit 16 differently. 17 So, if a POSA observed a lower than 18 expected milk production in a cow, would the POSA have 19 been motivated to investigate what the cause of that 20 lower milk production is? 21 MR. LANDERS: Objection. Form. 22 A. I think I would say not always, but, in 23 general, they would. And, you know, that -- that's a -- 24 that's a very -- it's an economic need for the -- for 25 the herd, for the farmer.
Page 94 1 I can't remember how he says it -- the -- you know, it's 2 farm management basically, but -- but you'd see these 3 different components that seem to be -- are -- that's -- 4 you know, they're kind of spread out. They're not 5 connected. There's not really a -- a full system. 6 They -- a POSA would just look at this and 7 say, "Well, these are just pieces and parts, but there's 8 no integration, it's not cohesive, and you know, how -- 9 how does this all work together?" 10 That's what I would see my initial reading. 11 MR. HACKMAN: I strike as nonresponsive. 12 MR. LANDERS: I object to that strike. 13 Q. (BY MR. HACKMAN) Okay. So, let me go one 14 more. Okay. Let's go to Page 124, Trevarthen's Page 15 124? 16 A. Okay. I have it. 17 Q. So, towards the bottom in the last paragraph, 18 says, "Similarly, if any injuries are sustained to a 19 cow, this may impact their milk production also," 20 parentheses, "permanently or temporarily," close 21 parentheses. 22 Do you see that sentence? 23 A. I do, yes, sir. 24 Q. So, would a POSA understand that injuries to a 25 cow could be a cause of change to milk production?	Page 96 1 Q. (BY MR. HACKMAN) So, just generally -- so, 2 outside of specifically Trevarthen -- 3 A. Uh-huh. 4 Q. -- was it understood in the literature that 5 milk production could be used as an indicator of 6 illness? 7 MR. LANDERS: Objection. Asked and 8 answered. 9 A. Yeah. I -- again, it depends and got -- got to 10 know more information about the illness and the specific 11 animal and situation. 12 Q. (BY MR. HACKMAN) Okay. Was it understood that 13 infection could be a cause of reduced milk production in 14 a cow? 15 MR. LANDERS: Object to form. 16 A. You know, again, there's different types of 17 infections and, you know, it -- it depends on what that 18 infection is. 19 Q. (BY MR. HACKMAN) Okay. Was it understood that 20 mastitis could be a cause of reduced milk production? 21 MR. LANDERS: Object to form. 22 A. Yeah. I mean, mastitis is a, you know, 23 infection of the -- of the -- the glands that produce 24 the milk and it can affect, but -- it doesn't 25 necessarily have to reduce milk production, but it -- it

Page 97 1 definitely can have a -- may have an impact. And -- and 2 that -- that varies depending on the cow and the time of 3 the -- how long it's been infected, things like that. 4 You know, that -- there's other factors involved. 5 Q. (BY MR. HACKMAN) Is it understood in the art 6 that heat stress could be a cause of reduced milk 7 production? 8 A. Yeah. Again, heat stress could be one of the 9 causes, just like mastitis could be, just like -- it 10 could be like I mentioned earlier, a clogged sensor or a 11 slipped cup, collection cup. There's many different 12 possibilities. 13 Q. Was it understood in the art that estrus could 14 be a sign of reduced milk production? 15 A. You know, again, these things are potentially 16 signs. 17 Q. And, so, when you've got a sign of reduced milk 18 production -- let me start again. 19 If a POSA receives an indicator of reduced 20 milk production, would that POSA have been motivated to 21 collect additional information to determine what the 22 cause of that reduced milk production is? 23 MR. LANDERS: Object to form. 24 A. Again, that's a -- a very general question. I 25 think the POSA, you know, overall would be interested in	Page 99 1 would want to investigate all the possibilities. 2 Q. (BY MR. HACKMAN) And would one of the 3 possibilities include investigating the cow's body 4 temperature? 5 MR. LANDERS: Object to form. 6 A. Yeah. I mentioned earlier some of the 7 possibilities are -- you know, definitely include 8 looking at the temperature of the cow. 9 Q. (BY MR. HACKMAN) So, I think -- actually, I'll 10 come back to this. Sorry. 11 All right. I'm going to mark a new 12 exhibit. Sorry. All right. This is Exhibit 100 -- 13 sorry. This is Exhibit 1033 in both proceedings. 14 Dr. Bowser, are you familiar with this 15 exhibit? 16 A. Oh, the de Mol exhibit? I know there's two 17 references by de Mol that I looked at. I recall that. 18 Let's see. Make sure this is one of them. 19 1032 or 1033. This looks like it's 1033. 20 Q. Yes. 21 A. Okay. Yes, sir. 22 Q. So, you're -- you're -- you recall considering 23 the de Mol exhibit as part of your preparation for the 24 declaration? 25 A. Yes. I recall this is one that
Page 98 1 investigating, but the POSA already might know the 2 cause. They have a -- you know, there's a recurring 3 issue or there's something he's aware of or she's aware 4 of, so they don't have to follow up. I mean, that can 5 occur also. 6 Q. (BY MR. HACKMAN) Let's use the example of 7 where the -- the POSA, the person of ordinary skill in 8 the art -- just to clarify for the record, when we say 9 "POSA," it's person of ordinary skill in the art. 10 So, let's use the example the -- the POSA 11 doesn't know the diagnosis, okay? Do you -- do you 12 understand? 13 A. Yeah. I -- I'm guessing you're saying -- I'm 14 assuming you're saying that -- I know that's bad -- 15 you're saying that the -- the POSA gets some information 16 that one of his cows has drastically reduced milk and 17 he's not -- they're not aware of what -- what the cause 18 was or they don't have a familiarity with that cow or 19 that particular situation. 20 Q. Right. And, so, in that situation that you 21 just described, would the POSA have reason to determine 22 the temperature of the cow? 23 MR. LANDERS: Object to form. 24 A. Like -- like I said earlier -- and I think you 25 said this also -- you want to investigate. So, you	Page 100 1 Dr. Brown-Brandl included in her expert report. 2 Q. Could you please turn to de Mol -- 172 of de 3 Mol. So, not the exhibit numbers, but de Mol's original 4 numbering, 172. 5 A. Okay. Okay. Yes, sir. 6 Q. Okay. And at the bottom of that page is -- is 7 Table 1. Do you see that? 8 A. I do. 9 Q. And the title of the table says "The relations 10 between measured variables and the occurrence of estrus 11 and diseases." Do you see that? 12 A. Yes, sir, I do see that, Table 1. 13 Q. Okay. And I -- I want to look first at -- 14 so -- so, actually, maybe in your own words, could you 15 describe what you understand this table to be providing? 16 MR. LANDERS: Object to form. 17 A. Okay. So, you're asking me about what table -- 18 what this table -- you know, the title, "relations 19 between measured variables and the occurrence of estrus 20 and diseases." And I believe the estrus and diseases 21 are on that far left column, or it starts with estrus, 22 and then the measured variables are across the -- I want 23 to say the X axis, the -- the titled bar; Yield, 24 Temperature, Conductivity, etcetera. 25 Q. (BY MR. HACKMAN) The row?

Page 101 1 A. The row, yes. Thank you. 2 Q. Sorry. I mean -- so, overall, would you say 3 this table provides information about certain -- how 4 certain variables may change in the presence of certain 5 conditions? 6 MR. LANDERS: Object to form. 7 A. Well, I can read what it says there in the 8 paragraph that calls out the table. It says "There is a 9 significant potential for improvement by considering a 10 combination of variables." 11 So, he's -- he's -- he's calling out, like, 12 this is a possibility is what I see. And he uses words 13 like "can, can have, when coupled with." It seems very 14 hypothetical at this point. And -- and I think this is 15 the introduction portion of his paper, so I expect that. 16 Q. (BY MR. HACKMAN) But Table 1's citing the 17 reference from 1992, right? 18 A. He has it listed as -- I'm not going to 19 pronounce this right -- Hogewerf, 1992. That's what 20 you're -- you're pointing out? 21 Q. That's right. 22 A. So, yeah, I'm not familiar with that -- that 23 reference, but that's what he's -- that's what he's 24 pointing out or they are pointing out. 25 Q. So, let's take a comparison of estrus at the	Page 103 1 A. Yeah. I'm -- I'm just saying, I don't know for 2 certain. It's not spelled out here. 3 Q. (BY MR. HACKMAN) Okay. Well, let's refer to 4 it as yield then. 5 So -- so, on the yield variable, would you 6 agree that estrus can have either a negative influence 7 or no influence on yield, according to this table? 8 MR. LANDERS: Object to form. 9 A. Okay. So, we're looking at yield in just, 10 like, a vacuum. We don't know what it is, but estrus, 11 it says, has neg, slash -- minus neg means a significant 12 negative influence and minus means no influence. That's 13 what you're asking, right? 14 Q. (BY MR. HACKMAN) That's right. 15 A. I'm just reading the table. 16 Q. And then for lameness at the bottom of the 17 table -- 18 A. Okay. 19 Q. -- it has a negative influence on yield, right? 20 A. It shows "Neg," or N-e-g, yes, for -- for the 21 yield after lameness, right. I agree that's what it 22 says. 23 Q. Okay. And, so, if you're looking exclusively 24 at the variable milk yield and -- sorry. Let me -- let 25 me restate that.
Page 102 1 top and lameness at the bottom. So, would you agree 2 that this table shows that estrus is associated with 3 either a negative influence or no influence -- sorry. 4 Let me back up. Sorry. 5 A. Okay. 6 Q. I said it wrong. 7 A. That's okay. 8 Q. Okay. So, let's look at the -- the first -- 9 we'll look at the Yield -- the milk yield column of 10 Table 1. Do you agree that "Yield" is referring to milk 11 yield in the context? 12 A. That's on the -- the -- the far left of that 13 bar we talked about, or that row? 14 Q. Yeah, that's right. 15 A. So, I mean, that's -- that's a good question. 16 I didn't notice where he said what yield was, how he -- 17 they define this. I mean, it's not -- it's not 18 absolutely listed out. So, does it say "milk yield"? I 19 don't see that. I mean, this is -- this is the subject 20 of the paper, but, yeah, it's not specifically spelled 21 out. 22 Q. Okay. And it's -- you think that yield could 23 refer to anything else other than milk yield? 24 MR. LANDERS: Objection. Asked and 25 answered.	Page 104 1 If a person of ordinary skill in the art 2 was looking exclusively at the milk yield and they saw a 3 decrease in yield, would they be able to, just from that 4 yield calculation, be able to distinguish between 5 lameness and estrus? 6 MR. LANDERS: Object to the form. 7 A. Okay. I -- I'm not certain I understand the 8 question, and also I'm still not completely -- I'm not 9 convinced that yield is milk yield here. 10 Q. (BY MR. HACKMAN) Okay. 11 A. But if you could repeat it in a way -- I'm 12 sorry. 13 Q. Okay. Well, let's take temperature. I mean, 14 we know what temperature is. We'll ask a different set 15 of questions. 16 So, both estrus and mastitis are associated 17 with a positive influence on temperature, right, 18 according to this table? 19 MR. LANDERS: Objection. Form. 20 A. Okay. So, again, that -- okay. So, it says a 21 positive influence on temperature. Now, I'm going to -- 22 like, I -- I've never analyzed this table before, but 23 I'm looking at -- I'm trying to determine, what does 24 positive mean? Does that mean it's a favorable 25 influence on temperature? Does it mean it increases

