

SOAH DOCKET NO. 582-14-3597
TCEQ DOCKET NO. 2012-0302-MSW

APPLICATION BY PINTAIL) BEFORE THE STATE OFFICE
LANDFILL, LLC FOR NEW) OF
MUNICIPAL SOLID WASTE)
PERMIT NO. 2377) ADMINISTRATIVE HEARINGS

ORAL AND VIDEOTAPED DEPOSITION OF
JOHN MICHAEL SNYDER, P.G.
July 9, 2015
Volume 1

ORAL AND VIDEOTAPED DEPOSITION OF JOHN MICHAEL
SNYDER, P.G., Volume 1, produced as a witness at the
instance of City of Hempstead, and duly sworn, was
taken in the above-styled and numbered cause on the
9th of July, 2015, from 9:29 a.m. to 5:09 p.m., before
Julie A. Jordan, CSR, RPR, in and for the State
of Texas, reported by machine shorthand, at the law
offices of Hance Scarborough, LLP, 400 West 15th Street,
Suite 950, Austin, Texas 78701, pursuant to the
Texas Rules of Civil Procedure and any provisions stated
on the record or attached hereto.

JOHN MICHAEL SNYDER. P.G. - VOLUME 1 - July 09, 2015

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6	<p>1 VIDEOTAPE(S)</p> <p>2 File 1..... 7</p> <p>3 File 2..... 73</p> <p>4 File 3..... 112</p> <p>5 File 4..... 178</p> <p>6 File 5..... 241</p> <p>7 File 6..... 275</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	8	<p>1 me and ask.</p> <p>2 A. Okay.</p> <p>3 Q. Same goes if you need a break. If you need a</p> <p>4 break at any time for any reason, just let me know --</p> <p>5 A. Okay.</p> <p>6 Q. -- and we'll do that. Okay?</p> <p>7 I'm going to hand you what has been marked</p> <p>8 Exhibit 1. And it is entitled "PREFILED TESTIMONY OF</p> <p>9 MICHAEL SNYDER, P.G. ON BEHALF OF I-" -- "IESI TEXAS</p> <p>10 LANDFILL LP," SOAH Docket No. 582-08-1804.</p> <p>11 And I'm going to ask you, do you recognize</p> <p>12 this document?</p> <p>13 A. (Reviewing document.) Without studying it in</p> <p>14 detail, generally, yes, I recognize it.</p> <p>15 Q. And is that your prefile testimony from that</p> <p>16 case that I'm going to call the IESI case?</p> <p>17 A. Again, without completely reviewing it, I</p> <p>18 believe it probably is.</p> <p>19 Q. Okay. And I'd like you to turn to Page 14 of</p> <p>20 Exhibit 1, and looking at the bottom of that page.</p> <p>21 Are you with me?</p> <p>22 A. Bottom of Page 14?</p> <p>23 Q. Yes, sir.</p> <p>24 A. Yes, ma'am.</p> <p>25 Q. And the question there is, "IN YOUR</p>
7	<p>1 (Exhibits 1 through 3 marked)</p> <p>2 THE VIDEOGRAPHER: Today is July 9th,</p> <p>3 2015. The time is 9:29.</p> <p>4 Would the reporter please swear in the</p> <p>5 witness.</p> <p>6 JOHN MICHAEL SNYDER, P.G.,</p> <p>7 having been first duly sworn, testified as follows:</p> <p>8 EXAMINATION</p> <p>9 BY MS. JACOBS:</p> <p>10 Q. Good morning.</p> <p>11 A. Good morning.</p> <p>12 Q. My name is Monica Jacobs and I represent the</p> <p>13 City of Hempstead.</p> <p>14 A. Uh-huh.</p> <p>15 Q. And you've been deposed a number of times</p> <p>16 before?</p> <p>17 A. Yes, ma'am.</p> <p>18 Q. And how many times have you been deposed?</p> <p>19 A. At least twice.</p> <p>20 Q. Okay. So you probably have an idea about how</p> <p>21 this works. But how it's going to work with us is if</p> <p>22 you have a question about any of the questions that I</p> <p>23 ask, if you need clarification on anything, stop me and</p> <p>24 ask. If you don't understand the question or you just</p> <p>25 need me to -- to elaborate in some way, just interrupt</p>	9	<p>1 PROFESSIONAL OPINION, IS THE INFORMATION USED IN</p> <p>2 PREPARATION OF THE ABOVE-REFERENCED PORTION OF IESI'S</p> <p>3 APPLICATION THAT YOU SPONSOR, ACCURATE AND</p> <p>4 CONSERVATIVE?"</p> <p>5 And your answer there is "Yes."</p> <p>6 Do you see that?</p> <p>7 A. Yes.</p> <p>8 Q. Next question, "WHEN YOU TESTIFY THE</p> <p>9 INFORMATION IS 'CONSERVATIVE,' WHAT DO YOU MEAN?"</p> <p>10 Answer, "By 'conservative' I mean that the</p> <p>11 information presented is cautious and developed or</p> <p>12 chosen to result in a more protective landfill design</p> <p>13 and/or operation."</p> <p>14 Have I read that accurately?</p> <p>15 A. I believe you did.</p> <p>16 Q. And do you recall that testimony?</p> <p>17 A. Only in that I'm hearing it right now. It's</p> <p>18 been a while.</p> <p>19 Q. Okay. And what I wanted to ask you is, does</p> <p>20 this -- do these statements also apply to the work that</p> <p>21 you have done for the current application? And if I</p> <p>22 refer to it as the Pintail application, do you know what</p> <p>23 I'm talking about?</p> <p>24 A. Yes, ma'am.</p> <p>25 Q. Okay. And so specifically I'm asking you,</p>

10	<p>1 would you feel comfortable testifying that the</p> <p>2 information that you have prepared for the Pintail</p> <p>3 application is accurate and conservative as</p> <p>4 "conservative" is defined here?</p> <p>5 A. Yeah. I haven't thought about this -- this</p> <p>6 phrase obviously for a while nor in -- necessarily in</p> <p>7 conjunction with this site, but I would say generally</p> <p>8 that -- that would apply.</p> <p>9 Q. And why do you say "generally"? And the</p> <p>10 reason I'm asking is because to me that seems pretty</p> <p>11 straightforward. I mean, your testimony in this</p> <p>12 previous case about your work on a previous application</p> <p>13 seems pretty straightforward. So I want to know why</p> <p>14 you're qualifying that.</p> <p>15 A. Well, I guess partly I made this statement in</p> <p>16 conjunction with this application with some chance to</p> <p>17 think about the context and what I was saying</p> <p>18 (indicating). And in terms of instantly applying it to</p> <p>19 Pintail, I'm not sure I'm ready to -- to do it other</p> <p>20 than in a general sense.</p> <p>21 Q. Okay. So are you not -- you would not feel</p> <p>22 comfortable testifying with respect to the Pintail</p> <p>23 application that the information you have prepared for</p> <p>24 that application is accurate?</p> <p>25 A. To the best of my knowledge, it's accurate.</p>	12	<p>1 Q. Okay. So what I'm going to ask you to do is</p> <p>2 over lunch, I'd like you to think about it and we're</p> <p>3 going to come back to this. Okay?</p> <p>4 A. Okay.</p> <p>5 Q. So that will give you a good hour to think</p> <p>6 about it. Because, I -- I mean, I do realize this is</p> <p>7 from 2008 and that's fair. So -- so I will give you</p> <p>8 some time and we'll come back.</p> <p>9 Now, just generally in terms of what you</p> <p>10 know given this -- this definition of "conservative"</p> <p>11 that we have in front of us here, you know who</p> <p>12 Steven Stamoulis is, correct?</p> <p>13 A. Stefan Stamoulis.</p> <p>14 Q. Stefan Stamoulis.</p> <p>15 A. Yes.</p> <p>16 Q. I'm going to call him probably using my own</p> <p>17 pronunciation --</p> <p>18 A. That will be fine.</p> <p>19 Q. -- because in my mind that's what he is</p> <p>20 called.</p> <p>21 A. Okay.</p> <p>22 Q. And I -- it will not be on purpose, but --</p> <p>23 A. That's okay.</p> <p>24 Q. -- feel free to correct me.</p> <p>25 A. Not offended.</p>
11	<p>1 Q. Okay. And -- and it -- so it's the</p> <p>2 "conservative" part that is giving you pause?</p> <p>3 A. It -- what's giving me pause is to -- to apply</p> <p>4 something that I wrote seven or eight years ago to a --</p> <p>5 with application to another site and with consideration</p> <p>6 of my testimony. It gives me pause to just instantly</p> <p>7 make that testimony about this case when I haven't</p> <p>8 thought about that -- those statements.</p> <p>9 Q. Okay.</p> <p>10 A. So that's why I said "generally."</p> <p>11 Q. I -- I see what you're saying.</p> <p>12 So let's think about that for just a</p> <p>13 second.</p> <p>14 A. Okay.</p> <p>15 Q. Is there anything that you can think of --</p> <p>16 because what you're saying here is that the information</p> <p>17 that you presented for that application, the IESI</p> <p>18 application was "cautious and developed or chosen to</p> <p>19 result in a more protective landfill design and/or</p> <p>20 operation."</p> <p>21 Anything that you can think of with</p> <p>22 respect to your work on the Pintail application that</p> <p>23 does not fall within that description?</p> <p>24 A. Not that I can think of off the top of my head</p> <p>25 as I sit here today.</p>	13	<p>1 Q. Well, he might be, though, but we don't know.</p> <p>2 We'll find out later.</p> <p>3 A. Okay.</p> <p>4 Q. So with respect to operating in a conservative</p> <p>5 manner, Mr. Stamoulis is the person that does field work</p> <p>6 for you guys generally?</p> <p>7 A. Uh-huh.</p> <p>8 Q. Is that right?</p> <p>9 A. Yes.</p> <p>10 Q. Okay. Do you think that Mr. Stamoulis</p> <p>11 operates in a conservative manner?</p> <p>12 A. As it regards the work that he does, as it</p> <p>13 regards the sample collection, the water levels, the</p> <p>14 descriptions, yes, I do.</p> <p>15 Q. Okay. And is -- do you think in general that</p> <p>16 the -- that the -- all of the consultants that are</p> <p>17 working on this Pintail application project also operate</p> <p>18 in a conservative manner as -- as you have defined it in</p> <p>19 your IESI testimony?</p> <p>20 A. I would be reluctant to speak for the opinion</p> <p>21 of all the consultants because I've not worked with all</p> <p>22 the consultants that have worked on this.</p> <p>23 Q. And which ones have you not worked with?</p> <p>24 A. Well, I haven't worked with the traffic</p> <p>25 consultants or the wetlands consultants. So -- and --</p>

14	<p>1 and other such consultants that were not part of my</p> <p>2 responsibility and I haven't worked with them. I would</p> <p>3 be not comfortable speaking to that.</p> <p>4 Q. Okay. And so you mentioned traffic and</p> <p>5 wetlands.</p> <p>6 What other consultants that worked on the</p> <p>7 project you that you haven't worked with?</p> <p>8 A. It -- it might be easier for me to tell you</p> <p>9 the two that I have.</p> <p>10 Q. That would be great. That would be great.</p> <p>11 A. Which -- which are Fugro consultants that did</p> <p>12 fault study and Stamoulis that did the -- the field</p> <p>13 work.</p> <p>14 Q. And when you say worked with them -- or when</p> <p>15 you say you haven't worked with the other consultants</p> <p>16 besides Fugro & Stamoulis, does that mean that you</p> <p>17 haven't spoken with them?</p> <p>18 A. I can't say with any certainty that I haven't</p> <p>19 spoken with any of those folks. I don't remember any</p> <p>20 specific conversations with any of them and certainly I</p> <p>21 was not involved in their scopes of work or the back and</p> <p>22 forth that goes with completing work such as they've</p> <p>23 done.</p> <p>24 Q. Have you reviewed their work?</p> <p>25 A. Let me think about that for a minute. I --</p>	16	<p>1 be no -- but is there anything about that work that</p> <p>2 influences your work or relates to your work in any way?</p> <p>3 A. I guess I'm confused about when you said that</p> <p>4 other consultant and the work they did. I'm not sure</p> <p>5 who you were talking about.</p> <p>6 Q. I said the traffic consultant.</p> <p>7 A. Oh, I'm sorry. That's who you're referring</p> <p>8 to.</p> <p>9 Q. Uh-huh.</p> <p>10 A. I'm sorry. I -- I lost -- just could you</p> <p>11 repeat that?</p> <p>12 Q. That is no problem. And just bear with me. I</p> <p>13 am in like a pre-migraine stage here, so just --</p> <p>14 A. Oh, I'm sorry.</p> <p>15 Q. No, no. That's okay. I'm just saying be</p> <p>16 patient with me, my friend.</p> <p>17 So let's start over. So what my question</p> <p>18 was, do you think -- and -- and I was anticipating the</p> <p>19 answer and I may be -- I shouldn't have done that, but I</p> <p>20 was sort of anticipating it from your previous</p> <p>21 responses.</p> <p>22 A. Uh-huh.</p> <p>23 Q. But do you think that the information in the</p> <p>24 traffic report is in any way related to the work that</p> <p>25 you have done or vice versa?</p>
15	<p>1 I'm certain that I haven't reviewed their work in any</p> <p>2 kind of detailed way. I can't say that I never read any</p> <p>3 of it or read any of their -- their reports or draft</p> <p>4 reports, but I don't remember that I did.</p> <p>5 Q. And have you read their final products that</p> <p>6 are included in the technically complete application --</p> <p>7 A. When --</p> <p>8 Q. -- Pintail application?</p> <p>9 A. When you say "they," you mean the consultants</p> <p>10 that I haven't worked with?</p> <p>11 Q. Yes. Yes, sir. And thank you for the</p> <p>12 clarification.</p> <p>13 A. I don't have recollection of having reviewed</p> <p>14 their final reports. I mean, I -- I can't say with any</p> <p>15 certainty that I didn't glance at it or that I might not</p> <p>16 have read a page here and there, something like that,</p> <p>17 but I was not involved in their completion of their</p> <p>18 scope of work at all, so...</p> <p>19 Q. Is their work -- and let's -- we'll just take</p> <p>20 the two that you've mentioned here, traffic and</p> <p>21 wetlands.</p> <p>22 Is the traffic work done in -- the name of</p> <p>23 the consultant escapes me, I'm sorry -- but the traffic</p> <p>24 work that was done, was that -- is -- is there anything</p> <p>25 about that work -- I'm assuming the answer is going to</p>	17	<p>1 A. I can't think of a way off the top of my head.</p> <p>2 Q. That's what I thought because you were saying</p> <p>3 you didn't work together, but I just wanted to verify.</p> <p>4 Same question for the wetlands work.</p> <p>5 Related to your work in any way, influence your work in</p> <p>6 any way or vice versa?</p> <p>7 A. Generally not. There was a -- there was</p> <p>8 consideration of locations of wetlands when setting the</p> <p>9 footprint and deciding where we were going to put</p> <p>10 monitoring wells, but that was just me looking at a line</p> <p>11 on a map. So I didn't -- I didn't have nor do I</p> <p>12 remember having any conversation with any of them about</p> <p>13 those things. Those would have been internal</p> <p>14 conversations that we had at our shop.</p> <p>15 Q. Just looking at information provided by --</p> <p>16 provided by whom?</p> <p>17 A. Provided probably by Kenneth Welch and -- and</p> <p>18 represented to me that it was -- what it was, so...</p> <p>19 Q. Okay. I'm going to hand you what has been</p> <p>20 marked Exhibit 2.</p> <p>21 A. Okay.</p> <p>22 Q. And it is from the Texas Board of Professional</p> <p>23 Geoscientists. And it is entitled "Guidance Document</p> <p>24 No. 1, Use and Application of the P.G. Seal."</p> <p>25 I'm going to ask you if you're familiar</p>

18	<p>1 with that document.</p> <p>2 A. I'm generally familiar with the document,</p> <p>3 although I see that this says, "Revised 05/15/15." I</p> <p>4 don't think I've seen a revision or do I know what the</p> <p>5 revisions would be.</p> <p>6 Q. But you're familiar with the Texas Board of</p> <p>7 Professional Geoscientists rules --</p> <p>8 A. Yes.</p> <p>9 Q. -- correct? You said "yes"?</p> <p>10 A. Yes, ma'am.</p> <p>11 Q. And let me ask you just a couple questions</p> <p>12 from this first paragraph. I'm looking at the fourth</p> <p>13 line where it says -- talking about the regulations</p> <p>14 "specifies the requirement for Professional Geoscientist</p> <p>15 (PG) to seal professional geoscientific work offered to</p> <p>16 the public."</p> <p>17 What does "offered to the public" mean?</p> <p>18 A. Well, I -- I'm not sure what their definition</p> <p>19 is. I think that it probably means that you have</p> <p>20 submitted a public document to a public agency or -- or</p> <p>21 any other case where it's going to a municipality or</p> <p>22 something else where the records would require that such</p> <p>23 things be a -- to the public.</p> <p>24 Q. Do you think that the work that you've done in</p> <p>25 this case with respect to the Pintail application fits</p>	20	<p>1 And your answer says, "The stated" --</p> <p>2 "stated purposed" -- I think that might be a typo -- "is</p> <p>3 included within the MSWMR. As previously stated, I have</p> <p>4 been continuously involved with the MSW rules in Texas</p> <p>5 since 1990."</p> <p>6 Do you see where I'm reading?</p> <p>7 A. Yes, ma'am.</p> <p>8 Q. And so when you say -- when you testify here</p> <p>9 that you've been continuously involved with the MSW</p> <p>10 rules since 1990, does that cover -- are you referring</p> <p>11 to just -- just Chapter 330 or are you referring to all</p> <p>12 of the rules that apply to municipal solid waste</p> <p>13 landfill applications?</p> <p>14 A. Well, I think the MSWMR that I was referring</p> <p>15 to generally responds to the 330 rules. Be- -- before</p> <p>16 that, they were numbered something else that I can't</p> <p>17 remember anymore when I worked at the agency.</p> <p>18 Q. Uh-huh.</p> <p>19 A. So -- so I think I was referring to the -- to</p> <p>20 the solid waste management regulations, not to every</p> <p>21 other regulation that is related to that or has become</p> <p>22 related to that.</p> <p>23 Q. Do you -- so you would not claim to be</p> <p>24 familiar, then, with other regulations that might</p> <p>25 pertain to the Pintail application besides the ones that</p>
19	<p>1 that definition?</p> <p>2 A. To the best of my knowledge.</p> <p>3 Q. And let me also ask you on the -- let's see.</p> <p>4 Well, a few lines up from the bottom same paragraph,</p> <p>5 "Upon sealing the geoscience work product, the PG takes</p> <p>6 full responsibility for the geoscience service(s)</p> <p>7 provided."</p> <p>8 Do you see where I'm at?</p> <p>9 A. Yes, ma'am.</p> <p>10 Q. And would you agree with that statement?</p> <p>11 A. I think that's what it says.</p> <p>12 Q. Well, let me ask another way.</p> <p>13 Do you take full responsibility for the</p> <p>14 geoscience services and work product that you sign and</p> <p>15 seal?</p> <p>16 A. Yes, ma'am.</p> <p>17 Q. Okay. Let's go back to Exhibit 1, which is</p> <p>18 your prefiled testimony in the IESI case from 2008. And</p> <p>19 let's turn to Page 60.</p> <p>20 A. Six zero?</p> <p>21 Q. Yes, sir. And I'm looking at the second</p> <p>22 question on that page. And you have just been asked a</p> <p>23 question prior to that, "WHAT IS YOUR UNDERSTANDING OF</p> <p>24 THE PURPOSE OF MSW REGULATIONS?" And then the second</p> <p>25 question is "WHAT IS THE BASIS FOR YOUR UNDERSTANDING?"</p>	21	<p>1 are contained in Chapter 330?</p> <p>2 A. Well, I don't think my answer was intended to</p> <p>3 exclude everything else. I was just not willing to</p> <p>4 include everything. But if there were some specific</p> <p>5 ones you wanted to ask me about, I could, but...</p> <p>6 Q. How about the regulations that apply generally</p> <p>7 to applications -- to filing any application?</p> <p>8 A. And those numbers are what? What number are</p> <p>9 you --</p> <p>10 Q. In chapter 305.</p> <p>11 A. Generally.</p> <p>12 Q. "Generally" meaning?</p> <p>13 A. Generally I am familiar and have -- have</p> <p>14 worked within those.</p> <p>15 Q. Okay. And again, here when you say</p> <p>16 "generally," what's the limitation or what's the</p> <p>17 qualification?</p> <p>18 A. I guess the question is, is what -- what did</p> <p>19 you mean by "have you worked with them?" I -- I -- I'm</p> <p>20 answering generally because I thought the question was</p> <p>21 kind of general.</p> <p>22 Q. I think my question -- I may be wrong, because</p> <p>23 again, not clearest of mind here -- but I -- I thought</p> <p>24 my question was about your familiarity with them.</p> <p>25 A. I think I'm comfortable with the answer that</p>

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<p style="text-align: right;">22</p> <p>1 I'm generally familiar with them.</p> <p>2 Q. Okay. As far as you know, you follow them?</p> <p>3 A. Yeah.</p> <p>4 Q. Who is responsible in your shop,</p> <p>5 Biggs & Mathews, for making sure that you're following</p> <p>6 the rules that are applicable to this application?</p> <p>7 A. Well, I think that's a -- there's a complexity</p> <p>8 there. Each of us is responsible -- professionally</p> <p>9 responsible for the pieces that we're responsible for.</p> <p>10 So we're responsible for that. And then the engineer of</p> <p>11 record is responsible overall. So, I mean, I think</p> <p>12 there's joint responsibility there.</p> <p>13 Q. And so have you also been -- and I actually</p> <p>14 don't know when they -- they passed the geoscientist</p> <p>15 regulations, but do you also feel that you're familiar</p> <p>16 with and follow those?</p> <p>17 A. It is certainly my intent that I do and that I</p> <p>18 have. I'm not -- I'm not aware that I haven't.</p> <p>19 Q. Do you think that -- that the -- do you think</p> <p>20 that the chapter -- do you think the rules that are</p> <p>21 applicable to -- and I'm talking about TCEQ rules that</p> <p>22 are applicable to the Pintail application -- do you</p> <p>23 think that they are subject to interpretation?</p> <p>24 A. I think I would have to answer that that I</p> <p>25 think all regulations are subject to interpretation. It</p>	<p style="text-align: right;">24</p> <p>1 Q. I'm trying to understand when you're -- when</p> <p>2 you're working and you're doing your work and you are --</p> <p>3 you're set with the task -- Biggs & Mathews is set with</p> <p>4 the task of creating an MSW application, what is it that</p> <p>5 you're relying upon in terms of -- in terms of how you</p> <p>6 go about that? Do you -- for example, do you rely on</p> <p>7 guidance documents?</p> <p>8 A. We have in the past. They generally don't</p> <p>9 like to issue guidance documents anymore. So -- and</p> <p>10 they -- they gener- -- the TCEQ's permit section</p> <p>11 generally disavows any -- anything about guidance</p> <p>12 documents. But, yes, we've relied on guidance</p> <p>13 documents.</p> <p>14 Q. But -- but for this application?</p> <p>15 A. I -- I can't say for sure. I don't remember</p> <p>16 one off the top of my head.</p> <p>17 Q. Okay. We'll come back to this.</p> <p>18 But I'm gathering from your answers that</p> <p>19 regardless of whether you feel comfortable with</p> <p>20 interpreting the regulations, you feel confident that</p> <p>21 you're following them with respect to this application?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. I'm going to hand you an exhibit that's</p> <p>24 been marked Exhibit 3. It's "DIRECT TESTIMONY OF</p> <p>25 MR. JOHN MICHAEL SNYDER, P.G. ON BEHALF OF BFI WASTE</p>
<p style="text-align: right;">23</p> <p>1 might be better if you had some specific things that you</p> <p>2 could ask me if there's -- there's interpretation</p> <p>3 involved. I mean, I -- all the -- there's a -- as you</p> <p>4 know, a multitude of rules, and that answer would be</p> <p>5 different for a variety of those rules. So...</p> <p>6 Q. So if a rule was fairly straightforward and</p> <p>7 clear, it might not be subject to interpretation,</p> <p>8 whereas if a rule was more ambiguous, you might think it</p> <p>9 would be subject to interpretation?</p> <p>10 A. I guess fairly straightforward and clear and</p> <p>11 ambiguous are two things that are in the eyes of the</p> <p>12 beholder, which is what leads to -- to interpretation.</p> <p>13 Q. Got you.</p> <p>14 Do you feel confident in your ability to</p> <p>15 interpret the regulations that are applicable to the</p> <p>16 Pintail application correctly?</p> <p>17 A. Yes.</p> <p>18 Q. And what do you base your interpretation on?</p> <p>19 A. Which interpretation?</p> <p>20 Q. Your interpretation of the regulations that</p> <p>21 are applicable to the Pintail application.</p> <p>22 A. I think there's a lot of answers to that</p> <p>23 because there's a lot of different regulations. So I --</p> <p>24 I'm not sure. I guess I don't understand the scope of</p> <p>25 your question.</p>	<p style="text-align: right;">25</p> <p>1 SYSTEMS OF NORTH AMERICA, LLC, October 3rd, 2008,"</p> <p>2 SOAH Docket No. 582-08-2178.</p> <p>3 And I'm going to ask you if you can</p> <p>4 identify that document?</p> <p>5 A. Can I ask you a question?</p> <p>6 Q. Absolutely.</p> <p>7 A. Is this represented as my prefiled testimony?</p> <p>8 Because that would not have been the date of the -- of</p> <p>9 the hearing. So I assume it was my prefile.</p> <p>10 Q. It -- it -- it looks like your prefile to me.</p> <p>11 I think that's probably a -- something that you would be</p> <p>12 better answering than I would.</p> <p>13 A. I -- I would say that similar to the answer on</p> <p>14 the other exhibit that you gave me of prefiled</p> <p>15 testimony, that in general I recognize this --</p> <p>16 Q. Uh-huh.</p> <p>17 A. -- without spending time going through it</p> <p>18 and --</p> <p>19 Q. Right.</p> <p>20 A. -- feeling for sure, but I -- it looks like</p> <p>21 it.</p> <p>22 Q. Right. Okay. If you could turn again to</p> <p>23 Page 8 of Exhibit 3. And I'm looking at the first</p> <p>24 question, "Do you have knowledge of the methodologies,</p> <p>25 standards, rules, and regulations you have just</p>

<p style="text-align: right;">26</p> <p>1 described?"</p> <p>2 Answer, "Yes."</p> <p>3 Question, "How have you become familiar</p> <p>4 with such things?"</p> <p>5 "I became familiar with standard geologic</p> <p>6 field and stratigraphic interpretational practices and</p> <p>7 methodologies in undergraduate and graduate school.</p> <p>8 During my entire professional practice of more than</p> <p>9 30 years in Texas, I have become familiar with the</p> <p>10 geology and groundwater occurrence in Texas. Since</p> <p>11 1990, I have been continuously involved in the</p> <p>12 interpretation, development, and practice of the MSW</p> <p>13 regulations in Texas, as well as the related federal</p> <p>14 rules and state and federal guidance related to solid</p> <p>15 waste management and groundwater mon-" --</p> <p>16 "characterization and monitoring. Also, in these roles</p> <p>17 I have become familiar with the influence of geologic,</p> <p>18 hydrogeologic, and groundwater information on the</p> <p>19 engineering design of an MSW landfill."</p> <p>20 Did I read that correctly?</p> <p>21 A. Yes, ma'am.</p> <p>22 Q. And is this still -- do -- would you feel</p> <p>23 comfortable adopting this testimony today?</p> <p>24 A. Yes, with the -- with the codicil that we were</p> <p>25 referring to things earlier -- the testimony earlier</p>	<p style="text-align: right;">28</p> <p>1 with the influence of geologic, hydrogeologic, and</p> <p>2 groundwater information on the engineering design of an</p> <p>3 MSW landfill."</p> <p>4 A. Yes, ma'am.</p> <p>5 Q. How does the geologic, hydrogeologic, and</p> <p>6 groundwater information influence the engineering design</p> <p>7 of an MSW landfill?</p> <p>8 A. Well, when I made that statement, what I was</p> <p>9 referring to was that the -- that the geology, the</p> <p>10 strata -- which is part of the geology, how it</p> <p>11 influences the excavation and the slope stability and</p> <p>12 those sorts of things that the engineers have to do. It</p> <p>13 doesn't mean that I'm the one doing it or nor does it</p> <p>14 mean I would interpret those things, but I understand</p> <p>15 how they're related. It also means that groundwater</p> <p>16 can -- can provide design elements such as ballasts,</p> <p>17 ways to ballast for liner thickness and placements --</p> <p>18 Q. Uh-huh.</p> <p>19 A. -- and those sorts of things.</p> <p>20 Q. And so I take it from your response there that</p> <p>21 Mr. Welch then has -- you and Mr. Welch have conferred</p> <p>22 about how the geologic, hydrogeologic and groundwater</p> <p>23 information for the Pintail site -- and if I -- if I say</p> <p>24 "Pintail site," I'm referring to the proposed location</p> <p>25 of the Pintail Landfill.</p>
<p style="text-align: right;">27</p> <p>1 that says, Do you have knowledge that you have just</p> <p>2 described. So I haven't had a chance to go back and</p> <p>3 look at that.</p> <p>4 Q. Uh-huh. Right.</p> <p>5 A. And the other thing is --</p> <p>6 (Mr. Woodward exited.)</p> <p>7 A. -- I know what I meant by the word "familiar"</p> <p>8 at the time.</p> <p>9 Q. (BY MS. JACOBS) Uh-huh.</p> <p>10 A. So before I'd say I'm going to testify to that</p> <p>11 again, I'd have to have some discussion between me and</p> <p>12 the lawyers about what -- what does that word mean to</p> <p>13 you and what am I saying when I say that.</p> <p>14 Q. Well, what do you mean if -- if we use that</p> <p>15 word today in this deposition, what do you mean by that?</p> <p>16 A. Well, "familiar" means that I'm familiar with</p> <p>17 it, which isn't to say that I'm prepared to quote every</p> <p>18 regulation I ever saw or every standard I ever saw or --</p> <p>19 or make a recitation of it. I'm -- I'm -- I mean, I</p> <p>20 like the word "generally" because I think it applies.</p> <p>21 I'm generally familiar with these things.</p> <p>22 Q. And so again, we have the statement about, you</p> <p>23 know, since 1990 you've been continuously involved in</p> <p>24 the MSW regulations in Texas. And then you have a</p> <p>25 statement here talking about how you've "become familiar</p>	<p style="text-align: right;">29</p> <p>1 A. Yes.</p> <p>2 Q. So you -- have you discussed that sort of</p> <p>3 thing with Mr. Welch in relation to his engineering</p> <p>4 work?</p> <p>5 A. I'm sure that I have. I can't sit here today</p> <p>6 and recollect a specific conversation, but I'm sure that</p> <p>7 we did.</p> <p>8 Q. Well, okay. So let's just say it another way.</p> <p>9 Has -- do you think Mr. Welch has relied</p> <p>10 upon your -- your geologic and hydrogeologic</p> <p>11 interpretations in doing his work for the engineering on</p> <p>12 this landfill --</p> <p>13 A. Uh.</p> <p>14 Q. -- proposed landfill?</p> <p>15 A. I'm sorry. I didn't mean to interrupt you.</p> <p>16 Q. I was just saying "proposed landfill."</p> <p>17 A. I would say that my work may have had some</p> <p>18 influence in what work Kenneth Welch did in some -- some</p> <p>19 ways. Probably more -- more specifically the work that</p> <p>20 Gregg Adams does was related to the things I was talking</p> <p>21 about in this paragraph.</p> <p>22 Q. Okay. And you mean -- so the work that he's</p> <p>23 done in -- in doing the geology characterization,</p> <p>24 subsurface characterization?</p> <p>25 A. Well, no. I think what I was referring to was</p>

30	<p>1 that the work that I do has some impact or some</p> <p>2 influence or -- on -- on the things that he does such as</p> <p>3 slope stability and -- and liner design and liner</p> <p>4 thickness and such.</p> <p>5 Q. Okay. And by "he" you mean Welch?</p> <p>6 A. No. I meant Gregg Adams.</p> <p>7 Q. You mean Gregg Adams?</p> <p>8 A. Yes, ma'am.</p> <p>9 Q. Okay. And then -- and then I -- just to</p> <p>10 follow that train of thought, I think you were then</p> <p>11 saying that so the work that you do influences the work</p> <p>12 that Adams does and the work that Adams does influences</p> <p>13 the work that Welch does?</p> <p>14 A. Hum. I'm not sure I -- I meant that last</p> <p>15 part, but I guess probably. I'm not sure that I'm --</p> <p>16 that I know for sure how to apply that last part, but --</p> <p>17 Q. I'm trying to figure out kind of how these</p> <p>18 pieces of the application fit together --</p> <p>19 A. Okay.</p> <p>20 Q. -- in other words. I'm assuming they do.</p> <p>21 Is that your understanding?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. Let's look at Page 12, same exhibit,</p> <p>24 Exhibit 3.</p> <p>25 A. Okay.</p>	32	<p>1 been hired to peer-review your geology work?</p> <p>2 A. Hum. I'm not quite sure how to answer that</p> <p>3 question. There were not specific geologists that were</p> <p>4 hired to peer-review my work that I remember. My work</p> <p>5 was peer-reviewed by HHNT and -- and Bill Hodges.</p> <p>6 And -- and -- anyway, so that's...</p> <p>7 Q. Okay. So nothing like what you were</p> <p>8 describing in this Page 12 of your BFI testimony?</p> <p>9 A. Might quibble with the word "nothing like" it.</p> <p>10 I'd say it was fairly similar in that I had somebody</p> <p>11 outside peer-reviewing my work on behalf of the client.</p> <p>12 Q. So Bill Hodges --</p> <p>13 A. Excuse me.</p> <p>14 Q. -- would be the person that -- that reviewed</p> <p>15 your work in detail?</p> <p>16 A. I don't -- I'm not sure how to characterize</p> <p>17 what he did. I mean, he reviewed it and I got comments</p> <p>18 and --</p> <p>19 Q. Uh-huh.</p> <p>20 A. -- addressed comments and discussed comments</p> <p>21 with him. I don't remember any longer what -- what his</p> <p>22 comments were to the extent that they were, but...</p> <p>23 Q. And that -- and that's fine.</p> <p>24 What -- what aspects of your work did he</p> <p>25 review -- did Mr. Hodges review?</p>
31	<p>1 Q. And I'm looking at the -- the second full</p> <p>2 question on the page at Line 7, "Did you also rely on</p> <p>3 the work of other experts at BME or elsewhere?" And</p> <p>4 BME, is that Biggs & Mathews?</p> <p>5 A. Yeah. Biggs & Mathews environmental.</p> <p>6 Q. Environmental. Okay.</p> <p>7 And the answer, "Yes."</p> <p>8 Question, "Please identify those experts."</p> <p>9 And you go on to talk about a couple of</p> <p>10 the experts. And then on Line 12 you say, I also relied</p> <p>11 on the input of H.C. Clark and Phil Bullock, who are</p> <p>12 both professional geoscientists who reviewed the draft</p> <p>13 permit application as part of a peer review process</p> <p>14 (QA/QC) and provided their comments."</p> <p>15 Do you see where I'm reading that?</p> <p>16 A. Yes.</p> <p>17 Q. Okay. And my question is, you also</p> <p>18 testified -- and I think it was in this -- the -- the</p> <p>19 hearing -- the -- this BFI hearing that relates to</p> <p>20 Exhibit 3 -- that in the past most of -- most of the law</p> <p>21 firms that you have worked with have hired someone to</p> <p>22 peer-review portions of the application that you put</p> <p>23 together.</p> <p>24 And what I wanted to know is, has that</p> <p>25 happened in this particular situation? Has somebody</p>	33	<p>1 A. As far as I know, he reviewed all of it. I --</p> <p>2 I guess we'd have to ask him. I don't -- I don't</p> <p>3 remember.</p> <p>4 Q. And when you say "all of it," what are you --</p> <p>5 what are you describing? Are you describing the --</p> <p>6 well, what are you describing?</p> <p>7 A. Well, I was generally describing all -- all</p> <p>8 the work in the application for which I was responsible,</p> <p>9 which was generally most of Attachment E and F --</p> <p>10 Q. Okay.</p> <p>11 A. -- which includes all the things in those</p> <p>12 attachments that -- that I'm responsible for.</p> <p>13 Q. So when he reviewed Attachments E and F, I'm</p> <p>14 assuming he reviewed a draft of those, draft -- draft</p> <p>15 portions or draft sections that you sent to him and then</p> <p>16 he provided comments.</p> <p>17 Is that what you're telling me?</p> <p>18 A. I don't remember specifically, but I would --</p> <p>19 I think that he reviewed a draft and he may have</p> <p>20 reviewed the final version.</p> <p>21 Q. Okay. Well, he had to review one of them,</p> <p>22 right? He had to either review a draft or he had to</p> <p>23 review a final version?</p> <p>24 A. Yes.</p> <p>25 Q. Okay. And you don't recall which one it was?</p>