Page 105 1 temperature? And if it's hot outside, does it mean it 2 decreases temperature? Because that's important. 3 I know there's these other options, 4 negative influence, but it doesn't -- I'm not sure 5 what -- what that means for certain. 6 Q. (BY MR. HACKMAN) So, person of ordinary skill 7 in the art just -- they -- they can't get -- they can't 8 understand from context what these terms mean? Is that 9 what you're saying? 10 MR. LANDERS: Object to form and the 11 characterization of the testimony. 12 A. Yeah, we're talking about a POSA, like you 13 said, but this -- this table is pulled from a 1992 14 reference and there really is no clear understanding 15 what that is. I'm just trying to give you my 16 explanation. 17 Q. (BY MR. HACKMAN) Yeah. Sorry. Okay. So, for 18 clarity -- 19 A. Uh-huh. 20 Q. -- this paper -- so, for example, we can go to 21 at top of -- let's see -- second full paragraph on Page 22 172 -- 23 A. Okay. 24 Q. -- and it's talking about several methods for 25 automated detection of estrus and diseases that can	Page 107 1 temperature. Is that your statement? 2 MR. LANDERS: Object to form. 3 A. So, if you can show me where it says "increase 4 in body temperature" on that table, where it says 5 "increase" -- I haven't seen that. 6 Q. (BY MR. HACKMAN) Okay. So -- so, let me ask 7 another question. 8 So, the person of ordinary skill in the 9 art, when they read a research -- peer-reviewed research 10 publication in a journal, they have some background 11 knowledge of the field, right? 12 MR. LANDERS: Object to form. 13 A. So, the POSA is what it is. We defined that, 14 yes. They have that understanding, that experience. 15 They've got that degree. 16 Q. (BY MR. HACKMAN) Right. And, so, mastitis was 17 a pretty well-known illness as of 2008, right? 18 MR. LANDERS: Object to form and scope. 19 A. I mean, I think mastitis has been around as 20 long as, you know, cattle have been milked. 21 Q. (BY MR. HACKMAN) Right. And -- and, so, the 22 POSA would have understood that if a cow has mastitis, a 23 potential symptom of mastitis would be increased body 24 temperature, right? 25 MR. LANDERS: Object to form.
Page 106 1 already be used in practice are based on the measurement 2 of variables with sensors. "Sensors are available for 3 measuring milk yield, milk temperature, electrical 4 conduct- -- conductivity and the milk, animal activity 5 with step counters," parentheses, "and concentrates 6 intake." 7 Do you see that? 8 A. I do see that, yes, sir. 9 Q. Okay. And would you associate -- you know, in 10 the context of this table and this paragraph on Page 11 172, would you associate the yield value to mean milk 12 yield based on what this table is saying -- I'm sorry -- 13 based on what the paper is saying? 14 MR. LANDERS: Object to form. 15 A. Yeah. So -- so, they haven't cited Table 1 in 16 that paragraph. That's a -- I mean, I think that's a 17 good -- it may be a good indication, but it does 18 positively say that. And it still doesn't explain 19 those -- the N-e-g, the P-o-s, the minus -- I don't 20 think that's something that a POSA would be familiar 21 with, you know, necessarily what those means. I'm 22 talking about on the bottom of table -- of the -- after 23 the small letter "a," the footnote on the table. 24 Q. (BY MR. HACKMAN) So, the POSA would not know 25 that mastitis is associated with an increase in body	Page 108 1 A. So, I -- I need to look -- relook at the 2 example, but I don't believe a -- or a sample POSA here, 3 but I don't believe they have that veterinary background 4 and disease detection. You know, they have dairy 5 experience. But, again, I'm talking about these 6 specific indicators down here they have in the table as 7 N-e-g, P-o-s, and minus. How do they specifically 8 relate or talk about -- like I said, a positive 9 significant influence? Does that mean -- does it 10 improve it? Does it show that there's a negative -- a 11 high -- a high -- high unimprovement? I mean, that's 12 a -- it's very difficult to interpret for me. 13 Q. (BY MR. HACKMAN) So, it's -- so, it's possible 14 that mastitis could be associated with an improvement in 15 temperature? Is that your testimony? 16 MR. LANDERS: Object to form and 17 characterization of witness's testimony. 18 A. Yeah. I'm just saying I don't know what this 19 is. 20 Q. (BY MR. HACKMAN) So you -- you can't make 21 heads or tail out of this table, can you, Doctor? 22 MR. LANDERS: Object to form and the 23 characterization of the testimony. 24 A. Yeah. Looking at situation like this, I have 25 to be absolutely sure and I -- I can't be absolutely

Page 109 1 sure. 2 Q. (BY MR. HACKMAN) Okay. 3 A. These terminologies are not that I'm real 4 familiar with. The -- the N-e-g, the P-o-s and the 5 minus, that's a -- I'm not saying it's unique to 6 Hogewerf, but I haven't seen it before. 7 Q. Okay. All right. So, let's back out of -- of 8 this specific reference and let's talk about mastitis. 9 So, would you agree that a POSA would 10 understand that mastitis typically has as a symptom 11 increased body temperature in a cow? 12 MR. LANDERS: Object to form. 13 A. I'd say it depends. Like I said, it usually is 14 measured with milk temperature and that's how they 15 would, more or less, detect that. So, it's different 16 from body temperature. 17 Q. (BY MR. HACKMAN) Okay. You said milk 18 temperature is different than body temperature. How is 19 it different? 20 A. So, a body temperature is measured within the 21 body and milk temperature is measured from the milk, 22 external to the body. 23 Q. Okay. And is milk temperature considered a 24 surrogate of body temperature to a person of ordinary 25 skill in the art?	Page 111 1 temperature alone a reliable indicator of mastitis? 2 A. Yeah. I think it -- I'd say, again, it 3 depends. It doesn't have to be or it may not be the 4 reliable -- the best indicator. 5 Q. Does milk production typically decrease when a 6 cow has mastitis? Actually, let me re-ask the question. 7 Would a person of ordinary skill in the art 8 consider decreased milk production as a reliable 9 indicator of mastitis? 10 MR. LANDERS: Object to form. 11 A. Yeah. Not necessarily. There's other issues 12 which could relate to decreased milk production. One of 13 the primary ones is the feed, the feed quality and the 14 feed intake. 15 Q. (BY MR. HACKMAN) So, the person of ordinary 16 skill in the art having observed a decreased milk 17 production would want to investigate other factors, 18 right? 19 MR. LANDERS: Object to the hypothetical. 20 A. Yeah. I think that -- that -- you know, if 21 they didn't -- you know, if they didn't know, they'd 22 want to investigate other -- other factors if they 23 didn't know what the proper factor was. 24 Q. (BY MR. HACKMAN) Okay. Would a person of 25 ordinary skill in the art be able to distinguish between
Page 110 1 MR. LANDERS: Object to form. 2 A. You know, I -- I would say it depends, but, I 3 mean, I -- I don't -- there's -- there could be quite a 4 bit of difference between body temperature and milk 5 temperature. 6 Q. (BY MR. HACKMAN) Okay. Now, just for clarity, 7 on Page 172 and Page 173 of de Mol, Reference 1033, 8 they're referring to milk temperature, right? 9 A. Yes. It says on Page 173 "milk temperature" 10 right there under the bullet. 11 Q. Right. 12 A. Yes. 13 Q. And, so, would a person of ordinary skill in 14 the art expect that milk temperature would increase in a 15 cow with mastitis? 16 A. I mean, it -- it could be. Doesn't have to be, 17 but that's a -- that -- that's a very strong 18 possibility. 19 Q. Okay. So, temperature alone would not 20 necessarily be an indicator of mastitis. 21 A. Right. It doesn't have to be. And you're 22 talking about milk temperature or body temperature? 23 Q. Right. 24 A. So, you're saying -- which one are you saying? 25 Q. Let's start with milk temperature. Is milk	Page 112 1 estrus and mastitis (sic) solely based on the 2 temperature reading? Let me back up. 3 Would a person of ordinary skill in the art 4 be able to distinguish between mastitis (sic) -- sorry. 5 Would a person of ordinary skill in the art be able to 6 distinguish between estrus and mastitis based solely on 7 a milk temperature reading? 8 MR. LANDERS: Object to form. 9 A. Yeah. I don't know for sure. Going back to 10 our discussion earlier when we looked at the patent -- I 11 talked about the patent Liao and they had to have a -- 12 some kind of neural network, an artificial intelligence 13 solution, to predict estrus. Or might -- they used a 14 different -- I think an insemination opportunity. So, 15 yeah, the answer is, you know, you -- you just don't 16 know. There's no -- it's a complex thing to predict. 17 Q. (BY MR. HACKMAN) Okay. All right. Let's go 18 to -- bear with me for a moment. 19 MR. LANDERS: By the way, I was just told 20 lunch is here, so -- 21 MR. HACKMAN: Okay. Why don't I finish 22 with this and I think that will be a good break time. 23 (Discussion off the record at 12:09 p.m.) 24 Q. (BY MR. HACKMAN) All right. So -- so, I want 25 to go to Page 181 of de Mol, Exhibit 133 -- 1033.