<p style="text-align: right;">34</p> <p>1 A. No. I'm -- I'm certain that he reviewed a 2 draft.</p> <p>3 Q. Yeah, because he'd have to -- have to in order 4 to provide comments, right?</p> <p>5 A. Yeah. Yeah.</p> <p>6 Q. But you don't remember what the comments were?</p> <p>7 A. No. I don't.</p> <p>8 Q. Okay. And do you -- did you retain any of 9 those drafts of your work as you were --</p> <p>10 A. No.</p> <p>11 Q. And why is that?</p> <p>12 A. It's -- it's our policy, both written and in 13 practice, that we don't retain drafts.</p> <p>14 Q. Why do you have that policy?</p> <p>15 A. For a variety of reasons, but the most primary 16 reason is that once a -- once something has been drafted 17 and then modified and then incorporated as this is the 18 original now, the draft serves no purpose other than to 19 provide somebody with misinformation about what -- what 20 some conclusion might have been or what some statement 21 might have been that has been changed in the final. So 22 we have adopted for many years the policy of not 23 retaining drafts of things because they're -- they serve 24 no purpose.</p> <p>25 Q. Well, when you say "misinformation," is it</p>	<p style="text-align: right;">36</p> <p>1 Q. Now, has your document retention policy ever 2 come up in the past contested case hearings that you've 3 been involved in? Because obviously you've been 4 involved in at least two. We have the prefiled 5 testimony for those.</p> <p>6 A. I'm not sure what you mean by has it "come 7 up."</p> <p>8 Q. Has anybody else ever raised that issue with 9 you? And by -- by -- and -- and it could be good or it 10 could be bad. Has anybody said to you, You know what, 11 that's a good policy in the context of a -- of a 12 contested case hearing?</p> <p>13 A. Almost every lawyer we've ever worked with has 14 told us they thought it was a good policy.</p> <p>15 Q. Okay.</p> <p>16 A. I -- I don't remember if we've had anybody say 17 anything negative about it.</p> <p>18 Q. Did Mr. Ryan tell you it's a good policy?</p> <p>19 A. I can't even say for sure that Mr. Ryan has 20 reviewed our policy. So I don't remember that he ever 21 did.</p> <p>22 Q. But he knows what your policy is?</p> <p>23 A. Again, I don't -- I don't know if he's read 24 it. I mean, he -- I think he knows we have one.</p> <p>25 Q. Right.</p>
<p style="text-align: right;">35</p> <p>1 really misinformation if it's reflective of your thought 2 processes at the time? I mean, that's what you thought 3 at the time. You thought it and you put it on paper.</p> <p>4 So how is that misinformation?</p> <p>5 A. I think when somebody reviews something -- 6 when an outside party reviews something, they provide 7 relevant and useful comments about, Did you really mean 8 to say this or -- or would it be better if you said it 9 like this?</p> <p>10 Q. Uh-huh.</p> <p>11 A. And -- and so I -- I'm not sure of the total 12 context of your question, but, yeah, it's not relevant 13 any longer because you've -- you've now rethought it and 14 thought through it and said, This is what I've just now 15 changed it to is the appropriate thing. So we never 16 retain or we attempt to never retain drafts.</p> <p>17 Q. So -- and you said that was your primary 18 reason for the document retention policy that you have.</p> <p>19 Are there other reasons?</p> <p>20 A. Well, I think that the other reason is just 21 for clarity in files, which I suppose is related to the 22 first answer. But it's just -- it -- it creates 23 confusion and overload and -- and maybe misdirection in 24 files. So we -- we just -- we just don't do that as a 25 matter of policy.</p>	<p style="text-align: right;">37</p> <p>1 A. He may have read it. I just don't know.</p> <p>2 Q. Well, I'm not asking if he's read it. But I'm 3 just asking did he know that that's your policy? Does 4 he know that that's your policy?</p> <p>5 A. He did, but I think your question was, is Did 6 he tell you that that was a good policy? And I don't 7 think he would be able to tell me that if he hasn't read 8 it. So I --</p> <p>9 Q. Well, I can tell you.</p> <p>10 A. He knows we have one.</p> <p>11 Q. I can tell you and I haven't read it. 12 But that's beside the point. You're 13 right. Mr. Ryan is a careful man.</p> <p>14 So -- so has anybody ever, for example 15 opposing counsel, raised the issue of your document 16 retention policy with you in the context of a contested 17 case hearing?</p> <p>18 A. I -- I don't have specific recollection that 19 they did. I can't say for certainty that nobody has 20 ever brought it up or discussed it. I -- I don't 21 remember that they did.</p> <p>22 Q. Okay. And so you don't recall any of the 23 input that Mr. Hodges has given you with respect to the 24 contents of the application?</p> <p>25 A. I don't.</p>

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38	<p>1 Q. And there's no documentation of that input?</p> <p>2 A. Not to my knowledge.</p> <p>3 Q. Okay. And how did he generally provide that</p> <p>4 input to you?</p> <p>5 A. I would say mostly it was over the telephone.</p> <p>6 He would call me up and say, Let's go page by page here.</p> <p>7 It's possible that he e-mailed figures that he might</p> <p>8 have marked up.</p> <p>9 Q. But those figures, you would not have retained</p> <p>10 those?</p> <p>11 A. No.</p> <p>12 Q. Okay. Okay. So we -- we talked briefly about</p> <p>13 Mr. Stamoulis.</p> <p>14 Did I say that right? No, I didn't.</p> <p>15 A. Doesn't matter.</p> <p>16 Q. All right. Well, okay. So we've talked</p> <p>17 briefly about Stefan.</p> <p>18 Did I say that right?</p> <p>19 A. Uh-huh.</p> <p>20 Q. Okay. So we've talked briefly about him. And</p> <p>21 my understanding from my discussion with Mr. Adams is</p> <p>22 that Mr. Adams testified that you-all never do the kind</p> <p>23 of field work that you hired Stefan for. And by the</p> <p>24 kind of field work, he said that, you know, you guys</p> <p>25 don't do -- drill the borings or log them in the field</p>	40	<p>1 any of the exploratory borings?</p> <p>2 A. I was not -- by the exploratory borings, I</p> <p>3 believe you're referring to EB-1 through 6?</p> <p>4 Q. I am, yes.</p> <p>5 A. I was not.</p> <p>6 Q. Okay. Had you been at the site prior to the</p> <p>7 drilling of the EB-1 through 6 borings?</p> <p>8 A. I think I was at the site once before that.</p> <p>9 Q. Okay. Do you recall when that was?</p> <p>10 A. No.</p> <p>11 Q. And so were you present when he was drilling</p> <p>12 any of the borings that are -- the logs for which are</p> <p>13 included in the application and are called the BME</p> <p>14 borings? Do you know what I'm talking about?</p> <p>15 A. Yes.</p> <p>16 Q. Okay. Were you present for the drilling of</p> <p>17 any of those?</p> <p>18 A. Yes.</p> <p>19 Q. Do you know which ones?</p> <p>20 A. No.</p> <p>21 Q. Do you know when you were on site?</p> <p>22 A. When you say do I know when, are you referring</p> <p>23 to specific dates?</p> <p>24 Q. Yes.</p> <p>25 A. Off the top of my head, no.</p>
39	<p>1 or do the piezometer installation or that kind of thing,</p> <p>2 that you -- you always hire out -- contract out for that</p> <p>3 work, is that right?</p> <p>4 A. Yes, that's right.</p> <p>5 Q. And -- and why is that?</p> <p>6 A. Both us have done that work in the past.</p> <p>7 both of us now have -- have other responsibilities,</p> <p>8 which is to interpret and -- and put together a permit</p> <p>9 application. Field work is a -- is a lengthy endeavor,</p> <p>10 takes a lot of time. And so -- and -- and we don't own</p> <p>11 our own drilling rigs anymore, so we would be subbing</p> <p>12 drilling rigs. But in general terms, we hire people</p> <p>13 that we're familiar with and have worked with many times</p> <p>14 to do that.</p> <p>15 Q. So you hire somebody that you have -- it</p> <p>16 sounds like you're saying you hire somebody you have</p> <p>17 confidence in?</p> <p>18 A. Yes.</p> <p>19 Q. Now, with respect to the field work, I think</p> <p>20 that when I was talking with Stefan, he indicated that</p> <p>21 you were in the field occasionally with him.</p> <p>22 A. Yes.</p> <p>23 Q. Is that right?</p> <p>24 A. Yes, ma'am.</p> <p>25 Q. Okay. Were you present when he was drilling</p>	41	<p>1 Q. What would it take for you to remember? What</p> <p>2 would you have to look at?</p> <p>3 A. I don't know. I'd have to -- I'd have to go</p> <p>4 back and look at -- at those and figure out maybe a</p> <p>5 calendar or something. I -- I haven't kept records of</p> <p>6 when I was out there.</p> <p>7 Q. So you don't have that -- those dates on your</p> <p>8 calendar?</p> <p>9 A. No. I don't have a calendar from 2011 any</p> <p>10 longer.</p> <p>11 Q. Okay. But you don't -- so you don't remember</p> <p>12 when you were out there or which borings you were</p> <p>13 present for. But you have confidence that he did the</p> <p>14 work with respect to those borings correctly?</p> <p>15 A. Yes.</p> <p>16 Q. And that's because you observed what he was</p> <p>17 doing?</p> <p>18 A. Well, it's -- it's that and it's that I worked</p> <p>19 with him for more than 20 years. He's -- he is a --</p> <p>20 maybe one of the most experienced geologists that I know</p> <p>21 that does field work.</p> <p>22 Q. Okay.</p> <p>23 A. So yes, I have confidence in his work.</p> <p>24 Q. How about with the slug testing? My</p> <p>25 understanding is that Stefan also did the -- conducted</p>

42	<p>1 the slug testing in the field for you.</p> <p>2 Is that correct?</p> <p>3 A. Yes, ma'am, that's true.</p> <p>4 Q. And so do you all ever do slug testing in the</p> <p>5 field yourself?</p> <p>6 A. No longer. We used to.</p> <p>7 Q. Okay. Were you present when Stefan did any of</p> <p>8 the slug testing --</p> <p>9 A. No.</p> <p>10 Q. -- for this project?</p> <p>11 A. I was not.</p> <p>12 Q. Okay. But you feel confident that he did it</p> <p>13 correctly based on your knowledge of his expertise?</p> <p>14 A. Uh-huh.</p> <p>15 Q. Yes?</p> <p>16 A. I'm sorry. Yes.</p> <p>17 Q. No. That's okay. I just want to make sure</p> <p>18 that she's --</p> <p>19 A. I understand.</p> <p>20 Q. -- getting it. I...</p> <p>21 Okay. Same thing goes for water levels.</p> <p>22 Did -- again, my understanding is that Mr. Stamoulis --</p> <p>23 Stefan was the one who took the water levels for --</p> <p>24 that -- that appear in the application.</p> <p>25 A. He and his staff.</p>	44	<p>1 that I meant it to sound like that. What I was trying</p> <p>2 to say was when you're developing a well --</p> <p>3 Q. Uh-huh.</p> <p>4 A. -- you take water levels to measure where</p> <p>5 you're at or how far you've baled it down. So I -- I</p> <p>6 don't think any of those were final water levels that</p> <p>7 would have been placed in the -- in the application.</p> <p>8 Those would have just been interim levels measuring</p> <p>9 where they were. So I -- I don't think I was there when</p> <p>10 he took any of the water levels that were in the</p> <p>11 application.</p> <p>12 Q. And -- and so when you were out in the field,</p> <p>13 do you have any idea how many days you were out at the</p> <p>14 proposed landfill location?</p> <p>15 A. I -- I don't have a specific recollection of</p> <p>16 that.</p> <p>17 Q. Do you think it was less than or more than</p> <p>18 five?</p> <p>19 A. That -- that's probably a pretty good number.</p> <p>20 Q. Five?</p> <p>21 A. And -- or less than or more than. I mean, it</p> <p>22 was something -- it was something like that.</p> <p>23 Q. It was something like less than five?</p> <p>24 A. Or something like more than five. I -- I</p> <p>25 don't know. I don't remember how many days --</p>
43	<p>1 Q. He and his staff. Okay.</p> <p>2 So do you think it was not Stefan who took</p> <p>3 all the water levels? You think it was people working</p> <p>4 for him maybe?</p> <p>5 A. I -- I think that he and others took the water</p> <p>6 levels. They were taken over an extended period of</p> <p>7 time.</p> <p>8 Q. Okay. But -- so you don't know if he was out</p> <p>9 in the field when all the water levels were taken?</p> <p>10 A. I -- I don't know.</p> <p>11 Q. Okay. And were you present -- I may have</p> <p>12 already asked you this. I'm so sorry.</p> <p>13 Were you present when he took any of those</p> <p>14 water levels that appear in the application or even</p> <p>15 noted water levels at any time?</p> <p>16 A. Generally not, but I might have been there. I</p> <p>17 mean, I was there when he took water levels on a couple</p> <p>18 of days when they were installing piezometers. I'm not</p> <p>19 sure if those were part of the recorded ones or not. So</p> <p>20 I was there for that. But other than that, I was not</p> <p>21 there.</p> <p>22 Q. So were -- so it sounds like there were water</p> <p>23 levels that were taken that maybe were not included in</p> <p>24 the application?</p> <p>25 A. It may have sounded like that. I'm not sure</p>	45	<p>1 Q. Okay. So you don't -- you don't think --</p> <p>2 A. -- but it was several.</p> <p>3 Q. Okay.</p> <p>4 A. It was several.</p> <p>5 Q. Several. Okay. So --</p> <p>6 A. Excuse me.</p> <p>7 Q. So -- so at least three?</p> <p>8 A. I'd say at least three.</p> <p>9 Q. At least three. Okay.</p> <p>10 And so did you take any notes or anything?</p> <p>11 I know typically -- my understanding is that typically</p> <p>12 geologists and hydrogeologists, when they're out in the</p> <p>13 field, they will take notes.</p> <p>14 Did you take any notes when you were out</p> <p>15 there?</p> <p>16 A. No.</p> <p>17 Q. Okay. Do you generally take notes when you're</p> <p>18 out in the field?</p> <p>19 A. Depends on what the purpose of me being out in</p> <p>20 the field is.</p> <p>21 Q. And so the purpose -- what was the purpose of</p> <p>22 you being out in the field on the occasions that you</p> <p>23 were there -- we'll say the three occasions -- around</p> <p>24 three occasions that you were there?</p> <p>25 A. One of them is to specifically say I was</p>

46	<p>1 there, I saw him actually drilling --</p> <p>2 Q. Okay.</p> <p>3 A. -- and retrieving samples, because people like</p> <p>4 you will ask me about that.</p> <p>5 Q. Okay.</p> <p>6 A. So that's -- that's one purpose.</p> <p>7 Another purpose is for me to observe how</p> <p>8 they're taking -- not -- not necessarily how they're</p> <p>9 taking the samples, but how they're retrieving and</p> <p>10 marking the samples so that when the samples are then</p> <p>11 transported to us, we have understanding of -- of how</p> <p>12 that is so that we know what samples are what and how</p> <p>13 they're marked.</p> <p>14 So my -- my purpose is an oversight</p> <p>15 purpose as opposed to a -- anything that I'd be out</p> <p>16 there to try to recollect specific details and take</p> <p>17 notes on.</p> <p>18 Q. And you mentioned how the samples were -- were</p> <p>19 marked.</p> <p>20 How were they marked in this case?</p> <p>21 A. They're -- they're put either in -- in bags or</p> <p>22 sleeves, plastic bags or plastic sleeves, and they're</p> <p>23 marked with some sort of an all-purpose marker and they</p> <p>24 have the -- the site name, the -- the boring number, the</p> <p>25 sample number and the depth.</p>	48	<p>1 everything, it has to be -- and I don't know how this</p> <p>2 works. It has to be laid out or they -- maybe they put</p> <p>3 it on tables, they put it on the ground or --</p> <p>4 A. Uh-huh.</p> <p>5 Q. Do they -- do they wrap it up first or do they</p> <p>6 just lay it on the ground and -- and then he looks at it</p> <p>7 and then they wrap it up? I'm trying to get like some</p> <p>8 feel for the process since that's what you were kind of</p> <p>9 observing when you were out there.</p> <p>10 A. Well, you would have to ask Stefan about</p> <p>11 exactness of that. But I know from my observation that</p> <p>12 he had a little four-wheeler and he would go back and</p> <p>13 forth between the -- the rigs constantly --</p> <p>14 Q. Uh-huh.</p> <p>15 A. -- when they're pulling samples. And -- and</p> <p>16 so a -- a sample might come out and they might have laid</p> <p>17 it out and it might have been there for a few minutes</p> <p>18 maybe or 30 minutes or something, but...</p> <p>19 Q. Right.</p> <p>20 A. So more -- I -- I can't speak with any more</p> <p>21 specificity than that.</p> <p>22 Q. Yeah. And I really was trying -- I'm trying</p> <p>23 to get a picture in my head and sort of thinking about</p> <p>24 the logistics.</p> <p>25 You know what I mean?</p>
47	<p>1 Q. And so does that -- and I guess we can talk</p> <p>2 about this more later. But do you have to have somebody</p> <p>3 like right there putting these samples in the bags or</p> <p>4 the sleeves right when they come out of the hole or how</p> <p>5 does that work?</p> <p>6 A. It's generally how it's done. I'm not sure</p> <p>7 what you mean by do you have to have somebody there.</p> <p>8 Q. Well, I mean, or do you -- or can you --</p> <p>9 because I wasn't -- this was something I wasn't quite</p> <p>10 clear from when I talked to Stefan, was -- because, you</p> <p>11 know, he was very clear that he looked at all the</p> <p>12 samples himself.</p> <p>13 A. Uh-huh.</p> <p>14 Q. And that he -- he logged them all. He logged</p> <p>15 all the holes himself. He was very clear about that.</p> <p>16 So my question was -- so -- but I'm</p> <p>17 imagining because he said that sometimes there's two</p> <p>18 rigs out there.</p> <p>19 A. Yes.</p> <p>20 Q. And on this project there were two rigs -- at</p> <p>21 least two rigs.</p> <p>22 A. At times.</p> <p>23 Q. At times. So I'm -- he can't be everywhere at</p> <p>24 once, right? So I'm imagining that at some point you've</p> <p>25 got to have -- I mean, if he was going to look at</p>	49	<p>1 A. Uh-huh.</p> <p>2 Q. Without having the actual experience, which is</p> <p>3 a little bit difficult, to be honest with you. And</p> <p>4 we -- we can talk a little bit more about that in more</p> <p>5 context, but I was just curious.</p> <p>6 Now, when you were observing this, though,</p> <p>7 is there a -- a procedure that you follow for the -- I</p> <p>8 mean, it sounds like you've -- you've got your -- you've</p> <p>9 got what's on the label. You told me about what's on</p> <p>10 the labels and how you -- how you're marking these.</p> <p>11 Is there a procedure that is followed for</p> <p>12 transporting them?</p> <p>13 A. Well, the procedure we use is that either</p> <p>14 somebody from our shop transports them to our shop or</p> <p>15 Stefan transports them to our shop --</p> <p>16 Q. Right.</p> <p>17 A. -- or one of Stefan's people transports them</p> <p>18 to our shop.</p> <p>19 Q. Okay.</p> <p>20 A. They're transported in a -- in their boxes and</p> <p>21 either in a trailer and/or a pickup truck.</p> <p>22 Q. Okay. So for this whole marking and</p> <p>23 transporting process, is there any particular ASTM</p> <p>24 document -- guidance document that you follow or is this</p> <p>25 sort of a procedure that you all have developed in</p>

50	<p>1 working together over the years?</p> <p>2 A. It's the latter. I'm -- I'm aware that there</p> <p>3 is a ASTM standard for transporting. I'm also aware</p> <p>4 that it's not particularly the standard of practice for</p> <p>5 the industry that we work in.</p> <p>6 Q. And that industry being?</p> <p>7 A. In the environmental solid waste industry</p> <p>8 particularly.</p> <p>9 Q. Okay.</p> <p>10 A. I'm not aware of anybody using that ASTM</p> <p>11 standard for transport.</p> <p>12 Q. Now, the one thing I do have experience with</p> <p>13 is water sampling. Minimal experience, but at least</p> <p>14 I've been in the field to see that. And one of the</p> <p>15 things I know for water samples is that people always</p> <p>16 mark and have chain of custody records and are very</p> <p>17 particular about, you know, this is the person that has</p> <p>18 these samples and then they were given to Person B and</p> <p>19 then Person B handed them off to Person C.</p> <p>20 Do you guys keep those kind of records?</p> <p>21 A. As far as I know, we don't have any chain of</p> <p>22 custody procedures for soil samples. We certainly</p> <p>23 follow those kinds of rules for groundwater sampling.</p> <p>24 Q. Right. So just following back with Stefan, do</p> <p>25 you know whether all of his relevant license</p>	52	<p>1 e-mail that's going to be marked -- or that has</p> <p>2 been marked Exhibit 4 and it is an e-mail from you,</p> <p>3 Mike Snyder, to William F. Hodges dated Wednesday,</p> <p>4 November 24th, 2010. And this is an e-mail that was</p> <p>5 produced to us by your attorney. And it is Bates</p> <p>6 stamped PIN 001263.</p> <p>7 Do you recognize that e-mail?</p> <p>8 A. I do.</p> <p>9 Q. And is this an e-mail that you -- you sent to</p> <p>10 Mr. Hodges?</p> <p>11 A. I -- I believe it is.</p> <p>12 Q. Okay. I just wanted to ask you -- and I guess</p> <p>13 is this the e-mail where you were first recommending</p> <p>14 Stefan to Mr. Hodges? I'm kind of looking down at the</p> <p>15 last paragraph where it says, Stefan of H/ET, licensed</p> <p>16 professional geologist, blah, blah, blah. "We are</p> <p>17 familiar with his work and have worked with him on</p> <p>18 permitting projects for more than 20 years."</p> <p>19 A. I don't remember if this was the first time or</p> <p>20 not.</p> <p>21 Q. Uh-huh.</p> <p>22 A. I -- I may have put that statement in there</p> <p>23 for his purpose for people that he reports to. I</p> <p>24 don't --</p> <p>25 Q. Right.</p>
51	<p>1 requirements are up to date? Is that something -- or</p> <p>2 let me ask you this. Is that something that you check</p> <p>3 or do you just kind of trust him on?</p> <p>4 A. Yeah, I have not checked. I -- I trust him on</p> <p>5 it. He has two licenses that I know about. One of them</p> <p>6 is the water well driller's license.</p> <p>7 Q. Uh-huh.</p> <p>8 A. And I know that he regularly attends</p> <p>9 continuing education.</p> <p>10 Q. Uh-huh.</p> <p>11 A. I'm in contact with him enough to know when</p> <p>12 he's doing that. The other one is his PG license, which</p> <p>13 is not particularly applicable here because he was not</p> <p>14 taking sole responsibility for any of this --</p> <p>15 Q. Right.</p> <p>16 A. -- in that regard. And as far as I know,</p> <p>17 those licenses are in -- intact and in good standing.</p> <p>18 Q. And so there's -- you don't think there's any</p> <p>19 other kind of license requirements that he would need to</p> <p>20 have or his business would need to have with respect to</p> <p>21 doing the work on this project?</p> <p>22 A. Not off the top of my head.</p> <p>23 Q. Okay. Let's look at No. 4.</p> <p>24 (Exhibit 4 marked)</p> <p>25 Q. (BY MS. JACOBS) I'm going to hand you an</p>	53	<p>1 A. I don't remember.</p> <p>2 Q. Right.</p> <p>3 And so do you recommend, I forgot to ask</p> <p>4 you this before. Do you recommend Stefan to other</p> <p>5 clients?</p> <p>6 A. I recommend Stefan to other clients, yes.</p> <p>7 Q. Okay. So when we're looking back up here --</p> <p>8 and I'm looking under the "MARENGO TRACT" paragraph,</p> <p>9 sort of up at the top --</p> <p>10 A. Yep.</p> <p>11 Q. -- where it says "Scope." And then the first</p> <p>12 sentence under "Scope" says, "Drill, log, sample, and</p> <p>13 plug 6 borings to depths of 60 feet each."</p> <p>14 Do you see where I'm at?</p> <p>15 A. Yes, ma'am.</p> <p>16 Q. Do you recall who made the decision to drill</p> <p>17 to 60 feet?</p> <p>18 A. I don't recall. I don't -- I think that was a</p> <p>19 Hodges thing, but I don't really remember. I don't</p> <p>20 remember if I had any input to it or not. It's</p> <p>21 possible.</p> <p>22 Q. And so Hodges was involved enough that he</p> <p>23 would make those kind of detailed decisions?</p> <p>24 A. At that stage, I'd say yes. Again, I don't</p> <p>25 remember if I had any input to that or not. I just</p>

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54	<p>1 don't remember.</p> <p>2 Q. And are these six borings the ones that we</p> <p>3 were referring to earlier as the EB-1 through 6?</p> <p>4 A. Yes, ma'am.</p> <p>5 Q. Okay. And -- well, do you recall -- so what</p> <p>6 were you looking for in these initial six borings?</p> <p>7 A. I think we were just generally looking to see</p> <p>8 what the material we encountered in the top 60 feet was.</p> <p>9 Q. Okay.</p> <p>10 A. And -- and I was asked to do this, so we drew</p> <p>11 very few conclusions in a report.</p> <p>12 Q. Okay. And did you -- now, my recollection</p> <p>13 from looking at the documents is that on EB-1 you</p> <p>14 actually ended up drilling to a depth of 78 feet.</p> <p>15 Is that your recollection?</p> <p>16 A. I don't remember which one, but I remember one</p> <p>17 of them we drilled a little deeper.</p> <p>18 Q. And do you remember why?</p> <p>19 A. No, I don't.</p> <p>20 Q. Okay.</p> <p>21 A. I remember that we did.</p> <p>22 Q. Okay. And who would have made that decision?</p> <p>23 A. To?</p> <p>24 Q. To drill deeper.</p> <p>25 A. It undoubtedly would have been me.</p>	56	<p>1 A. I didn't remember exactly when, but it was</p> <p>2 before we drilled.</p> <p>3 Q. Before you ever drilled anything?</p> <p>4 A. Yeah. But having said that --</p> <p>5 Q. Okay.</p> <p>6 A. -- none of that went into the selection of the</p> <p>7 location of the borings.</p> <p>8 Q. Got it. So what was the purpose of that first</p> <p>9 visit?</p> <p>10 A. A general drive around to locate the site, get</p> <p>11 it in my head where it was at. I drove around the site,</p> <p>12 saw where it was and the general conditions.</p> <p>13 Q. Okay. I'm going to hand you what is going to</p> <p>14 be marked Exhibit 5. And it is labeled "PINTAIL</p> <p>15 LANDFILL, APPENDIX E2, SITE EXPLORATION DATA."</p> <p>16 (Exhibit 5 marked)</p> <p>17 Q. (BY MS. JACOBS) And it is also labeled</p> <p>18 "Technically Complete December 10th, 2012." And I'm</p> <p>19 going to represent to you that we got this, I believe,</p> <p>20 off your website.</p> <p>21 Does this look like the technically</p> <p>22 complete version of Appendix E2?</p> <p>23 A. With the same codicil that I had given you</p> <p>24 earlier without a chance to look through every page</p> <p>25 and understand --</p>
55	<p>1 Q. Okay. And what about with respect to the</p> <p>2 locations for the EB borings? Mr. Stefan testified that</p> <p>3 you picked those locations.</p> <p>4 Is that -- is he -- is that correct?</p> <p>5 A. Yes.</p> <p>6 Q. Okay. And how did you pick the locations?</p> <p>7 A. I picked them based on two things: Trying to</p> <p>8 get general coverage across the site and things that</p> <p>9 might have been located close to existing roads so that</p> <p>10 we didn't have to do too much dirt work to get to them.</p> <p>11 Q. And again, you said that you had not been to</p> <p>12 the site before you made the decision on where to put</p> <p>13 the EB borings?</p> <p>14 MR. RYAN: Objection to the form of the</p> <p>15 question.</p> <p>16 Q. (BY MS. JACOBS) Do you need me to clarify</p> <p>17 that for you?</p> <p>18 A. Yeah. Let's do.</p> <p>19 Q. Okay. What I thought you had testified to</p> <p>20 previously was that you had not been to the location of</p> <p>21 the proposed landfill before the EB borings were</p> <p>22 drilled, but I may have misremembered that.</p> <p>23 A. Yeah. I think that I said that I -- that I</p> <p>24 had been there once.</p> <p>25 Q. Okay.</p>	57	<p>1 Q. Absolutely.</p> <p>2 A. -- and double-check, I believe that it is.</p> <p>3 Q. Okay. And we're really just using this for</p> <p>4 reference purposes.</p> <p>5 A. Okay.</p> <p>6 Q. I just wanted you to sort of feel comfortable</p> <p>7 with what was in front of you.</p> <p>8 Okay. Let's look at the logs for</p> <p>9 the exploratory borings. And the first one is on</p> <p>10 Page E2-66.</p> <p>11 A. Okay.</p> <p>12 Q. And I wanted to ask you to kind of explain</p> <p>13 some of the elements here for me.</p> <p>14 A. Okay.</p> <p>15 Q. So first of all, in the column where we</p> <p>16 have -- we have the third column over "Symbol/USCS."</p> <p>17 Do you see where I'm at?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. Where do these symbols come from?</p> <p>20 A. Those symbols are our symbols that we assigned</p> <p>21 to those lithologies --</p> <p>22 Q. Uh-huh.</p> <p>23 A. -- from our logging program.</p> <p>24 Q. Okay. And what do you mean by "logging</p> <p>25 program"?</p>

<p style="text-align: right;">58</p> <p>1 A. The -- the -- the program that generates this 2 document (indicating) -- 3 Q. Okay. 4 A. -- that generates the graphics for this 5 document. 6 Q. And -- and what is that program? 7 A. It's called GINT. 8 Q. GINT. Okay. 9 And so the different symbols represent, 10 I'm assuming, different types of soil -- 11 A. Yes. 12 Q. -- or material? 13 A. Yes. 14 Q. I'm not sure what the right term is. 15 And -- and so when you were -- when you 16 were sampling, one of the things that I think I 17 remember -- I'm not sure if I read this or if I talked 18 to Stefan about it -- but on these first six borings, 19 did you continuously sample these? 20 A. They're continuously sampled down to 16 feet, 21 or at least that one is continuously sampled to 16 feet. 22 The next one was 10 feet. So they were continuously 23 sampled, and then when they got to sand, generally they 24 started doing split spoon and do -- do what was called 25 intermittent sampling.</p>	<p style="text-align: right;">60</p> <p>1 using the drill bit or are you using the Shelby tubes or 2 what are you -- how are you continuously sampling? 3 A. Well, in those cases -- in this continuous 4 case they were using Shelby tubes. 5 Q. Okay. So not using the drill bit at all, 6 then? 7 A. Right. 8 Q. Okay. All right. So -- so we've got these 9 different symbols here. And it says "Symbol/USCS." 10 What is USCS? 11 A. Unified Soil Classification System. 12 Q. Okay. And let's just kind of walk through 13 some of these descriptions here. When we get to -- all 14 right. So we've got the first one up here at the top of 15 EB-1. It says, "SAND (SP), silty, light brown, firm, 16 with clay, roots." 17 Do you see where I'm at? 18 A. Yes. 19 Q. Okay. And then the one below that is 20 "CLAY, silty, yellow and light brown, hard." Then the 21 one below that says, "CLAY, sandy, light brown, iron 22 oxide staining." 23 Why is the symbol for those two clay 24 descriptions that I read different? 25 A. It's because of the following descriptor. The</p>
<p style="text-align: right;">59</p> <p>1 Q. Okay. And can you describe the intermittent 2 sampling a little bit more for me? 3 A. Inter- -- this intermittent sampling was done 4 with the use of a split spoon. It's thin-walled tube 5 that is -- that is driven into the ground counting blow 6 counts. It is generally sampled for a length of -- it's 7 variable, but in this case I believe they sampled for 8 18 inches and then they pulled that sample out and then 9 they drilled the next three feet with a -- with a bit 10 and -- and -- and then go -- then they go back in with 11 the -- with the sampler. 12 Q. Okay. So -- so you drill for three feet, then 13 do the sampler, then drill for three feet, then do the 14 sampler? 15 A. Yes. 16 Q. Is that right? 17 A. (Nods affirmatively.) 18 Q. Okay. But then to a certain depth, you are 19 continuously sampling? 20 A. In this case, down to 16 -- 16 feet they were 21 continuously sampling. 22 Q. And what does that -- what does that mean? 23 A. Well, that means that they -- they sampled 24 every -- every inch of what they just drilled. 25 Q. So does that mean that you're using -- are you</p>	<p style="text-align: right;">61</p> <p>1 CL is what the classification of the Unified Soil 2 Classification is. 3 Q. Okay. 4 A. But in this case, that CL was a silty 5 material, clay but silty. 6 Q. Uh-huh. 7 A. And the other one is still a CL, but it is a 8 sandy -- has a sandy influence. 9 Q. Okay. And before I forget to ask you, with 10 these samples, these -- the continuous samples and then 11 the intermittent samples, are those samples that got 12 sent to Biggs & Mathews or got taken to Biggs & Mathews 13 by the process we just -- we talked about earlier? I'm 14 talking about for the EB, EB-1 through 6. 15 A. I don't have recollection that we ever got the 16 samples or ever looked at them. 17 Q. Okay. 18 A. We may have. I don't remember that we did. 19 Q. Okay. So -- so I'm get guessing then you 20 didn't perform any kind of testing on the samples? 21 A. We did not. 22 Q. Okay. Okay. So let's look at this -- the 23 fourth segment on EB-1, which is another clay. 24 A. Okay. 25 Q. And it says, "CLAY, gray and light reddish</p>

<p style="text-align: right;">62</p> <p>1 brown, hard, iron oxide staining," and then it's got 2 this thing "with silt seams." 3 What does that mean? 4 A. Well, it means that within that sample 5 approximately, the -- sometimes the exact location of 6 that doesn't end up because of how the program takes 7 things. 8 Q. Uh-huh. 9 A. It doesn't end up in the exact same sample 10 number, but within that sample number or within that 11 sample interval there were some silt seams within the 12 clay. 13 Q. What is a seam? 14 A. Off the top of my head, I'm not sure. I 15 remember the definition, but a seam is a very thin layer 16 that is probably not continuous and probably not 17 correlatable and just has a little -- little thin layer 18 within it. 19 Q. What do you -- what do you mean by "very 20 thin"? Well, and I realize I'm not precise -- I'm just 21 trying to kind of get a feel for -- because, you know, 22 you're going foot by foot here. And I'm just trying to 23 get a feel for, you know, if you say a -- a -- you know, 24 a seam or later on in the same boring -- you've got a 25 second page of that boring on Page E2-67 you've got</p>	<p style="text-align: right;">64</p> <p>1 mean, a -- a seam might be as -- as thick as a pencil 2 lead. A -- or maybe even a little thicker than that. 3 A lens could be anywhere from a couple of 4 inches to -- to a couple of feet or more depending on 5 what else it's contained in. So a lens is thicker than 6 a seam. 7 Q. Right. Okay. I -- so -- and then when you -- 8 when you're going next -- the -- I'm still on the second 9 page, E2-67. When -- when you have this note here, 10 "very" -- you know, "very dense to hard, (sic) gravel," 11 I'm right below the "clay lenses." "Very dense to hard, 12 with gravel" and then "small gravel," is that -- again, 13 are we talking about -- I mean, it doesn't -- that 14 doesn't have seam -- the seam or lens modifier. 15 Is there any -- is that just a descriptor 16 that is saying that's what's occurring right there or -- 17 A. I think that what he's identifying there is -- 18 let me -- let me go back to the first one you said to 19 keep a -- 20 Q. Yes. 21 A. The reason you can see a seam in a clay is 22 because it's a more consolidated material. So you might 23 see a little thin seam. When you're in a sand, it's 24 mostly unconsolidated. In fact, his description says 25 it's unconsolidated. So when he says there was "with</p>
<p style="text-align: right;">63</p> <p>1 "clay lenses," and then you've got another little note 2 there, "small gravel." You know what I mean? You've 3 got these little notes in the middle there and I guess 4 I'm trying to get a feel for, you know, what is a seam? 5 What is a lens? Is it, you know, something that's -- 6 you know, less than a foot? 7 A. Yes. 8 Q. Is it -- okay. Less than a foot. Okay. 9 And I also am a little bit wary because I 10 know like when -- when you talk about time, what is time 11 for a lot of us just -- just in regular life is 12 completely different than geologic time, right? So I 13 want to make sure I'm not making the same mistake in 14 terms of when you say "very thin," that that could 15 mean -- because, you know, we're talking about the depth 16 of the entire earth here. So very thin in that 17 context -- that's what I'm trying to get a better feel 18 for. 19 So it's less than a foot, in other words? 20 A. Well, maybe I can be a little more specific 21 than that. 22 Q. Okay. That would be great. 23 A. And again, without referring to some 24 classification systems which may have specific 25 thicknesses related to some of these terms, a lens -- I</p>	<p style="text-align: right;">65</p> <p>1 gravel," that means he found one or more pieces of what 2 he described as gravel in it. 3 Q. Okay. 4 A. Same thing with "small gravel." That may be 5 one or it may be more. 6 Q. Okay. All right. And -- okay. So then -- 7 then we go down to the bottom of -- and I'm looking at 8 the bottom of -- well, I guess I can look at the bottom 9 of either one of these pages, but let's just stick with 10 the first page of EB-1. We've got the "Drilling 11 Contractor: H/ET. Drilling Method: Dry Augered/Wet 12 Rotary. Sampling Method: Shelby Tube/Split Spoon." 13 Is that -- 14 A. Yes. 15 Q. Okay. And then we've got the 16 "Geologist/Engineer: Stefan." 17 What about -- what about this drilling 18 method? What is the dry augered/wet rotary? 19 A. Well, that refers to whenever they're using an 20 auger. In this case we pushed Shelby tubes first -- 21 Q. Okay. 22 A. -- which is what we said the sampling method. 23 But once you've pushed a Shelby tube, quite often then 24 you go back into the hole with an auger to clean the 25 hole up and to widen the hole a little bit. Then you go</p>