Page 113 1 Sorry. That's de Mol's numbering. 2 A. Okay. 181, 1033. 3 Q. And would you agree at the -- so, at the top of 4 the page, there's examples of when an estrus alert is 5 given. 6 A. Okay. I'm not -- okay. This says, yeah, an 7 estrus alert is given when the activity is rather high 8 and a sum of standardized errors of activity, yield, and 9 temperature fall outside a certain confidence interval. 10 Okay. That's what you're talking about? 11 Q. That's right. 12 A. Okay. 13 Q. So, would the person of ordinary skill in the 14 art understand this sentence to be referring to using 15 both yield and temperature determinations to determine 16 whether to issue an estrus alert? 17 MR. LANDERS: Object to form. 18 A. So, the only -- he's got a number of things 19 here; sum of standardized errors -- activity, yield, and 20 temperature -- falling outside a certain confidence 21 interval. 22 So, I mean, that's what he's saying. 23 That's all I can do is read -- read from what he says 24 here. I think -- I hope -- I don't know if that answers 25 your question.	Page 115 1 MR. HACKMAN: I'm going move to strike that 2 entire answer as completely unresponsive. 3 MR. LANDERS: I object and note for the 4 record that it was responsive. 5 Q. (BY MR. HACKMAN) But let -- let's talk a 6 little bit about this -- this statement here. 7 So, further -- so, this is on de Mol, Page 8 184. It says "Further research is directed to an 9 adaptation of the detection model for other milking 10 frequencies" -- 11 A. Page -- I'm sorry. Page 184? 12 Q. 184 of de Mol. 13 A. Okay. I'm sorry. Got off track here. 14 Q. I'll start again. 15 A. Okay. Yeah, please start again. 16 Q. It's the conclusions. 17 A. Okay. 18 Q. So, the last paragraph says "Further research 19 is directed to an adaptation of the detection model for 20 other milking frequencies," parentheses, "in case of 21 automatic milking system" -- "and reducing the number of 22 false positive alerts by further processing of the 23 standardized errors." 24 So, Dr. Bowser, is this an indication that 25 a POSA would not be -- not attempt to implement any of
Page 114 1 Q. (BY MR. HACKMAN) Well, how would a -- what 2 would a -- would a -- what we need to understand is what 3 a POSA -- what a POSA would understand from this. So, 4 my question was whether a POSA would understand both 5 yield and temperature to be determined as part of 6 determining whether to issue an estrus alert. 7 MR. LANDERS: Objection. Asked and 8 answered. 9 A. Yeah. I think what a POSA would do when he's 10 looking at this entire de Mol article was look for its 11 practical applications, all right? And this -- this is 12 a really kind of complex paragraph you're talking about. 13 You know, a POSA would go to the -- to the discussion, 14 to the conclusions and, you know, they would look at 15 how -- how I can -- how I can use this, how can I 16 implement this. 17 And you'll note on the Conclusions section 18 that the de Mol group here says that further research is 19 directed and that they need to reduce the number of 20 false positive alerts. And if I was, you know, the POSA 21 reading this, I would see that and say, oh, my gosh, 22 false positives are, like, evil for me and I would not 23 be interested in literally anything this article talks 24 about other than just informational because false 25 positives are very expensive and time consuming.	Page 116 1 the methods used by de Mol? 2 MR. LANDERS: Object to form. 3 A. You know, I was saying earlier that, you know, 4 a POSA could be informed by this information, but when 5 he saw or she saw this -- this part of the paragraph, 6 this part of the conclusions, they'd realize that just 7 more -- more work needs to be done on this. It's just 8 not -- it's not developed enough yet. It's not ready 9 for -- for application. 10 Q. (BY MR. HACKMAN) More work needs to be done. 11 So, what do you mean by -- by "more work needs to be 12 done"? 13 A. If there's a way to reduce the number of false 14 positives. And that's what -- I mean, de Mol says it. 15 You know, he says "further processing of 16 standardized" -- he has to refine his model and that's 17 what he's saying, "Here's my interpretation of it." 18 And, you know, when I see that, like, I'll 19 look for his next paper. I'll look for who comes out 20 with the next iteration. That would be -- that's what 21 that informs me to do. 22 Q. Would -- would the person of ordinary skill in 23 the art have -- be motivated to try to take the de Mol 24 model and address the issues in the de Mol model? 25 A. Okay.

Page 117 1 MR. LANDERS: Object to form. 2 A. That's a -- that's a -- a thing that could be 3 possible, but if you look at this -- simply look at the 4 title of this -- this paper, it is "detection of estrus 5 and diseases in dairy cattle based on time series 6 analysis combined with a Kalman filter." 7 And, so, there is -- very few universities 8 even teach Kalman filters. This is a high level 9 concept -- it's Ph.D.-level stuff -- and I would not 10 expect a POSA to even look at this paper much past that, 11 unless it's already provided in some kind of a -- a 12 package that I can plug into my system where that Kalman 13 filter is already -- does its thing and -- but I'm 14 telling you that a POSA wouldn't even know -- likely not 15 know what a Kalman filter was; and if they did, this 16 is -- this is years of trying to understand how it works 17 and how to implement that. 18 I mean, it's very exciting that someone 19 like de Mol and their group does this, but I -- I'm 20 taking it at face value that it's not ready yet. These 21 are complex -- time series analyses, very few people get 22 those. 23 Q. (BY MR. HACKMAN) If you'll -- just one quick 24 question, if that's okay. 25 A. Sure.	Page 119 1 Q. (BY MR. HACKMAN) Okay. So, it could be 2 anything that qualifies as a logical expression would 3 satisfy that claim. 4 MR. LANDERS: Object to form and the 5 characterization of his testimony. 6 A. Yeah. Again, I -- I didn't look into what 7 defines a logical term. And "anything" is very broad, 8 you know, but -- you know, but I didn't look at it. 9 Q. (BY MR. HACKMAN) Okay. 10 All right. Why don't we break for lunch? 11 MR. LANDERS: Sounds good. 12 A. Thank you. 13 (Recess from 12:18 p.m. to 1:13 p.m.) 14 Q. (BY MR. HACKMAN) Want to talk a little bit 15 about RFID tags. Are there ear tags that can be used to 16 detect temperature? 17 A. As -- as far as I know, there -- there are some 18 ear tags that can be used to detect temperature. 19 Q. Okay. And would these ear tags be a risk of 20 detachment? 21 MR. LANDERS: Object to form. 22 A. Yeah. I want to go back to temperature. I 23 mean, that -- so, the temperature could be, like, an 24 environmental temperature. It could be a number of 25 different temperatures. You know, I -- I don't know --
Page 118 1 Q. And if we can go back to Exhibit 1001. It's 2 the '206 patent. 3 A. '206 patent. 4 Q. I think it -- 5 A. Is this it? 6 Q. The patent. 7 A. Oh, the patent. Okay. 8 Q. Yeah. 9 A. All right. Thank you. Sorry. 10 Q. All right. Let's go to the -- the claims. 11 And, so, that's on Column 18. Let's do Claim 1 and Line 12 36, I think. This is the "enter said sensed animal 13 information retrieved from said RFID device and said 14 animal information stored in such database as logical 15 variables into at least one logical expression." 16 You see that? 17 A. I do, sir, yes. 18 Q. Yeah. And, so, does that particular logical 19 expression that's recited in the claim -- does that have 20 any requirements as to what the logical expression is? 21 MR. LANDERS: Object to form. 22 A. Okay. Just -- it says "logical expression" and 23 I -- I can only take the plain, ordinary meaning. I 24 didn't -- I didn't analyze that term for this -- for 25 this work.	Page 120 1 I don't think that -- you know, you could -- it could be 2 the ear temperature, you know, but that's maybe not the 3 best place to take that temperature, just because of the 4 physiology -- you know, the anatomy of the cow and 5 everything like that, so -- but it can take temperature 6 different ways. 7 And the next question you said was -- I'm 8 sorry. That -- I backed up on that. 9 Q. (BY MR. HACKMAN) Yeah. Is there a risk that 10 ear tags become detached? 11 MR. LANDERS: Object to form. 12 A. So, that's a -- detachment is -- I guess it 13 depends. So, there's lots of -- you -- anything can 14 become detached, you know, whether -- even if it's 15 internal, right, it can be -- like, the bolus can be 16 eliminated, right? So -- so, that would be like a 17 detachment. So, with any sensor, you have to be 18 considered -- or consider -- consider that issue, 19 detachment. 20 Q. (BY MR. HACKMAN) Do you know what the 21 likelihood of detachment is for an ear tag compared to 22 the likelihood of loss of an ingested RFID sensor? 23 MR. LANDERS: Object to form and scope. 24 A. No. I haven't studied that, so I don't -- I 25 don't know.