66	<p>1 back in with another Shelby tube. So you're constantly</p> <p>2 in and out of the hole.</p> <p>3 Q. Okay.</p> <p>4 A. And -- and so then when -- when it says "dry</p> <p>5 augered," when they were augering, they hadn't set up to</p> <p>6 drill with mud at that point. Then the -- it says "wet</p> <p>7 rotary."</p> <p>8 Q. Uh-huh.</p> <p>9 A. That's when they said, Okay. We've either</p> <p>10 reached refusal or we're seeing water or something. And</p> <p>11 he says, "Dry augered to 30'" and "set up to wash,"</p> <p>12 meaning that's when he started using the mud to drill.</p> <p>13 Q. Now, is this -- I -- I only know stuff from</p> <p>14 sort of the uranium context. In the uranium -- and</p> <p>15 since the uranium world, they use mud pits.</p> <p>16 Do you guys use mud pits or does Stefan</p> <p>17 use mud pits?</p> <p>18 A. Yes. Not in the context maybe that you're</p> <p>19 thinking, but --</p> <p>20 Q. Okay.</p> <p>21 A. The -- the size of a mud pit would depend on</p> <p>22 the size and depth of the hole. So the reason that they</p> <p>23 drill in uranium and in the oil business with big mud</p> <p>24 pits is because they have a big hole to maintain. In</p> <p>25 this case, we're drilling relatively shallow borings, so</p>	68	<p>1 augered just refers to the Shelby tube? And you said</p> <p>2 along with maybe using -- cleaning out the boring.</p> <p>3 That's what you said.</p> <p>4 A. Yeah. Dry augered would have been cleaning</p> <p>5 out the boring of the Shelby tubes and in the drilling</p> <p>6 between the intermittent samples until they got down to</p> <p>7 30 feet where they -- where they prepared drilling mud.</p> <p>8 Q. Okay. Now, one thing I did not see on this</p> <p>9 log EB-1 that I did see on some of the others was</p> <p>10 anything about an initial water level.</p> <p>11 Do you have any idea why that is?</p> <p>12 A. I'm assuming that they didn't see any water</p> <p>13 before they mudded up.</p> <p>14 Q. Okay.</p> <p>15 A. Sometimes you mud up because you're getting to</p> <p>16 a refusal and it's hard to push or pound and you need it</p> <p>17 for the -- to reduce friction. So...</p> <p>18 Q. Okay. Do you have a -- well, okay.</p> <p>19 So in this case for the EB-1 through 6,</p> <p>20 you're -- because we didn't have samples sent back to</p> <p>21 your office, you're relying on Stefan's notes from the</p> <p>22 field, right?</p> <p>23 A. Yes.</p> <p>24 Q. Okay. Do you know what threshold he had for</p> <p>25 deciding where these solid lines that we -- hor- -- I'm</p>
67	<p>1 their mud pit is a -- is a tub.</p> <p>2 Q. Okay.</p> <p>3 A. So --</p> <p>4 Q. So is it -- is it -- so it's not in the</p> <p>5 ground?</p> <p>6 A. No.</p> <p>7 Q. Not in the ground. Okay.</p> <p>8 And so these -- these remarks down here</p> <p>9 and this information, when I -- you know, the marks you</p> <p>10 were just talking about, the -- the "Dry augered to 30';</p> <p>11 set up to wash at 30.0'," you know, the sampling method,</p> <p>12 drilling method, all that stuff, is that all information</p> <p>13 from Stefan? I mean, did he provide all that</p> <p>14 information?</p> <p>15 A. Yes.</p> <p>16 Q. Okay. And -- and is that the same way on the</p> <p>17 BME logs as well, he provides all that information, or</p> <p>18 is it just for the EB logs?</p> <p>19 A. Yeah, that would have generally been</p> <p>20 information -- I mean, without looking at every piece of</p> <p>21 it, I can't say --</p> <p>22 Q. No, that's fine.</p> <p>23 A. But generally that would be information that</p> <p>24 was -- that was provided to us by him.</p> <p>25 Q. Okay. And so you're saying here the dry</p>	69	<p>1 sorry, solid lines that the -- the horizontal lines that</p> <p>2 kind of mark the difference between where we go from one</p> <p>3 symbol or type of soil to another? Do you have any feel</p> <p>4 for how he decides that?</p> <p>5 A. Not specifically.</p> <p>6 Q. Do you -- how do you decide that?</p> <p>7 A. I decide it by looking at the samples.</p> <p>8 Q. Okay. Okay. Let's look -- I guess let's just</p> <p>9 take another one just so we can be complete here. Let's</p> <p>10 just go to the next one, EB-2. So -- okay. So here's</p> <p>11 one thing I forgot to ask you about from the first one.</p> <p>12 The second symbol here, "iron oxide</p> <p>13 staining," what does that mean?</p> <p>14 A. It means that there was some red coloration</p> <p>15 that appeared to be rust. And he referred to it as iron</p> <p>16 oxide. Probably was iron oxide.</p> <p>17 Q. Rust in the clay?</p> <p>18 A. Well, a lot of times there's iron in the</p> <p>19 material, just like iron in a nail.</p> <p>20 Q. Uh-huh.</p> <p>21 A. Natural -- naturally occurring iron. So when</p> <p>22 you see iron oxide, it's just natural rust-colored</p> <p>23 related to the -- the minute particles of iron that may</p> <p>24 occur in the -- in the geochemical matrix.</p> <p>25 Q. Okay. So iron when it's in clay is</p>

70	<p>1 rust-colored?</p> <p>2 A. Well, it can be --</p> <p>3 Q. Okay.</p> <p>4 A. -- if it's -- if it's been oxidized.</p> <p>5 Q. How is it oxidized generally?</p> <p>6 A. By repeated -- by making it wet and then</p> <p>7 making it dry, just like anything else, rusts.</p> <p>8 Q. Okay. I see what you're saying.</p> <p>9 Okay. And so here we have a water level,</p> <p>10 it looks to me. And he also in his remark said, "Water</p> <p>11 at 28.0'."</p> <p>12 Am I reading that correctly?</p> <p>13 A. That's what it says.</p> <p>14 Q. And is that what you would call an initial</p> <p>15 water level?</p> <p>16 A. Yes.</p> <p>17 Q. And do you think that that's reliable? And</p> <p>18 I'm -- we'll talk about this a little more later, but I</p> <p>19 remember in the application there was some discussion</p> <p>20 about -- there was some discussion about water levels</p> <p>21 and some that you thought were more reliable and others</p> <p>22 you didn't think were reliable. And I could be saying</p> <p>23 that wrong. But just -- that's my recollection.</p> <p>24 And so I'm wondering, do you think that</p> <p>25 that is a reliable water level or -- or good</p>	72	<p>1 (Mr. Woodward reentered.)</p> <p>2 Q. (BY MS. JACOBS) So -- okay. And then this is</p> <p>3 a new one very -- down at the very bottom here, this</p> <p>4 "GRAVEL, hard, multicolored."</p> <p>5 What -- what colors are -- what colors are</p> <p>6 you looking at here?</p> <p>7 A. Well, I'm not -- I don't know and I didn't ask</p> <p>8 him.</p> <p>9 Q. Okay.</p> <p>10 A. So...</p> <p>11 Q. What is your -- what's your experience when</p> <p>12 you say -- I'm just curious, like multicolored gravel?</p> <p>13 A. It may have been different shades of gray.</p> <p>14 Q. Different shades of gray. Okay.</p> <p>15 I guess does that have any geologic</p> <p>16 significance or is it just when he's just kind of</p> <p>17 like -- because there are colors like noted throughout</p> <p>18 here and I'm just wondering because you've got, you</p> <p>19 know, "SAND, reddish brown," you know, the one up above</p> <p>20 that, "SAND, reddish brown and tan." I'm still on Page</p> <p>21 E2-68.</p> <p>22 A. Colors are one of the least useful</p> <p>23 descriptions that come from a soil sample, in my</p> <p>24 opinion. They may or may not mean anything.</p> <p>25 Q. Uh-huh.</p>
71	<p>1 information?</p> <p>2 A. Reliability depends on the intended purpose.</p> <p>3 Q. Uh-huh.</p> <p>4 A. In general terms, I don't think observing</p> <p>5 water levels in bore holes, which is an old</p> <p>6 geotechnical -- geotechnical engineers used to do that.</p> <p>7 Q. Uh-huh.</p> <p>8 A. In shallow borings in general I don't think</p> <p>9 it's reliable. But for what this is intended for, it</p> <p>10 was reliable. This was the first place that he saw what</p> <p>11 he considered to be water.</p> <p>12 Q. So do you think you can get -- let me just say</p> <p>13 that another way.</p> <p>14 Do you think you can get helpful or</p> <p>15 valuable information from noting where you see water</p> <p>16 first show up in a bore hole? Or you could -- maybe I</p> <p>17 could say it a different way.</p> <p>18 Does it tell you anything?</p> <p>19 A. It tells me that somebody noticed that</p> <p>20 something was wet. It may or may not tell you anything</p> <p>21 about what a water table is or what the potentiometric</p> <p>22 surface is. And so the -- in general terms, it's not</p> <p>23 all that valuable. In the terms that it was meant for</p> <p>24 here, it was -- it was useful. It -- it was potentially</p> <p>25 useful.</p>	73	<p>1 A. Dependent on that gravel, it could tell you</p> <p>2 something about was this a gravel that was eroded from</p> <p>3 200 miles away in a -- in a granite outcrop so we know</p> <p>4 it's that. But in general terms, color means very</p> <p>5 little to me.</p> <p>6 Q. Okay. So just to complete this, you didn't</p> <p>7 have the samples to look at yourself.</p> <p>8 Do you have any reason to doubt that</p> <p>9 Stefan's descriptions of these borings EB-1 through 6</p> <p>10 are correct?</p> <p>11 A. I think they were the descriptions that he</p> <p>12 made. I -- I think Stefan makes good descriptions and</p> <p>13 so I -- I think these are what he saw.</p> <p>14 Q. Okay.</p> <p>15 MS. JACOBS: Let's take a five-minute</p> <p>16 break while I take more pain medication.</p> <p>17 THE VIDEOGRAPHER: We're going off the</p> <p>18 record at 10:56.</p> <p>19 (Mr. Jacob Porter exited proceedings)</p> <p>20 (Recess from 10:56 a.m. to 11:06 a.m.)</p> <p>21 THE VIDEOGRAPHER: We're back on the</p> <p>22 record at 11:06.</p> <p>23 Q. (BY MS. JACOBS) So I wanted to ask you, I</p> <p>24 realized I forgot, who -- or maybe I didn't forget.</p> <p>25 Maybe I just forgot that I asked.</p>

74	<p>1 Who was it that created the EB logs, EB-1</p> <p>2 through 6? And I know Mr. -- Stefan created the field</p> <p>3 logs. And then I'm assuming that whoever it was that</p> <p>4 created the logs that appeared in the application relied</p> <p>5 on those field logs to create the logs that are</p> <p>6 relying -- that are in the application, is that right?</p> <p>7 A. Yeah. The -- Biggs & Mathews created the --</p> <p>8 the graphic.</p> <p>9 Q. Okay. Who at Biggs & Mathews created the</p> <p>10 graphics for the EB logs?</p> <p>11 A. It would have been one of our admin people.</p> <p>12 I -- I don't remember who it was.</p> <p>13 Q. So you did not create those EB logs?</p> <p>14 A. Well, I guess I need to ask you in that</p> <p>15 context what do you mean by "create"?</p> <p>16 Q. I don't know. I'm not really sure what your</p> <p>17 process is. I know what Mr. Adams told me and we can</p> <p>18 talk more about that a little bit later. But, you know,</p> <p>19 let -- let's just start at the beginning. You get the</p> <p>20 field logs from Mr. Stamoulis.</p> <p>21 And how did you -- how do you get field</p> <p>22 logs from him typically?</p> <p>23 A. In a variety of ways. Typically he mails</p> <p>24 them.</p> <p>25 Q. Regular mail?</p>	76	<p>1 a field log.</p> <p>2 Q. Okay. So -- but -- so your -- your stamp</p> <p>3 covers --</p> <p>4 A. Uh-huh.</p> <p>5 Q. -- the EB logs?</p> <p>6 A. Uh-huh.</p> <p>7 Q. Okay. So you're just saying that the EB logs</p> <p>8 were -- these particular ones that show up in the</p> <p>9 application were put together by a staff person, you</p> <p>10 think, that works for you?</p> <p>11 A. By -- by "put together," I mean, what -- what</p> <p>12 we do is we take the information and input it into the</p> <p>13 GINT program.</p> <p>14 Q. Okay.</p> <p>15 A. Generate those. They would have generated in</p> <p>16 effect a draft of that. I would have looked at it,</p> <p>17 compared it to the field log, and said, Okay. Those are</p> <p>18 final.</p> <p>19 Q. And again, that draft, that's not something</p> <p>20 you would be keeping, that draft log?</p> <p>21 A. No.</p> <p>22 Q. All right. And who is it that actually inputs</p> <p>23 it into the GINT program?</p> <p>24 A. One of the admins.</p> <p>25 Q. And who is it that did that in this case?</p>
75	<p>1 A. Usually. Sometimes he FedExes them. It -- it</p> <p>2 depends.</p> <p>3 Q. Okay. And so let's just say however the --</p> <p>4 the method that he sent it, you received the -- and he</p> <p>5 would send it to you at Biggs & Mathews? Were you his</p> <p>6 contact person?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. So you would receive the field logs,</p> <p>9 and then what would do you with those field logs?</p> <p>10 A. In the -- in -- and I think we should</p> <p>11 differentiate here between these EB borings and all the</p> <p>12 other ones.</p> <p>13 Q. Absolutely.</p> <p>14 A. Because the EB borings were done as -- their</p> <p>15 intended purpose was a preliminary look.</p> <p>16 Q. Right.</p> <p>17 A. And did not have my input or Gregg's input or</p> <p>18 review to -- to finalize logs. These were preliminary</p> <p>19 logs and -- and this -- these are Stefan's -- this is a</p> <p>20 representation of Stefan's field log.</p> <p>21 Q. Okay. So did -- but did he stamp the field</p> <p>22 log --</p> <p>23 A. No.</p> <p>24 Q. -- or seal it?</p> <p>25 A. I've never seen him stamp a draft -- a draft,</p>	77	<p>1 A. I have no idea.</p> <p>2 Q. Okay. And by "admin," what -- what is that</p> <p>3 job description?</p> <p>4 A. Administrative assistants.</p> <p>5 Q. Okay. So you said that that is a</p> <p>6 preliminary -- the EB logs are a preliminary look at the</p> <p>7 geology. And we were talking about the water levels.</p> <p>8 And I can't remember whether on the EB logs -- I know we</p> <p>9 didn't have a water level on EB-1. We had one on EB-2.</p> <p>10 It looks like we have a groundwater observation on EB-3,</p> <p>11 which I'm on Page E2-70 of I think what is Exhibit 5.</p> <p>12 So does -- we were talking before about</p> <p>13 what -- what can you tell from these initial water</p> <p>14 levels, if anything. And you were kind of giving me</p> <p>15 your take on that.</p> <p>16 Does this -- do these initial water levels</p> <p>17 provide you with any information regarding the water</p> <p>18 table?</p> <p>19 A. Not with any kind of specificity.</p> <p>20 Q. Okay. And what is a water table?</p> <p>21 A. Without -- without referring to a dictionary</p> <p>22 definition, it's -- a water table is the first</p> <p>23 occurrence of groundwater that's identifiable in a</p> <p>24 continuous manner under the ground usually, I mean, and</p> <p>25 always below the Vadose zone, which is the unsaturated</p>

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78	<p>1 zone.</p> <p>2 Q. And so how does that differ from the water</p> <p>3 level that you're seeing in the bore holes that's --</p> <p>4 that's noted on these logs that we've been talking</p> <p>5 about?</p> <p>6 A. It may or may not reflect that. For instance,</p> <p>7 you'll note here it says, "Caved at 15.6'."</p> <p>8 Q. And we're talking about EB-3, right?</p> <p>9 A. Yes. So once it caved, things moved into the</p> <p>10 hole. They can move the water level up and you don't</p> <p>11 know if that's the water level or not.</p> <p>12 Q. Okay. Well, let's take a look at EB-4. That</p> <p>13 looks like that's -- that's on Page E2-72. And that's</p> <p>14 got a water level. It doesn't look like there was any</p> <p>15 caving on this one.</p> <p>16 So you're saying that the observed water</p> <p>17 level in the bore hole could be different than the water</p> <p>18 table, but it also might be the same as the water table?</p> <p>19 A. Yes.</p> <p>20 Q. Okay. So how would you -- how would you</p> <p>21 accurately measure where the water table is located?</p> <p>22 A. By putting piezometers in.</p> <p>23 Q. Okay. And where would you have to screen the</p> <p>24 piezometer in order to identify where the water table is</p> <p>25 or would you have -- does it matter where you screen the</p>	80	<p>1 a bore hole -- forget the -- forget the collapsing,</p> <p>2 because I -- I -- I get that. That makes sense. I can</p> <p>3 visualize that. But how would the water level that you</p> <p>4 see in a bore hole be different than the piezometer that</p> <p>5 we were just describing in terms of the water level you</p> <p>6 would see in that piezometer?</p> <p>7 A. Well, a piezometer allows water to accumulate</p> <p>8 and equilibrate and be consistent through time so that</p> <p>9 you can measure it day after day after day and figure</p> <p>10 out if it's -- if that is where the water level is.</p> <p>11 In a bore hole you don't know where the</p> <p>12 water is coming from. And you don't know how long it</p> <p>13 takes for it to get stabilized from the drilling</p> <p>14 process. So if water -- water could be coming from --</p> <p>15 from below where you're at and where you -- where you've</p> <p>16 identified water or above that over a period of -- short</p> <p>17 period of time. So you don't really know if that's</p> <p>18 representative of the water table or not.</p> <p>19 Q. Can you allow a bore hole to -- you know, time</p> <p>20 to kind of settle and -- and equilibrate like you were</p> <p>21 talking about that happens with a piezometer? I mean,</p> <p>22 can you allow it some time to do that so that you can</p> <p>23 then get a better read?</p> <p>24 A. You can.</p> <p>25 Q. But you -- but you all did not do that in --</p>
79	<p>1 piezometer?</p> <p>2 A. It might.</p> <p>3 Q. In what circumstances would it?</p> <p>4 A. In water table conditions we are generally</p> <p>5 referring to what we call unconfined. It's not</p> <p>6 confined. It's in a -- it's in a zone that is not being</p> <p>7 compressed. And so you need to have a piezometer within</p> <p>8 the -- within the saturated portion of the -- of the</p> <p>9 zone that you're identifying.</p> <p>10 Q. And is that what we have at this site?</p> <p>11 A. Yes.</p> <p>12 Q. Okay. And so if you do put -- if you have</p> <p>13 your piezometer and you -- let me see how I can say</p> <p>14 this.</p> <p>15 So if you -- if you have your piezometer</p> <p>16 and you screen it appropriately and your piezometer is</p> <p>17 located in your, I guess, unconfined formation, does</p> <p>18 that accurately give you the water table information?</p> <p>19 A. Generally, yes.</p> <p>20 Q. And in what circumstances would it not give</p> <p>21 you an accurate water table read?</p> <p>22 A. Well, I can't think right offhand an example</p> <p>23 of that.</p> <p>24 Q. Okay. And again -- tell me again how a bore</p> <p>25 hole would be different -- the water level you'd see in</p>	81	<p>1 in the case of -- we'll start with EB-1 through 6?</p> <p>2 A. No, we didn't.</p> <p>3 Q. Did you do that -- did you allow the bore</p> <p>4 holes time to equilibrate with the BME borings?</p> <p>5 A. No.</p> <p>6 Q. Okay. And why -- why not?</p> <p>7 A. Because it's an unreliable method to determine</p> <p>8 water levels.</p> <p>9 Q. So -- so there's no other -- so there is no</p> <p>10 information -- because I -- I kind of come from a place</p> <p>11 and a lot of what I do where more information is better</p> <p>12 and then you sort through it using your expertise,</p> <p>13 basically.</p> <p>14 So I take it, then, that there is no</p> <p>15 situation or set of data that would be in this</p> <p>16 application then -- let me put it this way.</p> <p>17 You chose not to include or to have what</p> <p>18 you would call, I guess, the equilibrated water levels</p> <p>19 in these borings? So you -- maybe I'm saying that</p> <p>20 wrong. Am I saying that wrong? You chose not to let</p> <p>21 the -- the bore hole -- the water in the bore holes</p> <p>22 equilibrate for any time period and then take a -- and</p> <p>23 then try to take a water level reading.</p> <p>24 That's what you told me, right?</p> <p>25 A. We did not take equilibrated water level</p>

82	<p>1 readings in -- in open bore holes.</p> <p>2 Q. In open bore holes. Okay.</p> <p>3 So you chose not to obtain that</p> <p>4 information?</p> <p>5 A. Well, we -- we noted where we -- where the</p> <p>6 field guide noted water or where it was wet.</p> <p>7 Q. Where you first noted water?</p> <p>8 A. Well -- yes.</p> <p>9 Q. Okay. Because you said you --</p> <p>10 A. Yeah, that's --</p> <p>11 Q. -- didn't wait for any time. Okay.</p> <p>12 A. I'm sorry. That's -- that's detailed in the</p> <p>13 application.</p> <p>14 Q. Okay. So I guess what I'm saying, is that</p> <p>15 kind of your standard for the information that you</p> <p>16 include in the application, if there is any kind of, you</p> <p>17 know, uncertainty about it or in terms of reliability,</p> <p>18 are you always going to note that in the application and</p> <p>19 say, Hey, we didn't really rely on this?</p> <p>20 A. Well, I'm not sure that I'm ready to jump from</p> <p>21 that of having to do with water levels to everything in</p> <p>22 the application.</p> <p>23 Q. Right.</p> <p>24 A. Certainly --</p> <p>25 Q. Well, it kind of goes back to what we were</p>	84	<p>1 A. In an open bore hole, I can't tell you.</p> <p>2 That's why we don't use open bore holes. Open bore</p> <p>3 holes do things like cave. So if you have a water</p> <p>4 level, I don't know if that water level was a result of</p> <p>5 having been pushed up by sidewalk cave, material which</p> <p>6 occupied a -- some of the space in the bore hole there</p> <p>7 by pushing the water up. I -- I just don't know.</p> <p>8 Q. Okay. And so -- let's just take this. I'm</p> <p>9 going to hand you what I think is going to be marked</p> <p>10 Exhibit 6.</p> <p>11 (Exhibit 6 marked)</p> <p>12 MS. JACOBS: I'm sorry.</p> <p>13 MS. NICHOLS: That's all right.</p> <p>14 Q. (BY MS. JACOBS) And I think that we were</p> <p>15 talking about previously how Stefan, or Stef, as you</p> <p>16 referred to in this e-mail, would transmit the field</p> <p>17 logs to you. And what I've handed you is an e-mail that</p> <p>18 was sent from -- it looks like Connie Sanford with H/ET</p> <p>19 to you, "Subject: Last 3 Logs." And then the text of</p> <p>20 the e-mail, "Here are the last 3 logs I owed you. Stef</p> <p>21 wanted me to confirm that you have a total of 36?"</p> <p>22 So at least sometimes you were e-mailed</p> <p>23 the field logs, is that right?</p> <p>24 A. Yes.</p> <p>25 Q. Okay. And when you were e-mailed the field</p>
83	<p>1 talking about in the very beginning about, you know,</p> <p>2 being con- -- taking conservative approach.</p> <p>3 A. Yeah. I guess I would need a more specific</p> <p>4 question before I'm going --</p> <p>5 Q. Okay.</p> <p>6 A. -- to apply it to everything in the</p> <p>7 application.</p> <p>8 Q. That's fair enough. Let's go back to -- to</p> <p>9 EB-3.</p> <p>10 A. Okay.</p> <p>11 Q. Now, on EB-3 down at the bottom in the remarks</p> <p>12 it says, "Next day water 11 (sic)."</p> <p>13 What does that mean to you?</p> <p>14 A. It suggests to me that -- that he started</p> <p>15 drilling and -- and stopped because he got to the end of</p> <p>16 the day at some unspecified point.</p> <p>17 Q. Uh-huh.</p> <p>18 A. I don't know where that was. And the next day</p> <p>19 when he came out, there was water at 11 feet.</p> <p>20 Q. Okay. And so would that have been -- so for</p> <p>21 that bore hole, that had -- bore hole had time to</p> <p>22 equilibrate?</p> <p>23 A. I'd say no.</p> <p>24 Q. No. Okay. So how long does it take to</p> <p>25 equilibrate?</p>	85	<p>1 logs, did you then provide -- who did you provide copies</p> <p>2 of the field logs? And here we're referring to -- these</p> <p>3 are the BMEs?</p> <p>4 A. Uh-huh.</p> <p>5 Q. So when you were e-mailed those, who did</p> <p>6 you -- did you forward those e-mails to anyone else?</p> <p>7 A. I don't remember if I forwarded them to</p> <p>8 anybody else. I would have -- I would have printed them</p> <p>9 out for sure.</p> <p>10 Q. Uh-huh.</p> <p>11 A. I likely would have handed them to whichever</p> <p>12 admin was working on this project to start drafting</p> <p>13 up the -- the logs and I would have handed them to</p> <p>14 Gregg Adams because Gregg would -- is the one that is</p> <p>15 going to work on the edits of the logs.</p> <p>16 Q. Right. Okay. Now -- now, Stefan testified</p> <p>17 that it is his business practice not to retain his field</p> <p>18 logs.</p> <p>19 Were you aware of that?</p> <p>20 A. Yes.</p> <p>21 Q. Okay. Has that always been his business</p> <p>22 practice?</p> <p>23 A. As far as I know.</p> <p>24 Q. Now, I asked you sort of generally about your</p> <p>25 document retention policy before.</p>

86	<p>1 Has the issue of not retaining field logs 2 ever come up previously in a contested case hearing 3 context? 4 A. As long as I've been in the business. 5 Q. It's always come up? 6 A. Yeah. 7 Q. Okay. 8 A. "Always" is a tough word. 9 Q. That's true. That's -- 10 A. It has come up. 11 Q. It has come up. 12 So it's come up more than once? 13 A. Yeah. 14 Q. Okay. And knowing that, you still choose not 15 to retain the field logs? 16 A. Yes. 17 Q. Why? 18 A. We destroy the drafts of field logs, which 19 field logs are drafts. 20 Q. It's the initial draft, though, right? 21 A. Okay. It's the initial draft. 22 Q. I mean, it's what Stefan is seeing out in the 23 field? 24 A. Yeah. 25 Q. It's his record of what he did out there?</p>	88	<p>1 the field. 2 So I'm saying you only retain things that 3 you think are the most accurate representation? 4 A. Again, I'm -- I'm uncomfortable extrapolating 5 that to other things. 6 Q. Uh-huh. 7 A. As to logs, those are not the most accurate 8 representations that come from the field. 9 Q. Okay. And so the most accurate 10 representations would be the -- the logs that appear in 11 the application? 12 A. Yes. 13 Q. The final -- what I'm calling the final logs? 14 A. Yes. 15 Q. Okay. So what about the actual samples? Do 16 you keep those? 17 A. We generally keep them for an unspecified 18 time. Sometimes we keep them during periods when we're 19 having the application reviewed. Sometimes not. 20 Sometimes they're destroyed fairly quickly. It's 21 usually a function of space and accessibility. We have 22 storage units for our samples and sometimes we need the 23 space for other things that have just happened that have 24 just come in. So we -- we have -- once we're done 25 testing the samples and looking at them repeatedly, we</p>
87	<p>1 A. Yes. 2 Q. And as far as I know, what he testified to is 3 that's his only record. He told me he doesn't take any 4 other notes. 5 Has that your -- been your experience? 6 A. I don't have any idea what else he might take. 7 Q. Uh-huh. 8 A. I don't -- I don't know. 9 Q. Okay. So knowing that, that he destroys his 10 copy, and that this issue has come up previously in a 11 contested case hearing process, why do you still choose 12 to destroy the notes that -- that he took in the field? 13 A. Because we're not destroying them to keep them 14 from you. We're destroying them because they're -- they 15 are not the most accurate representation of what we -- 16 what we found in the field. 17 Q. I guess I -- I -- so -- so you only retain the 18 information that you think is the most accurate 19 information? 20 A. I'm not sure what you mean by that question. 21 Q. Well, you just said that the reason -- that 22 you're not destroying them to keep them from me or 23 people like me, I guess, but you're doing it because 24 it's not -- you're destroying them because they're not 25 the most accurate representation of what you found in</p>	89	<p>1 have no use to keep them. Samples deteriorate. Samples 2 in storage lose their integrity. They lose their space 3 in the box. They've often been opened up and moved 4 around and you can't confirm where they came from or not 5 after all that -- after they've been worked through like 6 that. So we don't think it's a good practice to keep 7 samples. 8 Q. So you're saying that once you open them up 9 and move them around, you're -- maybe they're not in 10 order anymore or... 11 A. That was one of the things, yeah. 12 Q. Okay. So -- and so -- so in this 13 particular -- so I guess I haven't asked you about this 14 particular case. So for this particular case and these 15 particular samples associated with this case -- I know 16 you said you didn't get any associated with the EB 17 borings, but you -- what happened to -- did you destroy 18 the samples that were from the BME logs or BME borings? 19 A. I didn't personally destroy them. They were 20 destroyed. 21 Q. Okay. And when -- when did you all have that 22 done? 23 A. I couldn't tell you. I don't even know that I 24 ever knew when they were -- when it was done. 25 Q. Who makes that decision?</p>

90	<p>1 A. It's made by one of two or three people, 2 myself or Gregg Adams, and usually it's when some other 3 samples come in, they'll say, Are you done with the 4 samples there because I need the space? 5 And someone will say, Yeah, we're done 6 with those. 7 Q. You mean on a new project or the same project? 8 A. Well, yeah, on a different project I think I 9 was referring to. 10 Q. Okay. 11 A. And by the way, I should use the term 12 "discard" the samples, not destroy them. I don't know 13 if they're destroyed or not. We discard them. 14 Q. Right. Right. 15 Okay. So -- so in this particular case, 16 do you recall when you discarded the samples? 17 A. No, I don't. 18 Q. Have you -- have you definitely determined 19 that they have been discarded, though? 20 A. I have. 21 Q. Okay. And same thing goes for with the field 22 logs. 23 When -- when Stefan mails them to you or 24 e-mails them to you, as the case may be, when do you 25 discard the field logs?</p>	92	<p>1 testimony from this. 2 A. Okay. 3 Q. And if that's something -- I just -- you know, 4 I'll ask you if you recall it and so on and so forth, 5 but this is really for your reference purpose. 6 So let's look at Page 76. And I just want 7 to verify a couple of things. Now, in this case you 8 were talking about -- and this case was in -- let's see. 9 It says the date on here is the 14th day of October, 10 2008 is when this is particularly dated. So this is a 11 little bit -- while back. On Page 76 some of the 12 testimony is talking about wash boring sampling. 13 Do you see where I'm at, kind of around 14 Line 11? 15 A. Yes, I see it. 16 Q. Now, was that something that you did in 17 respect to this case, the Pintail case? 18 A. Well, in this case somebody else was 19 suggesting that we had only done wash borings. 20 Q. And by "this case" you're -- you're pointing 21 to the transcript, so you're saying -- 22 A. Yeah. I'm sorry. I'm pointing -- I'm 23 pointing to this -- 24 Q. Okay. So that -- 25 A. -- exhibit.</p>
91	<p>1 A. Well, as I mentioned, copies of the logs come 2 in. I likely make a copy for Gregg so that he can look 3 at them. I have a copy. So they -- those two sets of 4 copies may get destroyed at different times. There's -- 5 we don't have a ceremony about it. It's just once we're 6 done, we're done. And when you're done using them, 7 we -- we discard them. 8 Q. Okay. So before -- so -- and then -- so I'm 9 assuming that would be before you submit the -- 10 submitted the application in this case? 11 A. Yeah. The -- in general terms, the field logs 12 are discarded once we've determined that our logs are 13 final. 14 Q. Okay. And you determine your logs are final 15 before you submit the application, I would think? 16 A. Yes. 17 Q. Okay. I'm going to hand you an exhibit -- I'm 18 sorry -- that we're going to mark Exhibit 7. 19 (Exhibit 7 marked) 20 Q. (BY MS. JACOBS) And it is -- the initial page 21 here is "HEARING ON THE MERITS, VOLUME 2," "IN THE 22 MATTER OF IESI TX LANDFILL LP, PROPOSED PERMIT NO. 23 MSW-2332." And I'm going to represent to you that this 24 is a -- an excerpt of that hearing transcript. And if 25 anything -- I'm -- we're going to look at some of your</p>	93	<p>1 Q. So that previous case -- okay. So the -- 2 the -- in the IESI case, somebody else was suggesting 3 that you had -- you had done wash borings? 4 A. That we had only done wash borings. 5 Q. That you had only done. 6 A. Yeah. 7 Q. Okay. Did you -- but my question still stands 8 for the case that we're talking about right now, which 9 is the proposed Pintail Landfill. 10 For that application, did you also do wash 11 boring sampling? 12 A. You know, I guess that kind of depends on what 13 your definition of "wash boring sampling" is. 14 Q. Okay. I don't have a definition, so you're 15 going to have to fill in the gap there. 16 A. You know, I think I described earlier when 17 you're doing split spoon sampling and you drive the -- 18 the split spoon and then you drill with a drilling bit, 19 and when you're doing that when it's -- when there is 20 water there, some people call that wash borings. 21 Q. Okay. 22 A. It's a different -- it's somewhat different 23 context than what the people here were referring to. 24 Q. Okay. So -- so by your definition, then, yes, 25 that is what you have utilized, at least in part, for</p>

94	<p>1 this application, being the Pintail application?</p> <p>2 A. I'm sorry. That -- that -- it just confused</p> <p>3 me about -- I -- I thought I was referring to this and I</p> <p>4 thought I heard you suggest, So therefore that's what</p> <p>5 you were saying in this one. I'm differentiating</p> <p>6 between the two.</p> <p>7 Q. No, no. I'm sorry. I'm going back to my</p> <p>8 question.</p> <p>9 A. Okay.</p> <p>10 Q. And my question was, before -- before you</p> <p>11 defined what "wash boring" meant to you --</p> <p>12 A. Uh-huh.</p> <p>13 Q. -- or "wash boring sampling" -- my question</p> <p>14 was, given that definition, okay, putting -- putting the</p> <p>15 IESI transcript aside for a moment, did you sample using</p> <p>16 that particular methodology -- the wash boring</p> <p>17 methodology as you have just described it -- that way</p> <p>18 in -- with -- with respect to the Pintail application</p> <p>19 borings?</p> <p>20 A. I -- I mean, I think I described what we did.</p> <p>21 I'm -- I don't know that I'm comfortable with using the</p> <p>22 term "wash boring" because that's not a term I utilize.</p> <p>23 I probably didn't utilize that in the application, so...</p> <p>24 Q. Got you.</p> <p>25 A. It has connotations that I don't know are</p>	96	<p>1 you were referring to previously when I asked you if the</p> <p>2 issue of keeping and retaining the field logs had come</p> <p>3 up previously in a contested case hearing?</p> <p>4 A. Yeah. I think when I said that earlier, I</p> <p>5 wasn't specifically thinking about this, but certainly</p> <p>6 this was one of them.</p> <p>7 Q. Okay. And then right below that, "Did you</p> <p>8 retain the cores that were taken at this site?"</p> <p>9 Answer, "No. I do have -- I keep from</p> <p>10 every job that I do some souvenirs -- what I call</p> <p>11 souvenirs on my bookshelf." And then you go on, Lines 3</p> <p>12 and 4, "So, yes, they have been destroyed."</p> <p>13 So again, this would be a situation where</p> <p>14 this issue of your retention policy was raised here in</p> <p>15 2008, and they're specifically pointing out some</p> <p>16 information that was on the field logs that was not then</p> <p>17 carried over to the final logs and it looked to me like</p> <p>18 you're agreeing that that's the situation.</p> <p>19 A. I'm not meaning to be obtuse here. I --</p> <p>20 Q. That's fine.</p> <p>21 A. I'm not sure exactly what -- what you're</p> <p>22 referring to.</p> <p>23 Q. Do you recall this testimony?</p> <p>24 A. Generally.</p> <p>25 Q. Okay. And -- and is this -- is there anything</p>
95	<p>1 consistent.</p> <p>2 Q. Okay. And so the controversy -- one of the</p> <p>3 controversies at least in that case, if I go down to</p> <p>4 Line 20 was, question, "Now, as that driller was</p> <p>5 performing this operation, would he have noted in his</p> <p>6 log the areas where the coring was being performed and</p> <p>7 the areas where it was just wash boring that was being</p> <p>8 done?"</p> <p>9 And your answer was, "Yes."</p> <p>10 Do you see where I'm at?</p> <p>11 A. Uh-huh.</p> <p>12 Q. Okay. And then if we go on to Page 77, we</p> <p>13 have, question, "So that was information that was</p> <p>14 reflected in that report, that field log kept by the</p> <p>15 driller that was not transferred to these boring logs?"</p> <p>16 And your answer, "That's correct."</p> <p>17 Question, "Okay. And those field logs</p> <p>18 have been destroyed; is that correct?"</p> <p>19 Answer, "Yes (sic), in accordance with our</p> <p>20 policy, they have been."</p> <p>21 Question, "So we don't have any way to</p> <p>22 determine for sure which sections here are based on wash</p> <p>23 borings and which sections are based on boring?"</p> <p>24 Answer, "I think that's true."</p> <p>25 So is this one of the circumstances that</p>	97	<p>1 wrong with it? Anything that's not representative of --</p> <p>2 of your view?</p> <p>3 A. As far as I know, there's -- it's -- it's</p> <p>4 correct.</p> <p>5 Q. Okay. I'm going to hand you a document that</p> <p>6 is going to be marked Exhibit 8.</p> <p>7 (Exhibit 8 marked)</p> <p>8 MS. JACOBS: She's -- she's got -- she</p> <p>9 wants to call you Snyder, instead of Snyder.</p> <p>10 THE WITNESS: You cannot imagine how</p> <p>11 frequent that happens. Inexplicably to me, but it</p> <p>12 happens all the time.</p> <p>13 MS. JACOBS: Yeah. See, it's not just</p> <p>14 you.</p> <p>15 Q. (BY MS. JACOBS) Okay. So I'm handing you</p> <p>16 what is Exhibit 8, and this appears to me to be a</p> <p>17 memorandum dated January 4th, 2011, to William Hodges.</p> <p>18 The PIN number on the first page is PIN 014151.</p> <p>19 And do you recognize this memorandum?</p> <p>20 A. Yes, with the same proviso I suggested --</p> <p>21 Q. Right.</p> <p>22 A. -- earlier.</p> <p>23 Q. Right.</p> <p>24 And again, I'm really not asking you to</p> <p>25 authenticate it. I just want to make sure that you --</p>