Page 121 1 Q. (BY MR. HACKMAN) Okay. So, regarding these -- 2 the bolus RFID sensors, are there devices that are 3 capable of sensing multiple physiological parameters? 4 MR. LANDERS: Object to form. 5 A. Do you have any -- any examples for me there, 6 sir? 7 Q. (BY MR. HACKMAN) Sure. So, are there examples 8 of RFID sensors that can sense EKG and temperature? 9 MR. LANDERS: Object to form. 10 A. I haven't seen that precise combination. I 11 don't -- I -- you know, so, there may be some, like, 12 laboratory sensors that are, you know, under 13 development. I'm not aware of those kinds of things. 14 You know, if you have an example, like, a commercial one 15 or anything? I'd like to look at it. I will look at 16 it. 17 Q. (BY MR. HACKMAN) Well, let me ask the question 18 a little bit differently. 19 Are you aware of any devices, including 20 experimental or commercial devices, that are capable of 21 measuring one or more of the following parameters -- 22 actually, let me re-ask the question. Sorry. 23 A. Okay. 24 Q. Are you -- are you aware of a bolus device that 25 can measure at least two of the parameters, including	Page 123 1 A. Yes, Exhibit, as you said, 1009. 2 Q. Okay. And could you please turn to -- it's 3 Page 4 of the patent numbers, and Paragraph 39. Page 4 4 at the top of the patent text pages. 5 A. This says "Sheet" -- 6 (Sotto voce discussion.) 7 Q. (BY MR. HACKMAN) Yeah. Not -- not the drawing 8 sheets. 9 A. Oh, okay. Thank you. All right. 10 Q. And could you briefly read Paragraph 39? 11 A. Thirty-nine. Do you want me to read it out 12 loud or just read it to myself? 13 Q. You can read it to yourself. 14 A. Okay. 15 (Reviewing document.) 16 A. Okay. Yes, I've read it. 17 Q. (BY MR. HACKMAN) Okay. So, there's a sentence 18 that says "In addition to the data on individual 19 animals, the transponders can also transmit other 20 sensory functions which can be, for example, activity 21 values, pH values, or temperature values." 22 Do you see that? 23 A. Yes, I do. 24 Q. Have you ever seen an example of a sensor 25 that -- that can transmit one or more of the values that
Page 122 1 pH, EKG, and temperature? 2 MR. LANDERS: Object to form. 3 A. Well, off the top of my head, I can't think of 4 that device. 5 Q. (BY MR. HACKMAN) Okay. 6 A. I haven't experienced or used that. 7 Q. Okay. And you mentioned there may be some 8 experimental devices that have multiple sensors in a 9 single device. Are you aware or do you recall what 10 those experimental devices were? 11 MR. LANDERS: Object to the 12 characterization of previous testimony. 13 A. Yeah. So, again, with an experimental device, 14 you know, I -- I know there's things out there. I don't 15 have any firsthand knowledge. I haven't visited those 16 labs or looked at those or evaluated those pieces of 17 equipment. 18 Q. (BY MR. HACKMAN) Okay. Okay. I'll mark an 19 exhibit. This exhibit is in both proceedings as 20- -- 20 or -- sorry -- 1009, Exhibit 1009. 21 A. Thank you, sir. 22 Okay. I have it here, yes, sir, and I 23 recognize it. 24 Q. So, is this an exhibit that you considered in 25 preparing your declaration?	Page 124 1 are listed here? 2 A. I've -- I haven't worked with one, but I've 3 seen -- seen that in -- in the literature in the 4 patent -- patents we've read here, and -- and here it 5 is. 6 Q. Yeah. And have you seen any sensory systems 7 that permit the sensing of all of these values that are 8 listed here, both -- excuse me -- the activity values, 9 pH values, and temperature values? 10 MR. LANDERS: Object to form. 11 A. pH values, temperature values, and activity 12 values, again, I haven't worked with a sensor exactly 13 like that. 14 Q. (BY MR. HACKMAN) Have you ever seen a system 15 where there were multiple sensors and where each sensor 16 provided one of those values? 17 MR. LANDERS: Object to form. 18 A. Yeah. I haven't -- haven't talked about 19 physically seeing it or working with it. 20 Q. (BY MR. HACKMAN) Or reading about it? 21 A. Reading about it. Okay. Just reading about it 22 right here. It's self-evident, right? 23 Q. That they have a sensor that can do multiple 24 functions? 25 MR. LANDERS: Object to form.

Page 125 1 A. Well, it's -- it's claiming -- let's see. Is 2 this a claim? It's not a claim, just -- just -- it's a 3 description of the invention, right? And, yeah, it just 4 says "transponders can also transmit other sensory 5 functions." It doesn't say whether it does them, you 6 know, simultaneously or -- or -- just says can transmit 7 others. So, I'm not sure that this covers that feature. 8 Maybe I missed it. 9 Q. (BY MR. HACKMAN) All right. We can put this 10 one away. Switch gears a little bit, talking about -- 11 you can put that away. 12 A. Okay. 13 Q. We don't need that exhibit right -- so, 14 typically, in your -- in your understanding, where is 15 time and date information stamped in a -- a farm 16 management system? 17 MR. LANDERS: Object to form. 18 A. What do you mean by "stamped"? I mean -- 19 Q. (BY MR. HACKMAN) So, when a reading is taken 20 from an RFID sensor device, how is that information 21 stamped with the time that that information's collected? 22 MR. LANDERS: Object to form. 23 A. So, the physical, like, the -- the -- maybe the 24 software or hardware, the program or the functions 25 inside the -- inside a system perhaps? Is that what	Page 127 1 A. Yeah. See, I don't know. That's not -- that's 2 not necessarily clear. The -- the memory and the 3 function of these RFIDs is so limited because of the -- 4 you know, the -- especially back, you know, this time 5 when they're early -- early in the market, they just 6 didn't have lots of -- or virtually any memory. So, you 7 know, they were kind of limited to, well, here's the 8 animal ID and maybe a few other small bits of 9 information. That's my understanding. So, I can't 10 really answer that any more -- much further than that. 11 Q. (BY MR. HACKMAN) Okay. 12 (Pausing.) 13 Q. (BY MR. HACKMAN) Oh, okay. Can we go to 14 Paragraph 211 of your Exhibit 2009 declaration exhibit 15 and in the '206 patent proceeding, the 875 IPR? It's 16 Page 124, Paragraph 211. 17 A. Okay. Paragraph 211, Page 194? 18 Q. Yeah. Twenty -- 124. 19 A. Yes. Okay. 124. 20 Q. And you're discussing synchronization as an 21 issue in date and time stamping, right? 22 MR. LANDERS: Object to form. 23 A. I don't know if I used that word 24 "synchronization" here. I'm looking for that right now. 25 (Reviewing document.)
Page 126 1 you're asking about? 2 Q. (BY MR. HACKMAN) That's right. 3 A. Yeah. So, I'm not -- I'm not like -- I don't 4 have that in-depth knowledge, you know, what's going on. 5 Maybe -- you know, I can tell you that. I can say that, 6 like, in the Trevvarthen thesis, his hypothetical system 7 picks up the time stamp at the -- at the -- at the 8 reader, right? That's where it comes in. I think 9 that's -- that makes sense. 10 Q. And by doing the time stamp at the reader, is 11 that when the data is collected by the device? 12 MR. LANDERS: Object to the hypothetical. 13 A. Yeah. You know, again, so that is 14 hypothetical. And, so, the data is read at the reader. 15 I'm assuming it would have to be collected prior to 16 that, but the timing -- you know, I'm not sure what 17 the -- you know, if there's a -- like a memory dump, for 18 example, and it's dumping a group of stuff. I don't -- 19 I don't know, so that's just speculation, but I would 20 assume it would be prior to the time it was read. 21 Q. (BY MR. HACKMAN) Okay. So, in your situation 22 where there's a memory dump of the data, would the 23 device itself be time stamping each of the readings that 24 are stored in that data in the device? 25 MR. LANDERS: Same objection.	Page 128 1 A. Yeah, there it goes on the -- on Page 125, the 2 top, "Synchronization, time and energy-consuming step 3 needed to maintain the device-based timer." 4 Yes, I see it. 5 Q. (BY MR. HACKMAN) And, so, in this paragraph of 6 your declaration, you're saying that one of the 7 drawbacks of a timer on one of these RFID devices is the 8 need to synchronize the device. 9 MR. LANDERS: Object to the form and the 10 characterization of the document. 11 A. Yeah. It says more on the bottom of Page 124 12 where I say periodic synchronization is needed to 13 maintain uniformity for -- that's something that's based 14 in the field where if you have just one device-based 15 timer, it's a lot simpler, takes a lot less energy and 16 time, yes. 17 Q. (BY MR. HACKMAN) For detecting biological 18 information for a single cow, is synchronization 19 important? 20 MR. LANDERS: Object to form. 21 A. So, synchronization what I'm talking about here 22 is just keeping clocks on time basically, right? And, 23 so, you know, it depends on what you're collecting, of 24 course, but you'd want to know basically when -- as 25 close as you could when it was sensed, when the

Page 129 1 information was sensed. 2 And, so, it could be really important, but 3 maybe if the information is, like, not time sensitive, 4 it may -- may not be that very important. But 5 synchronization overall, I think, is important as 6 inspect for most of the data you'd be looking to -- you 7 know, to retrieve and categorize. 8 Q. (BY MR. HACKMAN) Okay. And you said some -- 9 some data may not be that important. Do you have in 10 mind what type of data would not need synchronization? 11 MR. LANDERS: Object to form. 12 A. Yeah. Okay. Off the top of my head, like I 13 said, some -- some data -- maybe -- maybe your -- I 14 can't think of an example. Let's see. You know, I'm 15 thinking of data that's not time sensitive, so -- I'm 16 not coming up with an example right off the top of my 17 head. Maybe I can come back to that because I can't 18 think of anything -- 19 Q. (BY MR. HACKMAN) Okay. 20 A. -- right now. 21 Q. So, just in an individual cow -- I'll give you 22 a hypothetical -- 23 A. Okay. 24 Q. -- tracking temperature over time where each 25 temperature reading is -- is time stamped, what would	Page 131 1 would synchronization of the clock be important for that 2 determination? 3 MR. LANDERS: Object to form. 4 A. So, you're asking about an average temperature? 5 So -- so, an average temperature would be a sum of 6 temperatures divided by the number, right? And, so, 7 time is -- is not in that equation. However, from the 8 standpoint of what you do with that and how you 9 interpret it, time -- time could be fairly important. 10 Like, if that was taken, let's say, at a certain time of 11 day or after a certain -- like -- like, they -- they 12 changed a ration, then there -- there should -- could be 13 an impact and the time would be really important if 14 you're trying to correlate that with some other events 15 that you're going to need to do. 16 (Sotto voce discussion.) 17 Q. (BY MR. HACKMAN) Okay. Do another reference. 18 Oops. 19 This is Exhibit 1010 in both proceedings. 20 It's the Liao patent reference. 21 A. Thank you. 22 Q. So, if you go to Page 5 of the Liao reference, 23 and five being of the reference itself at the top of the 24 page. 25 A. Where it says "Specifically"?
Page 130 1 be -- what -- why would there need to be synchronization 2 of the clock for temperature readings? 3 MR. LANDERS: Object to form. 4 A. Okay. So -- so, let's say you have an entire 5 herd of cows and -- and you want to get the temperatures 6 at a particular time. If you're relying on a device 7 that's implanted in each cow, you don't know for sure 8 they're on the same time -- time stamp. You know, so, 9 the -- the timer or the timekeeper for one cow may be 10 different than another, so -- because, you know, 11 that's -- they're not that accurate or maybe it's, you 12 know, just -- it's just gotten out of whack. 13 And, so, it's so much more simpler and 14 cleaner to -- to take care of that, like, at the -- at 15 the reader, like Trevarthen did. It's just a -- 16 THE REPORTER: Like -- 17 THE WITNESS: Trevarthen, the -- one of the 18 references here in the case. 19 THE REPORTER: Got it. 20 Q. (BY MR. HACKMAN) If you're solely focussed on 21 the temperature readings for an individual cow, to 22 compare two temperature readings -- actually, let me 23 give a hypothetical. 24 If you're interested in comparing an 25 average temperature to a particular temperature reading,	Page 132 1 Q. Yeah. So -- 2 (Simultaneous discussion.) 3 Q. (BY MR. HACKMAN) So, if you go down in the 4 page starting at Line 14, "In the case of insemination 5 decision support." 6 A. Yes, sir. 7 Q. And in this paragraph, there are several 8 parameters they refer to that they use to determine the 9 insemination decision, right? 10 MR. LANDERS: Object to form. 11 A. Yeah. It says a -- "decision support the dairy 12 farm data includes a first input parameter reflecting 13 animal identity. Additionally -- here includes 14 parameters, which for each animal identity reflect a 15 respective number of days in milk, peak milk yield in 16 latest lactation, a conception rate of any previous 17 lactations," so on and so forth. 18 Q. (BY MR. HACKMAN) Okay. And one of those 19 parameters is heat detection status, right? 20 A. Yes, it is. 21 Q. And, so, this paragraph is stating that heat 22 detection status is one of the parameters that are input 23 into the insemination decision, right? 24 A. That's not exactly the way I'm reading it. 25 Q. Okay. How are you reading it?