98	<p>1 A. Uh-huh.</p> <p>2 Q. -- we're on the same page here.</p> <p>3 Okay. So my question for you here is when</p> <p>4 we go down, this is -- and this memorandum, it looks to</p> <p>5 me, is talking about the EB borings, EB-1 through 6.</p> <p>6 And I'm going down to the last paragraph on the page</p> <p>7 under "DRILLING." And you say, "Drilling was</p> <p>8 accomplished with a wet" -- "wet-rotary buggy type</p> <p>9 drilling rig."</p> <p>10 What -- so -- so there you're saying it</p> <p>11 was a wet-rotary buggy type drilling rig, so you're just</p> <p>12 not mentioning the dry auger part of that?</p> <p>13 A. Well, yeah. Well, I was describing the</p> <p>14 drilling rig.</p> <p>15 Q. Okay. Okay. So that's different. The</p> <p>16 drilling rig is different than -- there's no dry auger</p> <p>17 drilling rig?</p> <p>18 A. In this case, it had both capabilities. In</p> <p>19 other words, it had the capability of being a wet-rotary</p> <p>20 rig. Some rigs don't.</p> <p>21 Q. Okay.</p> <p>22 A. So...</p> <p>23 Q. Okay. So you just -- this was -- and it was</p> <p>24 a -- it was a memo, so you're -- maybe you're just</p> <p>25 picking out the highlights, I guess.</p>	100	<p>1 Q. Okay. Even when there were two rigs?</p> <p>2 A. Well, he would have looked at the cuttings</p> <p>3 that the -- that his helper on the other rig would have</p> <p>4 collected for him to look at --</p> <p>5 Q. Just laid -- laid out. Okay.</p> <p>6 A. -- for an interval that he then went -- went</p> <p>7 back to look at.</p> <p>8 Q. I got you. Okay. That's what we -- okay.</p> <p>9 Just so we're clear on that.</p> <p>10 Okay. So let's go down to the -- on the</p> <p>11 next page, PIN 014152. And why is it -- okay. So we</p> <p>12 talked about the -- the -- you know, your feeling on the</p> <p>13 water level -- the water levels from bore holes or</p> <p>14 for -- from -- from bore holes as opposed to</p> <p>15 piezometers. You've got this section in here on</p> <p>16 "GROUNDWATER OBSERVATIONS" and you're pretty specific.</p> <p>17 And you say, you know, about what was observed and where</p> <p>18 it was observed, where it was initially encountered.</p> <p>19 You know, "Groundwater was allowed to rise in open</p> <p>20 boreholes for variable lengths of time from boring to</p> <p>21 boring. The observation time ranged from 1 hour to more</p> <p>22 than 12 hours overnight. Water levels rose only</p> <p>23 slightly (within 1 or 2 feet of initial observations)."</p> <p>24 So -- and then I realize you have this</p> <p>25 caveat down here and you say, Well, we don't have</p>
99	<p>1 And then here -- now, this is one thing</p> <p>2 that I was a little confused about. Here you say, "Each</p> <p>3 boring was continuously sampled to total depth." When</p> <p>4 we talked about it before, though, when we were looking</p> <p>5 at the boring logs, you were saying that was not the</p> <p>6 case.</p> <p>7 Is that -- which one of those statements</p> <p>8 is correct?</p> <p>9 A. Well, in the context of what they are, they're</p> <p>10 both correct. In a strict geotechnical sense, there was</p> <p>11 intermittent sampling.</p> <p>12 Q. Okay.</p> <p>13 A. But in that intermittent sampling, we -- we</p> <p>14 looked at and described the cutting. And -- and so we</p> <p>15 looked at the samples on a continuous from -- from the</p> <p>16 top to the bottom.</p> <p>17 Q. Okay. Now, did you do that same -- follow</p> <p>18 that same process -- or I guess I should say did Mr. --</p> <p>19 did Stefan follow that same process with respect to the</p> <p>20 BMEs as well?</p> <p>21 A. Yes.</p> <p>22 Q. Okay. So he was looking at the cuttings --</p> <p>23 A. Uh-huh.</p> <p>24 Q. -- continuously?</p> <p>25 A. Uh-huh.</p>	101	<p>1 piezometers, so "a stable groundwater surface could not</p> <p>2 be determined, however, based on the occurrence of</p> <p>3 groundwater levels in open boreholes a water table can</p> <p>4 be estimated to occur between 10 to 20 feet deep."</p> <p>5 Now, that seems to kind of fly in the face</p> <p>6 of what you were telling me earlier, which is that's not</p> <p>7 really -- you know, getting water levels from open bore</p> <p>8 holes is not a good way to -- doesn't give you any</p> <p>9 information really about where the water table is.</p> <p>10 MR. RYAN: Objection to the form of the</p> <p>11 question.</p> <p>12 Q. (BY MS. JACOBS) Did I misunderstand what you</p> <p>13 were testifying to earlier?</p> <p>14 A. Well, I'm not sure if you misunderstood that</p> <p>15 or if you misunderstood this.</p> <p>16 Q. Okay. Well, tell me --</p> <p>17 A. To me, these are consistent.</p> <p>18 Q. Okay. How are they consistent?</p> <p>19 A. Again, the -- the data that's -- that's for</p> <p>20 its intended purpose is what matters as to its</p> <p>21 reliability. So we didn't have an intended purpose here</p> <p>22 of determining a potentiometric surface or a water table</p> <p>23 surface. It was simply an observation where water might</p> <p>24 occur here. And we've -- we've -- I -- I thought I had</p> <p>25 codiciled it significantly by saying no piezometers were</p>

102	<p>1 installed and it can be estimated. So...</p> <p>2 Q. So -- so the -- so water levels -- those</p> <p>3 initial water levels that you got in open bore holes can</p> <p>4 be used to estimate a water table?</p> <p>5 A. Yeah. I think -- I think as evidenced by my</p> <p>6 codicil here, it's -- it's a very poor way to use it in</p> <p>7 design purposes, which, of course, I'm not doing here.</p> <p>8 I'm just making an observation.</p> <p>9 Q. And why did you think it was -- I guess what</p> <p>10 I'm -- what kind of bothers me about this is if you</p> <p>11 don't think it is -- if you have it -- have it, you</p> <p>12 know, so heavily -- if in your mind this is not good</p> <p>13 information for the purposes of this application,</p> <p>14 okay -- because what you're doing in this application,</p> <p>15 as far as I understand it, is proposing a design for a</p> <p>16 landfill, right?</p> <p>17 A. Yes.</p> <p>18 Q. So why then is this information worth passing</p> <p>19 on to Mr. Hodges, who you're saying is the person</p> <p>20 that's, you know, peer-reviewing what you're doing and</p> <p>21 so on and so forth -- why is it even worth it then? Why</p> <p>22 do you even pass that on? Why don't you say, Hey, we've</p> <p>23 got to wait for the piezometers. I can't tell you</p> <p>24 anything?</p> <p>25 A. I did tell him that.</p>	104	<p>1 turned out to be inaccurate about where the water</p> <p>2 table -- your estimation of the water table?</p> <p>3 A. I don't know. I haven't gone back and looked</p> <p>4 at that.</p> <p>5 MS. JACOBS: What time is it?</p> <p>6 MS. NICHOLS: 11:46.</p> <p>7 MS. JACOBS: Okay.</p> <p>8 Q. (BY MS. JACOBS) We'll break for lunch pretty</p> <p>9 soon. But --</p> <p>10 A. Okay.</p> <p>11 Q. -- I just -- we'll just keep going for a</p> <p>12 little bit longer and then we'll --</p> <p>13 A. Okay.</p> <p>14 Q. -- we'll break for lunch.</p> <p>15 Okay. Let's go back -- hang on one</p> <p>16 second. Let's talk about the -- the boring plan. And</p> <p>17 the boring plan I'm referring to, I think the final</p> <p>18 version is contained, I believe, in Exhibit 5 --</p> <p>19 A. Okay.</p> <p>20 Q. -- if you want to refer to it.</p> <p>21 A. Okay.</p> <p>22 Q. Appendix E2. And so from the records that we</p> <p>23 have, I will tell you that it looks -- it looks to me</p> <p>24 that -- that you guys initially submitted your boring</p> <p>25 plan to TCEQ on July 11th, 2011.</p>
103	<p>1 Q. Okay.</p> <p>2 A. I mean...</p> <p>3 Q. You told him that after you told him exactly</p> <p>4 where the groundwater was observed, how many bore holes</p> <p>5 it was observed in --</p> <p>6 A. And that it was --</p> <p>7 Q. -- and that you -- that it was allowed to rise</p> <p>8 in open bore holes for variable lengths of time, which I</p> <p>9 guess you could call equilibration?</p> <p>10 A. Yeah. I didn't say it was equilibrated.</p> <p>11 Q. Right.</p> <p>12 A. I said it was allowed to. And when I say --</p> <p>13 interpreting the meaning of this is maybe where we're</p> <p>14 differing here. When I -- when I read this, it is -- it</p> <p>15 is providing all kinds of conditions upon these</p> <p>16 observations. It was not -- we didn't allow it to -- to</p> <p>17 equilibrate and rise to equilibration over an extended</p> <p>18 period of time or the same period of time. So when I</p> <p>19 say it was allowed to from one hour to 12 hours, that</p> <p>20 sug- -- should suggest to somebody that, Okay, then we</p> <p>21 can't really count on this --</p> <p>22 Q. Oh.</p> <p>23 A. -- along with the other things that I've said.</p> <p>24 Q. Okay. I see.</p> <p>25 And so has that -- is that information</p>	105	<p>1 Does that sound right?</p> <p>2 I'll just represent to you that's what our</p> <p>3 records show, -- the records you guys provided to us</p> <p>4 show.</p> <p>5 So -- and then the approval that we -- the</p> <p>6 approval that we have for the boring plan was officially</p> <p>7 issued to you a month later, August 11th --</p> <p>8 A. Uh-huh.</p> <p>9 Q. -- 2011.</p> <p>10 Do you think that's a pretty reasonable</p> <p>11 turnaround time, a month?</p> <p>12 A. I don't have an opinion about that.</p> <p>13 Q. I'm only asking based on your experience with</p> <p>14 TCEQ.</p> <p>15 A. Again, maybe the term "reasonable" is the part</p> <p>16 that I -- is it a -- is it a normal one? Is it --</p> <p>17 Q. Yeah. Is it normal?</p> <p>18 A. Yeah. It's all over the board.</p> <p>19 Q. All over the board.</p> <p>20 So is that on the -- the -- does it</p> <p>21 generally take a lot longer to get it or is it generally</p> <p>22 a lot easier, a lot -- get it a lot sooner?</p> <p>23 A. It -- it depends on their workload.</p> <p>24 Q. Right.</p> <p>25 A. So it's -- it's taken -- I don't know what the</p>

106	<p>1 least amount of time is, but I've worked through boring</p> <p>2 plans that maybe took months to resolve.</p> <p>3 Q. Uh-huh. And so by the time that you had</p> <p>4 submitted your boring plan to TCEQ, you-all had already</p> <p>5 done a fair amount of drilling out there, is that right?</p> <p>6 A. Yes.</p> <p>7 Q. Do you typically wait for TCEQ to approve your</p> <p>8 boring plan before you actually start work on the</p> <p>9 borings?</p> <p>10 A. It's different in every project.</p> <p>11 Q. Okay. Are you required to get approval before</p> <p>12 you begin work on your borings?</p> <p>13 A. The -- the current rules suggest that you</p> <p>14 should get approval prior to initiating the work.</p> <p>15 Q. Now, is it really that they suggest?</p> <p>16 A. Well, that's the practice that they suggest.</p> <p>17 It's never been required.</p> <p>18 Q. Well, but let's -- let's look at that, though.</p> <p>19 Let's look at the --</p> <p>20 MS. JACOBS: Let's look at 8A.</p> <p>21 (Exhibit 9 marked)</p> <p>22 Q. (BY MS. JACOBS) We're going to mark this</p> <p>23 Exhibit 9. And I'm going to -- basically, I'm going to</p> <p>24 hand you a copy of TCEQ Regulation 330.63, Part (e).</p> <p>25 And we're looking at (e)(4). And at the bottom of that</p>	108	<p>1 this because we might be able to help you out by not</p> <p>2 drilling as -- as many borings as you suggest.</p> <p>3 Q. Uh-huh.</p> <p>4 A. That migrated to this (indicating). There are</p> <p>5 times when we follow that and there are times when our</p> <p>6 client asks us to start performing some borings on a</p> <p>7 piece of private property that he owns that is not</p> <p>8 regulated by the TCEQ and we comply and prepare a boring</p> <p>9 plan once they've decided to pursue a permit.</p> <p>10 Q. So this would be one of those times when you</p> <p>11 are interpreting a particular regulation to mean</p> <p>12 something different than what it actually says, is that</p> <p>13 right?</p> <p>14 A. Yeah. I don't know that I would have</p> <p>15 characterized it in that manner, but...</p> <p>16 Q. Well, how would you characterize it?</p> <p>17 A. Well, I think I said we prepare boring plans</p> <p>18 and submit them to the agency at the time that an</p> <p>19 applicant says, It's time to submit a boring plan.</p> <p>20 Q. And then you go drill at the time when the</p> <p>21 applicant tells you they want to drill?</p> <p>22 A. Yes.</p> <p>23 Q. Let's look at -- okay. So we had the</p> <p>24 opportunity to talk to Mr. Hodges as well. And we asked</p> <p>25 him about this decision. And I'm going to read to you</p>
107	<p>1 (e)(4) paragraph it says, "The boring plan, including</p> <p>2 locations and depths of all proposed borings, shall be</p> <p>3 approved by the executive director prior to initiation</p> <p>4 of the work."</p> <p>5 That sounds like more than a suggestion to</p> <p>6 me.</p> <p>7 A. I mean, I think I told you that, that that's</p> <p>8 what it said.</p> <p>9 Q. No. You said it suggested that you should do</p> <p>10 that. And --</p> <p>11 A. No. I said that it --</p> <p>12 Q. And what I'm saying is, is that "shall" is a</p> <p>13 mandate. It's not a suggestion.</p> <p>14 A. Yeah. And I was --</p> <p>15 Q. Is that right?</p> <p>16 A. Yes. I was responding that it turns out that</p> <p>17 it's more like a suggestion because that is a -- that is</p> <p>18 a piece of the rules that (a) evolved from a</p> <p>19 suggestion --</p> <p>20 Q. Uh-huh.</p> <p>21 A. -- to help an applicant. The -- the original</p> <p>22 rule that was in effect when I went to work there, for</p> <p>23 instance, said --</p> <p>24 Q. Uh-huh.</p> <p>25 A. -- take a look at the -- let us take a look at</p>	109	<p>1 an excerpt from his deposition.</p> <p>2 A. Okay.</p> <p>3 Q. And then -- and I'm just going to represent to</p> <p>4 you that it's correct and -- and so, you know, I'm not</p> <p>5 asking you if it's correct.</p> <p>6 A. Okay.</p> <p>7 Q. I'm just kind of giving this to you for</p> <p>8 informational purposes. So the question was, "Who made</p> <p>9 the decision to go forward with the borings -- with the</p> <p>10 drilling of the borings prior -- prior to receiving</p> <p>11 approval of the boring plan?"</p> <p>12 Answer, "That decision was made jointly</p> <p>13 between myself and Mike Snyder and Mr. Kaufmann."</p> <p>14 Is that how you recall it or do you have</p> <p>15 any reason to disagree with Mr. Hodges recollection</p> <p>16 there?</p> <p>17 A. No. I'm not sure -- I don't remember that I</p> <p>18 had a role in making the decision.</p> <p>19 Q. Okay.</p> <p>20 A. But -- but if that's how Hodges remembers it,</p> <p>21 I...</p> <p>22 Q. Question, "What was the purpose for doing it</p> <p>23 that way?"</p> <p>24 Answer, "We were just trying to obtain</p> <p>25 information as soon as we could."</p>

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110	<p>1 Question, "Was there some hurry --</p> <p>2 particular hurry?"</p> <p>3 Answer, "There's always a hurry with</p> <p>4 Green Group."</p> <p>5 Question, "For business reasons?"</p> <p>6 Answer, "For business reasons."</p> <p>7 And what I wanted to ask you is, has that</p> <p>8 also been your experience with this particular client,</p> <p>9 with Green Group, that they're -- they're always in a</p> <p>10 hurry?</p> <p>11 A. No.</p> <p>12 Q. No. Okay. So that maybe is just</p> <p>13 Mr. Hodges's -- his --</p> <p>14 A. Yeah.</p> <p>15 Q. Okay. And his role, though -- is his role to</p> <p>16 supervise you --</p> <p>17 A. Yeah, he's my client.</p> <p>18 Q. -- on this project?</p> <p>19 Okay. So -- and then -- then Green Group</p> <p>20 is his client?</p> <p>21 A. Yes.</p> <p>22 Q. Okay. So if Green Group -- his experience</p> <p>23 with Green Group is that Green Group is always in a</p> <p>24 hurry for business reasons and then presumably he's --</p> <p>25 that's influencing his behavior, but he's the one that's</p>	112	<p>1 record at 11:57.</p> <p>2 (Recess from 11:58 a.m. to 1:00 p.m.)</p> <p>3 THE VIDEOGRAPHER: We're back on the</p> <p>4 record at 1:00 o'clock. This is beginning of Video File</p> <p>5 No. 3.</p> <p>6 Q. (BY MS. JACOBS) Good afternoon.</p> <p>7 A. Good afternoon.</p> <p>8 Q. I have a couple of follow-up questions from --</p> <p>9 we talked about this morning.</p> <p>10 The first one is when we were talking</p> <p>11 about the boring plans, have you ever on any of your MSW</p> <p>12 application projects failed to submit a boring plan to</p> <p>13 the agency with respect to the project? Or -- and I --</p> <p>14 I mean by "failed" not submitted one at all, but just</p> <p>15 gone ahead and done the borings?</p> <p>16 A. I don't recollect that we've ever done that.</p> <p>17 Certainly if we would have submitted a permit</p> <p>18 application, we would have eventually have submitted a</p> <p>19 boring plan.</p> <p>20 Q. Okay.</p> <p>21 A. To -- to the best of my recollection, anyone</p> <p>22 where we've submitted a permit application had an</p> <p>23 approved boring plan.</p> <p>24 Q. Whether -- regardless of when that approval</p> <p>25 was obtained?</p>
111	<p>1 telling you what to do and when to do it? And by "he,"</p> <p>2 I mean Mr. Hodges.</p> <p>3 MR. RYAN: Objection to the form of the</p> <p>4 question.</p> <p>5 Q. (BY MS. JACOBS) And I'll rephrase that.</p> <p>6 A. Okay.</p> <p>7 Q. Is Mr. Hodges the one that you took direction</p> <p>8 from on this project?</p> <p>9 A. Yes.</p> <p>10 Q. Okay. And so you have not personally felt</p> <p>11 that there was any particular hurry with any aspects of</p> <p>12 the work that you did on this project at Mr. Hodges's</p> <p>13 direction?</p> <p>14 A. No.</p> <p>15 Q. Okay. Nothing out of the ordinary in terms of</p> <p>16 timing, in terms of how -- how long you usually take to</p> <p>17 put together an application for a project like this?</p> <p>18 A. No.</p> <p>19 Q. Okay. Now, did TCEQ staff -- did you inform</p> <p>20 TCEQ staff that you were going to proceed with the</p> <p>21 drilling before receiving approval for the boring plan?</p> <p>22 A. I -- I don't remember.</p> <p>23 MS. JACOBS: Why don't we go ahead and</p> <p>24 break for lunch. It's a good stopping place.</p> <p>25 THE VIDEOGRAPHER: We're going off the</p>	113	<p>1 A. Yes.</p> <p>2 Q. Okay. And with respect to the actual borings</p> <p>3 themselves, we were talking about the methodology -- we</p> <p>4 talked some about the methodology that was used -- or</p> <p>5 the method that was used to drill the borings, and we</p> <p>6 talked about that specifically with respect to the EB-1</p> <p>7 through 6, and I think we were pretty clear on that.</p> <p>8 Were you the one that directed Stefan</p> <p>9 regarding what methodology to use on the EB borings in</p> <p>10 terms of drilling?</p> <p>11 A. No. Generally, Gregg Adams would specify,</p> <p>12 because the method of sampling is important -- can be</p> <p>13 important to him in the geotechnical arena. It's not as</p> <p>14 important to me.</p> <p>15 Q. Okay. And so if anyone would have told Stefan</p> <p>16 how to drill -- what method to use on the EB borings,</p> <p>17 then you think it was Gregg?</p> <p>18 A. Well, the -- I think that the -- how the</p> <p>19 borings were drilled was dictated by Gregg. Whether I</p> <p>20 transferred that information to Stefan by me or whether</p> <p>21 Gregg did, I don't recollect.</p> <p>22 Q. Okay.</p> <p>23 A. It's happened both ways in the past.</p> <p>24 Q. Okay. But Gregg is the one that -- that makes</p> <p>25 the call on that?</p>