Page 133 1 A. What I'm reading it is that there's a -- it 2 really helps me to look at a figure they have here. 3 It's on Page 10, Line 5. And I think these are the 4 same -- same items; days in milk, peak yield. And so 5 this, quote/unquote, data, the information they're 6 putting here, is really -- really just data -- 7 information. It's not data. It's information that's 8 being used to train an artificial intelligence model. 9 And, you know, these -- says these -- these are 10 user-generated input data, they call them. 11 Q. Uh-huh. 12 A. And so -- so the input's really not -- it's not 13 real data that comes out of the field. It's just 14 user-generated data. And then the farmer looks at 15 this -- or the experienced person looks at this table 16 and then makes this decision for insemination that's on 17 the right, a No/Yes. 18 So, to say that it's data that's supporting 19 the decision is really not fair. It's data that's used 20 to train this model that's -- I -- use -- data for input 21 that the farmer then makes a decision on to train the 22 model. 23 Q. So, once the model has been trained, wouldn't 24 the user input these parameters in order for the model 25 the determine whether or not to inseminate?	Page 135 1 A. Heat -- heat is an input, yes. It shows there 2 in the column with the yeses under it. 3 Q. And one of the ways that a person with ordinary 4 skill in the art would determine whether the animal is 5 in heat would be through physiological measurements, 6 right? 7 MR. LANDERS: Object to form. 8 A. Yeah. So, that's a tricky thing. So, you 9 know, it's -- they're using the farmer here to determine 10 whether the animal's in heat or not. The farmer's 11 experience with the animal and his -- his location and 12 his management technique, all those things put together, 13 he makes that and then that's loaded into this model, 14 even -- even now, as a -- a yes or no. 15 So, it's not using -- like, it doesn't 16 develop heat or doesn't -- it doesn't make up heat. 17 It -- it's relying on the farmer to identify that. 18 Q. (BY MR. HACKMAN) And the farmer would rely on 19 certain physiological parameters potentially, right? 20 MR. LANDERS: Object to form. 21 A. Yeah. That's why -- that's why they're using 22 this intelligent model because -- this intelligence 23 model because there's no one to really, like, put that 24 down into parameters. They just turn the farmer loose 25 on it and he, like, feels that, he knows it
Page 134 1 MR. LANDERS: Object to form. 2 A. Yeah. So -- so, once the model's trained, 3 then -- then there's -- you know, they'd be looking at 4 the live information to get a decision, right, to make a 5 decision. Because a farmer then would be, like, built 6 into this decision model. The farmer's knowledge would 7 be built in. 8 Q. (BY MR. HACKMAN) Can you go to Page 12 of the 9 Exhibit 1010, the Liao reference? 10 A. Page 12. Okay. 11 Q. And do you see the table on this page? 12 A. Yes. 13 Q. So, this is a -- an example of a response to a 14 farmer's inquiry regarding which animals in the herd 15 should be inseminated, right? 16 MR. LANDERS: Object to form. 17 A. So, it's an insemination example, what it says 18 in the paragraph there. "The system may produce the 19 following table in response to a farmer's/user's inquiry 20 regarding which animals in his or her livestock should 21 be inseminated today." 22 So, yeah, that's -- just reading what it 23 says. 24 Q. (BY MR. HACKMAN) And one of the inputs is 25 heat, right?	Page 136 1 instinctively. And that's what this model is trying to 2 do is capture that instinct so it can be done with this 3 artificial intelligence. 4 Q. (BY MR. HACKMAN) So, the farmer had a herd of 5 cattle of a thousand head of dairy cattle, wouldn't it 6 be difficult for the farmer to examine every specific 7 animal to determine whether or not it was in heat? 8 MR. LANDERS: Object to the hypothetical. 9 A. Yeah, it is hypothetical, but I also think 10 that's -- that's why they would look for something like 11 this, because it's such a difficult thing to do. 12 There's -- they don't have a sensor that says that cow's 13 in heat. There's not a sensor or group of sensors that 14 I know of that does that. This is just a farmer seeing 15 it. 16 So, yeah, how do you -- you'd need to get 17 20 farmers out there that have that qualification to 18 walk through that herd and do that. That's how it's 19 been done, but this is an attempt to do that 20 differently, to make it -- like I said, put that in -- 21 the farmer's experience in a box somehow. 22 Q. (BY MR. HACKMAN) Okay. So, would the farmer 23 measure the temperature of the cow to help determine 24 whether the cow is in heat? 25 MR. LANDERS: Same objection.

Page 137 1 A. Yeah. See, I don't know all the things that a 2 farmer goes through to do that. That -- again, if I 3 did -- or if they did, they could just -- you wouldn't 4 need this type of a system. 5 Q. (BY MR. HACKMAN) Hand another reference over. 6 All right. This is reference Exhibit 1006, 7 the Laitinen patent. It's Exhibit 2000 -- 1006 in both 8 proceedings. 9 A. Okay. Yes. I agree. 10 Q. Okay. Can you please go to Column 8 of the 11 Laitinen patent? 12 A. Yes, sir. I'm there. 13 Q. And do you see starting at Line 5 where it says 14 "The application of a system based on the invention in 15 the processes of heat control and artificial 16 insemination is described in the following." 17 You see that? 18 A. I do see that, yes. 19 Q. So, would you agree that Laitinen is describing 20 how it may be determined whether a cow is in heat in 21 this paragraph? 22 MR. LANDERS: Object to form. 23 A. Yeah. I -- I think it's leaning towards 24 insemination. Can go to that figure and look. 25 Q. (BY MR. HACKMAN) So, you're going to Figure 5?	Page 139 1 movement and temperature? 2 MR. LANDERS: Object to form. 3 A. Yeah. It shows those in this box on the top. 4 And if you continue reading under Column 8, says they 5 monitor the animal's heat with a pico level device. 6 "Body temperature and movement are usually measured." 7 And that pico level device, that's also shown -- let's 8 see -- on one of the figures, I recall. Figure 3? No. 9 Figure 2. I'm sorry. They're both two and three on the 10 same page, but in Figure 2, that pico level device that 11 provides temperature and movement location is encircled 12 by the box noted as 100a and it is labeled an internal 13 control device. 14 So, that's what I'm seeing. So, yes. 15 Q. So, the external control device is detecting 16 movement and temperature; is that right? 17 A. That's what it says right here in Box 225 on 18 Figure 2. 19 Q. And that movement and temperature information 20 is sent to a local database as shown in Figure 5; is 21 that right? 22 A. Let's see. Figure 5 -- yes. Local database, 23 that cylinder there, yes. 24 Q. And that information from the local database 25 undergoes an evaluation; is that right?
Page 138 1 A. Yes. 2 Yeah. I mean, if you look at Figure 5, the 3 output there, 510, Artificial -- I think that's 4 "Inseminator." It's -- spelling's unusual for me. 5 Is there a question -- 6 Q. Oh. 7 A. I'm sorry. 8 Q. Yeah. So -- so, the -- might ask the follow-up 9 question. So, is Laitinen describing an automated 10 system in order to determine whether to inseminate a 11 cow? 12 MR. LANDERS: Object to form. 13 A. So, he has a -- you know, they titled this 14 "Surveillance System For Animals" and, you know, that -- 15 that -- that sure includes a lot of things, right? 16 Q. (BY MR. HACKMAN) Well, in Figure 5 -- 17 A. Okay. 18 Q. -- isn't that depicting a system to order 19 artificial insemination? 20 MR. LANDERS: Object to form. 21 A. Yes. So, I -- like I mentioned, one of the 22 outputs here is an artificial inseminator, right, which 23 that -- Box 510, which I was saying is like the 24 artificial insemination. 25 Q. (BY MR. HACKMAN) And aren't two of the inputs	Page 140 1 MR. LANDERS: Object to form. 2 A. So, it shows it going to a terminal. There's a 3 num- -- a letter -- six, Evaluation. I've got to double 4 check that, but -- there's these cloud of things around 5 the Terminal box. And I say "cloud." I mean just a 6 circle with different numbers, including alarm, request 7 for information, request for data, and evaluation, but I 8 don't -- I don't know offhand what that evaluation is, 9 but that's what it says. 10 Q. (BY MR. HACKMAN) Okay. Why don't we go to 11 Column 8 and Line 33 where it says "The results of the 12 analysis can either be sent back to the local level," 13 parentheses, "Phase 6," close parentheses, "so that the 14 breeder can him/herself decide the measures to pursue, 15 or the server may automatically send a request order to 16 the artificial inseminator's server 510." 17 You see that? 18 A. I do, yes. 19 Q. And, so, that's describing what's going on in 20 Figure 5, right? 21 MR. LANDERS: Object to form. 22 A. Yeah. It looks like it's -- 23 MR. LANDERS: Sorry. Object to form. 24 THE WITNESS: It's okay. 25 A. It looks like it's kicking out the data to an

Page 141 1 individual to look at, a breeder, right, so they can -- 2 he can decide what to do. And then it also says that 3 server may automatically send a request. It doesn't say 4 how it determines that in either case, you know. It's 5 just a breeder or a server that then would send a 6 request for insemination. That's what I -- we talked 7 about this. This is about -- informs you on how to make 8 decision on insemination. 9 Q. (BY MR. HACKMAN) So, the system in Figure 5 is 10 taking some sensed data, which are movement and 11 temperature, doing some type of processing to it and 12 then determining whether or not insemination is 13 appropriate, right? 14 MR. LANDERS: Object to the 15 characterization. 16 A. Well, the one instance, it's just kicking it 17 out to a person -- so, it's outside the system at that 18 point -- and that person could make that decision; like, 19 back to the farmer, like I said earlier, and then -- 20 yeah. The other's to -- to a -- you know, it's just -- 21 doesn't really say, but to the server. And I'm not sure 22 what that server's doing to make that request for the 23 artificial insemination. 24 Q. (BY MR. HACKMAN) So, would you agree that 25 Liao, Exhibit 1010, and Laitinen, Exhibit 1006, are both	Page 143 1 A. So, yes. So, it says "computer means and a 2 network means utilized to practice the invention, 3 including the best mode." 4 THE REPORTER: Including -- 5 THE WITNESS: The best mode, m-o-d-e. 6 A. And doesn't really, you know, it's one of those 7 open-ended, non-limited kind of a -- where they put 8 everything in here, right? 9 Q. (BY MR. HACKMAN) Right. And so as part of 10 this, they include these personal digital assistants or 11 camera cell phone, right? 12 A. I see that, yes. 13 Q. And, so, would you agree that the '206 patent 14 contemplates the computer means to include a personal 15 digital assistant or a cell phone? 16 MR. LANDERS: Object to form. 17 A. Well, I can't argue that it says "personal 18 digital assistant" right here. The "computer means" 19 limited to what this paragraph is talking about. The 20 "network means" also. 21 Q. (BY MR. HACKMAN) Would these means include 22 a -- a processor? 23 MR. LANDERS: Object to form. 24 A. All right. So, you're asking me if a personal 25 digital assistant, for example, has a -- has a
Page 142 1 interested in decision making for artificial 2 insemination? 3 MR. LANDERS: Object to form. 4 A. Yeah. So -- so, this -- this is the Laitinen 5 patent and there is a decision for artificial 6 insemination, is one of -- one of the features here 7 and -- go back to the Liao. And then -- it's table on 8 Page 10. That's the output insemination. So, yes, 9 that's what they're doing in both cases, at least part 10 of it. 11 Q. (BY MR. HACKMAN) Okay. Let's go to next -- 12 okay. Actually, can you pull out Exhibit 1001, the '206 13 patent, again? 14 A. Okay. I have that. 15 Q. All right. And please go to Column 7. And 16 there's a paragraph beginning on Line 59 of Column 7, 17 going to Line 3 of Column 8, and just take a moment to 18 read that. 19 A. Okay. 20 (Reviewing document.) 21 A. Okay. I have it. 22 Q. (BY MR. HACKMAN) So, in this section, would 23 you agree this is describing the computer processor 24 that -- to which data is sent in the described system? 25 MR. LANDERS: Object to form.	Page 144 1 processor? 2 Q. (BY MR. HACKMAN) Partly. Okay. Well, let's 3 ask that. Does -- does a personal digital assistant 4 have a processor? 5 MR. LANDERS: Object to form. 6 A. So, I -- I haven't built one or taken one 7 apart, so -- but my -- my understanding is that -- that 8 it would. And, you know, I wouldn't necessarily even be 9 able to identify it, but that's my just general 10 understanding. 11 Q. (BY MR. HACKMAN) Okay. Can you turn to Claim 12 1 of this patent, which is the '206 patent, which is on 13 Column 18? 14 A. Okay. Yes, sir. 15 Q. Okay. And at Line 24 it has -- it says "a 16 processor communicatively coupled to a non-transitory 17 computer readable media containing program instructions 18 executable to." 19 Do you see that? 20 A. I do see it, yes. 21 Q. So, could the processor here be a processor in 22 a personal digital assistant? 23 MR. LANDERS: Object to form. 24 A. Well, you know, I didn't study the processor 25 part. I can only tell you what I'm reading here. You

Page 145 1 know, we did read "personal digital assistant," but I 2 don't know how that connects up with this honestly and 3 it's not clear to me. 4 Q. (BY MR. HACKMAN) So, this claim element, the 5 processor, it's not limited to a specific type of 6 device, right? 7 A. Well, it seems like there's an all-encompassing 8 type of a language. But, again, I'm -- and that's in -- 9 you read earlier -- what was that -- on Column 7, you 10 know, but above that, it talks about a LAN networking 11 environment, talks about a server computer. There is, 12 you know, many other -- I guess that's the additional 13 or -- again, I'm not pertaining (sic) to know everything 14 is in the patent writer's mind here. 15 But, I mean, we talk about voice commands, 16 key- -- keyboard strokes, mouse buttons. It's a very 17 extensive list of things here. "Server computer 18 operating in a network environment." This is on Column 19 7. And they talk about LAN networks and WAN networks 20 and that's really things I didn't get into for this -- 21 for this study. 22 Q. Okay. All right. I'm going to mark another 23 exhibit. This is Exhibit 1001, the '515 patent, and 24 this is in the IPR2024-00885. 25 Okay. Dr. Bowser, can you please go to	Page 147 1 Q. (BY MR. HACKMAN) Okay. Well, let's -- let's 2 go down. Twenty may be easier, Claim 20. 3 A. Okay. 4 Q. So, Claim 20 says "at least one client computer 5 capable of configuration with said executable program 6 instructions connected to said wide area network 7 comprises providing a cellular telephone capable of 8 configuration with said executable program instructions 9 connected to said wide area network." 10 Do you see that? 11 A. I do see that, yes. 12 Q. So, would you understand this to be referring 13 to a cell phone that has executable program instructions 14 as part of the system that's being described here? 15 MR. LANDERS: Object to form. 16 A. So, I mean, all I can say is that it has a 17 cellular telephone. I don't -- I don't know what 18 it's -- it says "capable of configuration with said 19 executable program instructions," but I don't -- I don't 20 know how -- how that would be done and I don't -- I 21 didn't look into that for this study, so I just don't 22 know. I can't -- I couldn't do that with my cell phone 23 and I haven't -- don't have that experience. 24 Q. (BY MR. HACKMAN) So, do you know whether the 25 executable program instructions could include software
Page 146 1 Column 20? 2 A. Yes. Yes, sir. 3 Q. Okay. And in Claim 18 says "The computer 4 implemented method of animal tracking as described in 5 Claim 17 further comprising providing at least one 6 client computer capable of configuration with said 7 executable program instructions connected to said wide 8 area network." 9 Do you see that? 10 A. I do see that, yes. 11 Q. And then in Claim 19, it says that "said wide 12 area network comprises providing a palm device capable 13 of configuration with said executable program 14 instructions connected to said wide area network." 15 Do you see that? 16 A. I do. "Palm device capable of 17 configuration" -- yes. 18 Q. So, would you understand these claims to be 19 referring to a palm device that's able to run these 20 execute -- executable program instructions? 21 MR. LANDERS: Object to form. 22 A. Yeah. I just -- I just don't know. I honestly 23 didn't look into that and -- I -- I think I had a palm 24 device at one time, but it's been a long time and I 25 don't remember, you know --	Page 148 1 that's been downloaded to a cellular telephone? 2 MR. LANDERS: Object to form. 3 A. Yeah. So, I don't know. It doesn't say 4 anything about software in here. I mean, it could be a 5 hardware thing. There's just -- there's not -- I don't 6 know. Sorry. It's not here, but -- and I can't tell 7 you. I don't -- I haven't -- I don't have that 8 understanding either. 9 Q. (BY MR. HACKMAN) All right. I will now mark 10 another exhibit. So, I'm handing you Exhibit 1034, the 11 Hillerton, both proceedings. 12 A. Okay. Yeah. 13 (Sotto voce discussion.) 14 Q. (BY MR. HACKMAN) My first question is whether 15 you considered Hillerton in preparing your declaration? 16 A. Yes, sir, I did. It's listed in my list of 17 references. 18 Q. Okay. So, please turn to Page 52 of the 19 Hillerton reference, page numbers at the bottom of the 20 page. Not the exhibit numbers, but just the -- the 21 article numbers. 22 A. Got it, yes, sir. It has a table at the top 23 or -- 24 Q. That's right. 25 A. Looks like a table. It's not labeled, but it

Page 149 1 is -- looks like it is. 2 Q. So, I wanted to focus on this paragraph titled 3 "Automated Milking Systems." Do you see that? 4 A. Yes, sir, I do see that. 5 Q. Says "The most immediate need for application 6 of mastitis detection and prediction systems, giving 7 reliable information in real-time, is in fully-automated 8 milking systems," open parentheses, "robotic milking," 9 close parentheses. 10 A. Uh-huh. 11 Q. "Yet there is a statutory requirement to detect 12 cows with clinical mastitis and reject all abnormal 13 milk. At present the attitude of regulatory bodies, and 14 some milk buyers, is that systems should be absolute and 15 detect abnormal milk with 100 percent sensitivity and 16 100 percent specificity. This is unrealistic given that 17 the gold standard of human observation using fore 18 milking only detects 80 percent of cases." 19 Do you see that? 20 A. I do see that, yes. 21 Q. Okay. And, so, what do you understand that -- 22 that passage to be saying? 23 MR. LANDERS: Object to form. 24 A. Okay. So -- 25 Q. (BY MR. HACKMAN) Actually, let me back up and	Page 151 1 quoting it here, but that's what I -- that's what I see. 2 And as a POSA, it looks like, well, you 3 probably can't -- this is unrealistic. It's not likely. 4 I mean, how are you going to get from 90 to a hundred 5 percent without some really interesting stuff? 6 Q. (BY MR. HACKMAN) And the follow sentence says 7 "The data available suggest that the better automated 8 systems, using quarter sampling of milk electrical 9 conductivity, milk temperature and production with the 10 best algorithms, achieve at least the same accuracy that 11 a human milker can manage." 12 Do you see that? 13 A. I do see that. And I'm thinking that, you 14 know, they want to do this cow-side. It's already 15 equipment-side. It's already in the -- I mean, they've 16 already failed that part. So, it's already gotten into 17 the system where they could -- because it says 18 electrical conductivity, milk temperature. You know, 19 that's already external to the cow if they're collecting 20 that data. 21 So, I mean, it's in there, so how are you 22 going to put it back? You know what I'm trying to say? 23 Or you can maybe dump it somehow. But, yeah, that's -- 24 that's what -- I'm just kind of trying to give you my 25 take on what -- what I'm reading here.
Page 150 1 let me re-ask the question. Apologies. 2 A. All right. 3 Q. So, what would -- what would a person of 4 ordinary skill in the art understand that paragraph to 5 be stating? 6 MR. LANDERS: Object to form. 7 A. I guess this seems to be sort of a summary of 8 automated milking systems in a paper that -- just go 9 back to the beginning here, the paper on cow-side 10 detection of mastitis, which I would think means you 11 want to detect it from the -- you know, basically, 12 before it gets out of the cow, I think is what they're 13 trying to say. Maybe that's my -- that's my guess, 14 which is -- seems like a really heavy order, but 15 that's -- that's what I'm thinking it says, right? 16 And -- and then in this paragraph they give 17 their wish, their -- they'd love to get to a hundred 18 percent sensitivity and a hundred percent specificity, 19 meaning they want to detect all of it. They won't -- 20 don't want any milk from a sick cow to get into that 21 system, right? That's what I'm seeing. 22 And then they also say that it's 23 unrealistic given that the best a human can do is 80 24 percent. I don't know where they get that information. 25 Maybe it's in one of these references, but they aren't	Page 152 1 Q. So, would you agree that they're attempting to 2 use this automated system to detect whether a cow has 3 mastitis? 4 MR. LANDERS: Object to form. 5 A. Yes. So, this is -- this automated system 6 would really -- it's kind of -- like I was just saying, 7 it's not -- it's not in the cow, it's -- it's after the 8 cow. And they're looking at conductivity. Quarter 9 sampling means they're -- they're taking it teat by 10 teat -- there's four teats. One -- one teat at a 11 time -- and they're looking at the milk stream from that 12 one particular teat. They're not combining the streams. 13 And -- but that's all -- again, that's external to the 14 cow, so -- I think I'm answering your question. They're 15 not doing internal cow measurements. 16 Q. (BY MR. HACKMAN) Is the -- no. Let's go to -- 17 to the claims real quick. So, why don't we pull out the 18 '206 patent. That's Exhibit 1001 in the 875 proceeding. 19 A. Here it is. Okay. 20 Q. Sorry. Not the declaration. The patent. 21 (Sotto voce discussion.) 22 Q. (BY MR. HACKMAN) I know. It's inevitable. 23 A. I got it. Thank you. 24 Q. All right. So, go to Claim 1 of the '206. 25 It's Column 18.

Page 153 1 A. Okay. Column 18. 2 Q. Yeah. So -- so, the computer implemented 3 animal management system of Claim 1, does that require 4 the disease detection or the -- let me -- let me re-ask 5 that. 6 So, does Claim 1 limit the data collected 7 to data internal to the cow? 8 MR. LANDERS: Object to form. 9 A. Okay. Claim 1, they retrieve animal ID. 10 That's from an RFID device which would be, like, on the 11 cow or in the cow, right? Then retrieve sensed animal 12 information from said RFID device, said -- and that 13 could be on or in the cow. 14 Sensed animal information generated by a 15 sensor coupled to a said RFID device. And then 16 "coupled" means it's -- I don't know necessarily if it's 17 in or out of the cow, but it's there at the cow. 18 Match said sensed animal information 19 retrieved from said RFID device to animal information of 20 said animal stored in the database. So, they're -- then 21 they're matching it to the database to do the -- you 22 know, they're matching there to look at additional data. 23 And then enter said sensed animal 24 information retrieved from said RFID device and said 25 animal information stored. So, there's -- but -- but	Page 155 1 going to load -- lose a load, you're going to go across 2 a scale. You know, you -- there's scales all -- scales 3 are great. So, I'm not saying that can't be done. I 4 mean, that's a -- that's an option. 5 Q. (BY MR. HACKMAN) Okay. But -- 6 A. That's a legitimate -- 7 Q. But in the context of the art that we're 8 looking at here, is -- is a person with ordinary skill 9 in the art going to be weighing the cow before and after 10 entering the -- the milking parlor and determining the 11 milk volume from that? 12 A. They could sure consider it. I mean, it would 13 be great to have a cow's weight for other reasons, too. 14 I mean, that's a -- that's a possible, but I -- I'm not 15 saying it's done. I'm just saying that's something that 16 could be considered. 17 Q. All right. But would a person with ordinary 18 skill in the art use a milk meter to determine the 19 volume of the milk? 20 A. I mean, that's -- 21 MR. LANDERS: Object to form. 22 A. That's a -- so, milk -- milk meter's used, too, 23 yes. They're -- they're more common, I'd say. 24 Q. (BY MR. HACKMAN) Okay. So -- so, why don't we 25 go back to this Hillerton reference, Exhibit 1034.
Page 154 1 most of that information appears to be coming -- or a 2 lot of that information, just say -- it's not specified 3 exactly, but a good bit of it's coming from the cow 4 itself, but there's some coming from a database, which 5 could have come from the cow itself, too, if they -- you 6 know, if it's, like, a veterinarian measured it and then 7 put it in there. I don't know for sure. But there 8 could be other data that also maybe doesn't come from 9 the cow, but I'm not sure. 10 Q. (BY MR. HACKMAN) So, milk production -- amount 11 of milk production would be something that's taken 12 external to the cow, right? 13 MR. LANDERS: Object to form. 14 A. Yes. So, the -- the amount of milk production 15 has to be measured and -- and it can't be measured in 16 the cow, so -- 17 Q. (BY MR. HACKMAN) Right. 18 A. You -- you could maybe weigh the cow before it 19 went in there and weigh it afterwards and that's one way 20 you can do it. So, maybe that -- that -- 21 Q. But how would a person with ordinary skill in 22 the art likely measure milk production? 23 MR. LANDERS: Object to form. 24 A. Well, you know, I -- you can weigh -- you take 25 your -- you know, your truck to the dump and you're	Page 156 1 A. Okay. 2 Q. And, so, let's go back to that -- that 3 paragraph on Page 52. And you mentioned earlier that 4 the data that's being taken here is measured outside the 5 cow, right? 6 A. Yeah, right. I mentioned the electrical 7 conductivity, temperature, and production -- 8 Q. Right. 9 A. -- which would be how much milk. So -- 10 Q. Okay. 11 A. Quantity of milk. 12 Q. Sorry. You're done? 13 A. No. That's it, yes. 14 Q. And, so, the data measured here that they use 15 for the mastitis detection are milk conductivity, milk 16 temperature, and milk production, right? 17 MR. LANDERS: Object to form. 18 A. You're saying they use that to test for, you 19 know, mastitis. That's -- I mean, that's just data 20 available to suggest for better automated systems. This 21 is not -- I mean, mastitis is -- you know, it's not 22 just -- is just part of it. It's not the whole thing. 23 It's just -- the paragraph's titled Automated Milking 24 Systems, so -- and -- and I'm not trying to restrict it 25 to only mastitis.

Page 157 1 Q. (BY MR. HACKMAN) Okay. So, is this paragraph 2 saying they're taking -- taking at least data that may 3 include milk electrical conductivity, milk temperature, 4 and production and running some of that data through the 5 best algorithms to achieve a diagnosis of some sort? 6 MR. LANDERS: Object to form. 7 A. Yeah. They say it -- they achieve at least the 8 same accuracy that a human milker can manage. And that 9 accuracy -- you know, you go back, looks like they're 10 detecting abnormal milk and that's -- that's the sum of 11 it. So, what is abnormal milk? Whatever a human can 12 detect, I suppose. 13 Q. (BY MR. HACKMAN) So, the -- the system's 14 detecting whether abnormal milk is being produced 15 through data that includes measurements of milk 16 conductivity, milk temperature, and production, right? 17 MR. LANDERS: Object to form. 18 A. I mean, they were saying data available 19 suggests. So, I'm not -- you know, I don't know if they 20 have to, you know, eliminate everything. There's -- 21 these are some -- I think they're showing these as 22 examples. It's hard to tell. I mean, they're trying to 23 do better than a human milker. And they're not just 24 insinuating. They're telling you they can't get there. 25 They don't do that. So, they need additional -- they	Page 159 1 design some equipment and some systems that can fill 2 that hole and you'd have a great market. I think that's 3 what you said and I think that's probably true. 4 Q. (BY MR. HACKMAN) Okay. 5 Want to take a break or keep going? 6 MR. LANDERS: Seems like a good time for a 7 break. 8 A. Yeah. Thank you. That's -- I appreciate that 9 very much. 10 Q. (BY MR. HACKMAN) Okay. All right. 11 (Recess from 2:19 a.m. to 2:35 a.m.) 12 Q. (BY MR. HACKMAN) Okay. So, if we could go 13 just briefly back to the declaration in the 875, the 14 '206 patent case. 15 A. Yes, sir. 16 Q. Go to Paragraph 80 on Page 40, please. 17 A. Yes, sir. I have it. 18 Q. In this paragraph, you're discussing how Liao 19 doesn't describe a sensor or any mechanism for acquiring 20 the days in milk, peak milk yield, or heat detection 21 status; is that right? 22 A. Yes. 23 Q. So, does -- does -- Liao doesn't preclude the 24 POSA from using a sensor to get this data, right? 25 MR. LANDERS: Object to form.
Page 158 1 need something, right? They haven't found it yet. 2 And, you know, it's really important with 3 these robotic milking systems to catch the milk before 4 it gets in there because once it's in there, you can't 5 get it back out. It's in the system. And, so, I can 6 see it's a huge problem where you don't have a person 7 right up there that can screen out and dump that bad 8 milk, then -- then it's -- there's -- once it's -- you 9 know, it's in the entire batch of milk, it's all 10 contaminated. You just can't get -- you can't separate 11 it back out without some other really high tech and 12 expensive technology. 13 Q. (BY MR. HACKMAN) And that need to detect milk 14 before it gets into the system would motivate the person 15 of ordinary skill in the art to develop a system that 16 can detect infection before the milk is taken, right? 17 MR. LANDERS: Object to form. 18 A. So, what you're saying is there's a -- I think 19 what you're saying is there's a -- there's, like, a draw 20 because there's a -- there is a technology that doesn't 21 exist that needs -- that's really needed in -- in -- you 22 know, in industry and -- dairy industry and you'd be 23 motivated as a POSA or, like, a company that was 24 pursuing a profit, you know, making some equipment -- 25 you'd be motivated to fill that hole and, you know, to	Page 160 1 A. No. I -- just saying that Liao never explains 2 where -- where it came from or how they -- how they got 3 it. That's all. Just -- it's not precluding anybody. 4 Just saying that -- I mean, you're just left without 5 knowing that information. That's all. 6 Q. (BY MR. HACKMAN) So, wouldn't a POSA know as 7 background how to collect this type of information? 8 MR. LANDERS: Object to form. 9 A. Well, there's more than one ways to collect -- 10 more than one way to collect any of this information and 11 it would be very helpful to have that -- you know, 12 that -- that available to know. 13 Q. (BY MR. HACKMAN) A POSA could collect this 14 information using a sensor, right? 15 MR. LANDERS: Object to the hypothetical. 16 A. Yeah. Again, we -- it doesn't tell us how he 17 does it, but you could collect it. He doesn't describe 18 a sensor or any mechanism. You could collect it 19 manually. You could use a sensor or a mechanism, but 20 the -- we just don't know. That's hypothetical. 21 Q. (BY MR. HACKMAN) Okay. But techniques for 22 collecting days in milk, peak milk yield, and 23 temperature, for example, there were techniques known 24 how to collect these data, right? 25 A. Sure, but I'm -- I'm just saying here, in my

Page 161 1 view -- in view of that, you'd guess it was manual 2 because it's not described -- 3 Q. Okay. 4 A. -- in any kind of detail. So, that's why I'm 5 saying here, you would expect because he doesn't tell 6 you about any -- any equipment or sensors, that -- that 7 there'd be an absence of them, but that's just a -- I'm 8 not saying that's exactly what it was. I just don't 9 know. I'm just making a -- an educated guess, most 10 likely understanding. 11 Q. Okay. So, when an animal is undergoing a 12 medical treatment, is this something that a POSA would 13 typically monitor? 14 MR. LANDERS: Object to form. 15 A. Can you be more specific -- 16 Q. (BY MR. HACKMAN) Sure. 17 A. -- because -- 18 Q. So, hypothetically, a cow is being treated with 19 an antibiotic. Would the POSA monitor the 20 physiologic -- physiology of the animal during the 21 period that they're being treated with antibiotic? 22 MR. LANDERS: Object to form. 23 A. So, there's -- in -- in my opinion, so most -- 24 in most cases, the animal is isolated from the herd, put 25 in a -- they call a hospital pen, a space where they can	Page 163 1 it's not a -- you'd have to -- I mean, there -- it's not 2 considered consumable milk, so it's out of production. 3 MR. HACKMAN: If it's okay, can we just 4 take a quick five-minute? Because I might be done here, 5 so I just want to make sure. 6 MR. LANDERS: Sure. Sounds like a plan. 7 (Recess from 2:41 p.m. to 2:49 p.m.) 8 MR. HACKMAN: So, you know, pending any 9 redirect from patent owner's counsel, we don't have any 10 further questions for this witness. However, we reserve 11 the right after -- after redirect to have additional 12 questions. 13 MR. LANDERS: Okay. Now if I could have a 14 moment to look over all my notes. 15 MR. HACKMAN: Okay. 16 MR. LANDERS: I didn't -- break and then a 17 break, but I didn't have quite enough time to look at 18 everything. 19 MR. HACKMAN: Okay. 20 (Recess from 2:49 p.m. to 3:10 p.m.) 21 MR. LANDERS: Welcome back, Dr. Bowser. 22 THE WITNESS: Thank you. 23 MR. LANDERS: I don't have any questions 24 for the witness, so that concludes the deposition. 25 We'll do a read and sign.
Page 162 1 be cared for, and it's usually by a veterinarian and -- 2 but that doesn't exclude the POSA from checking in on a 3 cow, if that's what you're asking about. They certainly 4 do that. And I think that the -- you know, the 5 question -- I think that's the best answer I can give 6 you to that question right now. 7 Q. (BY MR. HACKMAN) And are antibiotics known to 8 impact the body temperature of a cow? 9 MR. LANDERS: Object to form. 10 A. So, I don't -- I don't know specifically. 11 Depending what antibiotics -- I'm sure there's different 12 ones. I don't have any experience with one that does or 13 doesn't, so I can't tell you. I don't know for sure, 14 but it's possible that it could. Definitely look into 15 that, you know. 16 Q. (BY MR. HACKMAN) And is it possible that 17 certain antibiotic treatments may impact the cow's milk 18 production? 19 MR. LANDERS: Object to form. 20 A. Like I say, that -- that -- that cow is going 21 to be isolated to a -- what they call hospital pen in a 22 space where they're away from the herd, they can't 23 transmit that -- that illness, and their milk is out of 24 production. So, that -- so, really their production is 25 zero at that point. Whatever they're milking, it's --	Page 164 1 THE REPORTER: Okay. 2 MR. LANDERS: And that -- that's it. 3 THE REPORTER: Okay. Off the record? 4 Okay. 5 (Discussion off the record at 3:11 p.m.) 6 THE REPORTER: Do you want a copy of the 7 transcript? 8 MR. LANDERS: Yes, please. 9 THE REPORTER: Do you need the rough draft? 10 MR. LANDERS: That would be great. 11 (Deposition concluded at 3:11 p.m.) 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Page 165

1	CHANGES AND SIGNATURE			
2	WITNESS NAME: TIMOTHY J. BOWSER, Ph.D.			
3	DATE OF DEPOSITION: APRIL 23, 2025			
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Page 166

1 I, TIMOTHY J. BOWSER, Ph.D., have read the foregoing

2 deposition and hereby affix my signature that same is

3 true and correct, except as noted above.

4 _____

5 TIMOTHY J. BOWSER, Ph.D.

6 THE STATE OF _____)

7 COUNTY OF _____)

8 Before me, _____, on this day

9 personally appeared TIMOTHY J. BOWSER, Ph.D., known to

10 me (or proved to me under oath or through

11 _____) (description of identity card or other

12 document) to be the person whose name is subscribed to

13 the foregoing instrument and acknowledged to me that he

14 executed the same for the purposes and consideration

15 therein expressed.

16

17 Given under my hand and seal of office, this

18 _____ day of _____, _____.

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22 THE STATE OF _____

23

24 My commission expires: _____

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25 SMAXTEC INC. VS. ST REPRODUCTIVE TECHNOLOGIES, LLC

Page 167

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----

3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4 -----

5 SMAXTEC INC. and

6 SMAXTEC ANIMAL CARE GMBH,

7 Petitioner

8 v.

9 ST REPRODUCTIVE TECHNOLOGIES, LLC

10 Patent Owner.

11 -----

12 Case: IPR2024-00875

13 Patent No. 9,844,206

14 -and-

15 Case: IPR2024-00885

16 Patent No. 8,823,515

17 -----

18 REPORTER'S CERTIFICATION OF THE ORAL

19 DEPOSITION OF TIMOTHY J. BOWSER, Ph.D.

20 APRIL 23, 2025

21

22 I, Shanon M. Hair, a Certified Shorthand

23 Reporter in and for the State of Texas, hereby certify

24 to the following:

25 That the witness, TIMOTHY J. BOWSER, Ph.D., was

26 duly sworn by the officer and that the transcript of the

27 oral deposition is a true record of the testimony given

28 by the witness;

29 That the original deposition was delivered to

30 BLAINE M. HACKMAN, Ph.D., ESQ.

31 That a copy of this certificate was served on

Page 168

1 all parties and/or the witness shown herein on

2 _____.

3 I further certify that pursuant to FRCP Rule

4 30(e)(2) that the signature of the deponent:

5 X was requested by the deponent or a party

6 before the completion of the deposition and that the

7 signature is to be before any notary public and returned

8 within 30 days from date of receipt of the transcript.

9 If returned, the attached Changes and Signature Page

10 contains any changes and the reasons therefore:

11 _____ was not requested by the deponent or a

12 party before the completion of the deposition.

13 I further certify that I am neither counsel

14 for, related to, nor employed by any of the parties or

15 attorneys in the action in which this proceeding was

16 taken, and further that I am not financially or

17 otherwise interested in the outcome of the action.

18 Certified to by me on this, the 30th day of

19 April, 2025.

20

21 

22

23 Shanon M. Hair, CSR No. 6513

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4 I hereby certify that the witness was notified
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8 for review by the witness and if there are any changes
9 in the form or substance to be made, then the witness
10 shall sign a statement reciting such changes and the
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12 That the witness' signature was/was not
13 returned as of _____.

14 Subscribed and sworn to on this, the 30th day
15 of April, 2025.

16

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18

19

Shanon M. Hair

Shanon M. Hair, CSR No. 6513

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Expiration Date: 04-30-2026

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