114	<p>1 A. Yeah.</p> <p>2 Q. Okay. And does that go also for the BME</p> <p>3 borings?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. So with respect to actual experience in</p> <p>6 the field doing the types of work that we discuss and we</p> <p>7 talked about in the very beginning that you typically</p> <p>8 hire Stefan to perform for you, who would you say is</p> <p>9 more experienced with actually conducting that work in</p> <p>10 the field? You or Mr. Adams?</p> <p>11 A. Mr. Adams.</p> <p>12 Q. Okay. And so what -- what is your experience</p> <p>13 with that sort of field work? And I guess first thing,</p> <p>14 just drilling the borings. Do you have any experience</p> <p>15 doing that in the field?</p> <p>16 A. Yeah. My -- my early career was spent in the</p> <p>17 oil business and I -- I learned how to log and core and</p> <p>18 describe samples, and while the sample methodology is</p> <p>19 different, the process is pretty much the same. And I</p> <p>20 did that for, I don't know, 15 years or so. And then I</p> <p>21 went to work in the environmental business and -- and</p> <p>22 learned how to log and take samples and follow a drill</p> <p>23 rig around in this business.</p> <p>24 Q. Okay. And so in the oil business, that</p> <p>25 15 years -- you spent 15 years working out in the field</p>	116	<p>1 Q. And so what kind of -- or let me ask you, do</p> <p>2 you have field experience in this business, and</p> <p>3 referring to in the -- I guess the shallow</p> <p>4 environmental -- and I mean shallow in depth, not</p> <p>5 otherwise -- but shallow -- shallow environmental</p> <p>6 business that you were talking about, the -- the second</p> <p>7 part?</p> <p>8 A. Yes.</p> <p>9 Q. Okay. And how much field experience do you</p> <p>10 have in that?</p> <p>11 A. Well, I'll go present and work backwards.</p> <p>12 Q. Okay.</p> <p>13 A. I'm present at times on every one of these</p> <p>14 project that we do. That's currently mostly the way I'm</p> <p>15 experienced. But when I first got into this business, I</p> <p>16 worked for Baker-Shiflett and I worked on -- I was one</p> <p>17 amongst several people that -- that were drilling and</p> <p>18 logging and sampling and doing slug tests and taking</p> <p>19 water level readings and -- that wasn't my only</p> <p>20 responsibility, but I did do that.</p> <p>21 Q. Okay. And is that -- have you had any formal</p> <p>22 training in any of these field activities?</p> <p>23 A. I don't know what you mean by "formal."</p> <p>24 Q. Well, some people -- like nowadays, some</p> <p>25 people actually take classes at universities. I would</p>
115	<p>1 with drill rigs?</p> <p>2 A. In part, yeah.</p> <p>3 Q. Okay. All right. And doing borings like</p> <p>4 logging borings?</p> <p>5 A. Uh-huh.</p> <p>6 Q. Okay. And -- and then you said you learned</p> <p>7 how to do it in this business.</p> <p>8 How is it different in this business? And</p> <p>9 the -- and I guess by "this business" you mean the MSW</p> <p>10 landfill permitting business?</p> <p>11 A. Yeah. Really we should probably say the</p> <p>12 shallow environmental drilling business.</p> <p>13 Q. Okay.</p> <p>14 A. And your question was how is it different?</p> <p>15 Q. Yeah. How is it different? I guess -- one</p> <p>16 difference I guess you're indicating is depth.</p> <p>17 Is -- are there other differences between</p> <p>18 the two?</p> <p>19 A. Yeah. There's differences at times in the</p> <p>20 types of sampling done, although sometimes it's the</p> <p>21 same. Like when we cored in the oil business, it was</p> <p>22 like coring in this business. And, you know, we didn't</p> <p>23 do split spoon and Shelby tube sampling, which are</p> <p>24 geotechnically derived methodologies in the oil</p> <p>25 business, but we do it in this business.</p>	117	<p>1 qualify that as -- as being formal.</p> <p>2 A. I've had some continuing education courses</p> <p>3 that I've taken having to do with logging and sampling.</p> <p>4 Q. Okay. Do you know where -- whether Mr. Adams</p> <p>5 has taken those courses?</p> <p>6 A. No, I don't know.</p> <p>7 Q. Okay. Let's go back to -- this is again kind</p> <p>8 of in the nature of a follow-up question. Let's go back</p> <p>9 to Exhibit 5, which is "APPENDIX E2, SITE EXPLORATION</p> <p>10 DATA." And let's take -- I mean, I'm just opening this</p> <p>11 at random here. Let's take log F3 -- BME-F3, Page</p> <p>12 E2-60.</p> <p>13 A. Okay.</p> <p>14 Q. Are you with me?</p> <p>15 A. Yes.</p> <p>16 Q. Okay. So at the -- at the bottom here it</p> <p>17 says, "Drilling Method: Wet Rotary."</p> <p>18 Do you see that?</p> <p>19 A. Yes, ma'am.</p> <p>20 Q. Okay. So Stefan testified at some length that</p> <p>21 he used the methodology that we described, we talked</p> <p>22 about, the -- the dry and you hit some resistance and</p> <p>23 then you go to wet, and we talked about that -- you</p> <p>24 recall we talk about that in the EB-1 through 6 --</p> <p>25 A. Uh-huh.</p>

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118	<p>1 Q. -- borings?</p> <p>2 Well, he testified that that's the method</p> <p>3 that he used on all the BME borings as well.</p> <p>4 A. Okay.</p> <p>5 Q. So my question is, why does it say "Wet</p> <p>6 Rotary" for -- for -- well, why does it say "Wet Rotary"</p> <p>7 for this particular log -- on this particular log? And</p> <p>8 we can look at some other ones too, but...</p> <p>9 A. As opposed to what, I guess?</p> <p>10 Q. Well, as opposed to -- I mean, let's look back</p> <p>11 at the EB borings. At the EB borings it indicates</p> <p>12 something different. It indicates what we looked at</p> <p>13 before, right?</p> <p>14 A. Where it said dry augered and wet rotary?</p> <p>15 Q. Yeah.</p> <p>16 A. I don't -- I don't know why it's not noted.</p> <p>17 That's -- I'm sure that's how it was done. He -- he</p> <p>18 says in here water encountered, but he doesn't tell me</p> <p>19 when he mudded up, when he started --</p> <p>20 Q. Right.</p> <p>21 A. -- when he started drilling with water. So I</p> <p>22 don't know. It's possible that when he started out, he</p> <p>23 was in sand and the hole was hard to keep open. He</p> <p>24 might have mudded up and started drilling wet rotary at</p> <p>25 the time. I don't -- I just don't know.</p>	120	<p>1 actually did in the field.</p> <p>2 And I just wondered if you knew why that</p> <p>3 was?</p> <p>4 A. I don't.</p> <p>5 Q. Okay. Let us look --</p> <p>6 MS. JACOBS: Have we -- have we done this</p> <p>7 one?</p> <p>8 MS. NICHOLS: No.</p> <p>9 MS. JACOBS: Okay.</p> <p>10 Q. (BY MS. JACOBS) And I'm going to hand you</p> <p>11 what is going to be marked Exhibit 10.</p> <p>12 (Exhibit 10 marked)</p> <p>13 Q. (BY MS. JACOBS) And it is -- it says, "PERMIT</p> <p>14 APPLICATION, VOLUME 4 OF 5." And if you flip a couple</p> <p>15 pages in, it is "PART III - SITE DEVELOPMENT PLAN,</p> <p>16 ATTACHMENT E, GEOLOGY REPORT."</p> <p>17 Are you with me?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. And I think actually before we get to</p> <p>20 that, with respect to the -- and this is just</p> <p>21 something -- you know with respect to this Appendix, you</p> <p>22 know, E2 that we were looking at, Exhibit 5, before that</p> <p>23 has the site exploration data, it's got, you know, the</p> <p>24 boring plan approval letter, the well location map, it's</p> <p>25 got the logs of the borings, the piezometers, approved</p>
119	<p>1 Q. And so for your purposes, what I was</p> <p>2 understanding from your -- your testimony here</p> <p>3 previously is that that doesn't really matter to you,</p> <p>4 what particular methodology -- drilling methodology he</p> <p>5 utilized and that that would be something that you would</p> <p>6 leave to Mr. Adams to direct for that reason because</p> <p>7 it's not really a significant fact for you.</p> <p>8 Is that -- did I understand that</p> <p>9 correctly?</p> <p>10 A. Maybe in part.</p> <p>11 Q. Okay. What -- what part did I not get right?</p> <p>12 A. I think when you -- whether you mud up or not</p> <p>13 is a decision that's made by the guy that's doing the</p> <p>14 drilling. It's not -- it's not we don't care if it's</p> <p>15 mudded up or wet rotary. He uses dry augering when he</p> <p>16 can. And if -- and if he couldn't, then he -- and so</p> <p>17 therefore, he may have used wet rotary on this whole</p> <p>18 thing -- on this whole bore hole. I don't know.</p> <p>19 Q. Okay. Well, he testified he didn't. He</p> <p>20 testified that he didn't -- that -- that he used the</p> <p>21 same methodology for the EB ones as he did for the BMEs.</p> <p>22 A. Okay.</p> <p>23 Q. And I'm just trying to clear that up because</p> <p>24 that seems like a -- a difference in what we are reading</p> <p>25 here and what's in the application and what he said he</p>	121	<p>1 boring plan.</p> <p>2 Is there anything in this Exhibit 5 that</p> <p>3 you have gone back and looked at? And I should say not</p> <p>4 just Exhibit 5, but this portion of the application, in</p> <p>5 other words, Appendix E2? Has -- is there anything that</p> <p>6 you've gone back and looked at either, I don't know,</p> <p>7 during the application process or after it was declared</p> <p>8 technically complete that you have found to be incorrect</p> <p>9 or that you would change?</p> <p>10 A. I have not reviewed it for things like that</p> <p>11 since it was technically complete. So as far as I know,</p> <p>12 everything that's in here is correct.</p> <p>13 Q. And so do you plan on reviewing it again</p> <p>14 before you file your prefiled testimony?</p> <p>15 A. I don't know.</p> <p>16 Q. Okay. Do you plan on reviewing it again</p> <p>17 before the contested case hearing?</p> <p>18 A. I don't know.</p> <p>19 Q. Okay. And again, the person that would have</p> <p>20 peer-reviewed this, would have looked at this for you</p> <p>21 would be Mr. Hodges? And by "this" I'm referring to</p> <p>22 Exhibit 5.</p> <p>23 A. I think so.</p> <p>24 Q. And no one else for purposes of peer review?</p> <p>25 A. I think -- I don't think so.</p>

122	<p>1 Q. How about quality -- sort of internal quality 2 control?</p> <p>3 A. How about it? I mean, I'm not sure what your 4 question is.</p> <p>5 Q. Well, did anybody else -- I was kind of -- I'm 6 sorry. I was kind of playing off the earlier question 7 where I was asking did anybody else review it.</p> <p>8 A. Oh, okay.</p> <p>9 Q. And so I'm saying did anybody else review it 10 for purposes of internal quality control?</p> <p>11 A. We do have some internal quality control 12 procedures and we do review. And usually for me 13 there -- there's admins that review it.</p> <p>14 Q. And so do the admins -- you said they're 15 administrative assistants. Do they have any sort of 16 geology background?</p> <p>17 A. No.</p> <p>18 Q. Okay. Or hydrogeology background or -- are 19 they secretaries essentially?</p> <p>20 A. Yeah. We don't use that term anymore, but...</p> <p>21 Q. I get you. Just so you know, them's the 22 rules.</p> <p>23 A. Administrative assistants in our thing.</p> <p>24 Q. I just want to make sure, because assistant, 25 you know what I mean, that could mean -- it could be a</p>	124	<p>1 know, and we had red line strike-out versions, that 2 those got corrected.</p> <p>3 Q. Right.</p> <p>4 And so does Gwen Archer then also, I'm 5 assuming, follow your document retention policy?</p> <p>6 A. Uh-huh.</p> <p>7 Q. Okay. We can turn back to what is, I guess, 8 Exhibit 10.</p> <p>9 Is that what it --</p> <p>10 A. Okay.</p> <p>11 Q. Yeah. Okay. And I really just wanted to look 12 at -- I guess for reference -- I was just kind of 13 pulling this together for you for reference. Page E-17 14 is Table E-4, the "Summary of Borings," and Table 15 E-4(a), "Summary of Piezometer Borings."</p> <p>16 A. Okay.</p> <p>17 Q. And did you create these tables?</p> <p>18 A. They were created by our board processing 19 admin staff --</p> <p>20 Q. Did --</p> <p>21 A. -- at my direction.</p> <p>22 Q. Okay. And did you review them for accuracy?</p> <p>23 A. They -- I did and they have. They have also.</p> <p>24 Q. Okay. And it looks to me like the first 25 boring that you did was F6. And by first boring that</p>
123	<p>1 technical assistant. It could be anybody else. 2 But you're not talking about a technical 3 assistant, are you?</p> <p>4 A. Well, there are -- there are people that are 5 admins that are technical assistants that are not 6 necessarily reviewing this for -- in that regard.</p> <p>7 Q. Okay. So there are people that have technical 8 training other than yourself that are reviewing this for 9 quality control purposes?</p> <p>10 A. I might object to the term "training." 11 That's -- I don't mean -- I just mean that we have 12 people that have technical backgrounds.</p> <p>13 Q. Uh-huh. And they're your administrative 14 assistants?</p> <p>15 A. There are some that are, yes.</p> <p>16 Q. And were those the people that reviewed 17 Appendix 5 for quality control purposes?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. And who -- what were their names?</p> <p>20 A. Gwen Archer is -- is the principal one I was 21 thinking about.</p> <p>22 Q. Okay.</p> <p>23 A. And then there were -- there were two or three 24 others that don't have technical background that would 25 have been reviewing it to make sure that this was -- you</p>	125	<p>1 you did I mean the first BME boring. And F6 is the very 2 last one right before you get to the EB borings on 3 June 20th, 2011.</p> <p>4 Do you see where I'm at?</p> <p>5 A. Yes.</p> <p>6 Q. Now, do you recall why you decided -- or let 7 me ask you, who picked that starting location?</p> <p>8 A. I don't recall.</p> <p>9 Q. Okay. So you don't recall any discussions 10 about that?</p> <p>11 A. Huh-uh.</p> <p>12 Q. Okay. Stefan was pretty clear that you gave 13 him directions on that. But you -- you don't -- is it 14 typical that you would give him directions as to where 15 to start and what to do in the field or not?</p> <p>16 A. I'm not sure if it's typical. It's not 17 unusual.</p> <p>18 Q. Okay. Now, it looked to me that you were 19 pretty focused in the beginning of your -- your boring 20 program here on the east side of the site.</p> <p>21 Do you recall that?</p> <p>22 A. No.</p> <p>23 Q. Okay. And we talked about before you were not 24 remembering when you had been out at the site.</p> <p>25 Do you -- when you were visiting the site</p>

126	<p>1 for purposes of observing -- you know, we talked about 2 maybe the -- 3 A. Uh-huh. 4 Q. -- three times we talked about -- were you 5 with anybody else from Biggs & Mathews? 6 A. At least once I was. 7 Q. Okay. And who was that person? 8 A. I was out there once with Gregg Adams and 9 Beth Floyd. 10 Q. Okay. And who is Beth Floyd? 11 A. She's a geologist that works for me. 12 Q. And what is her role with respect to this 13 project? 14 A. It was both training and there are times when 15 I'm out of the office where I might have had her 16 shepherding things through the drafting or helping me 17 collect things, things like that. An administrative 18 role. 19 Q. Okay. Now, is she a geologist? 20 A. Yes. 21 Q. Because you mentioned training? 22 A. Yes. 23 Q. Okay. Is she licensed yet or is she -- 24 A. Yeah, she's licensed. 25 Q. Okay. And for the BME borings, who chose the</p>	128	<p>1 than 30 feet or greater than 5 feet in accordance with 2 the rules. It turns out that all of these borings were 3 drilled greater than 30 feet. 4 Q. Now, did -- I know you've talked about how 5 experienced Stefan is. 6 Did he know -- I mean, he's very 7 experienced on MSW projects, I take it. Landfill 8 projects is what I -- MSW landfill projects. 9 A. Yeah. Yeah, he's experienced. I'm not sure 10 what "very experienced" means exactly, but, yes, he's 11 got a lot of experience. 12 Q. Okay. And does that mean -- I mean, was he -- 13 did you talk to him? Did he -- so does he know that he 14 was supposed to be looking for clay when he was -- 15 A. I'm sorry. I didn't mean to laugh to the 16 question. 17 Q. That's okay. 18 A. It was a -- 19 Q. You need to remember, I am not a geologist and 20 I don't do this for a living, so I'm going to ask you 21 questions and you're going to be like -- 22 A. I didn't mean to. 23 Q. -- that is the dumbest thing I ever heard. 24 A. I didn't mean that. 25 Q. I see Brent's face sometimes --</p>
127	<p>1 boring depths? Do you recall? 2 A. Well, yeah, I did. 3 Q. Okay. 4 A. I was responsible for that. 5 Q. When you say you were responsible for that, is 6 that different than you picking them or -- yourself 7 or -- you said that in a way that kind of made me think 8 that maybe this was like a generally thing. I just 9 wanted to make sure I'm understanding. 10 A. When you asked me who decide -- you know, who 11 chose the depth, I chose the generally depth of the 12 boring. But -- 13 Q. Okay. 14 A. But we were looking for specific things. 15 Q. Okay. 16 A. So -- 17 Q. What were you looking for? 18 A. In every boring -- in every one of these 19 borings, it was drilled to clay. 20 Q. Okay. 21 A. And so we had -- and especially as we went 22 along, we had what we thought were where we could start 23 predicting where the clay was. But we had had a boring 24 plan. We said, Okay. We think it's going to be here. 25 We need it to be this depth. It also has to be greater</p>	129	<p>1 A. I -- I laughed -- 2 Q. -- and that's the look that he has on his 3 face. 4 A. I laughed because we -- Stefan and I have a 5 rule. 6 Q. Yes. 7 A. You don't stop a boring in the sand in the 8 Gulf Coast. You drill it to clay. 9 Q. Okay. That's your rule. 10 Is this a longstanding rule, I take it? 11 A. Yes. 12 Q. Okay. 13 A. Unless I direct him otherwise, if there is 14 some other reason not to. But on a -- on a landfill 15 permit project, we -- we drill them to clay. 16 Q. And is that because you have -- is that 17 because of the regulatory requirement that you find a 18 continuous clay layer that is also a confining layer? 19 A. In part. 20 Q. Okay. What's the other reason that you were 21 looking for clay? 22 A. The other part is, is that if you don't 23 drill -- drill them all to clay, people such as yourself 24 will say, Well, this one didn't get to clay. So while I 25 might not need them all to get to clay, I've just</p>

130	<p>1 learned that I do that. And one other thing --</p> <p>2 Q. So -- okay. So you have clearly learned from</p> <p>3 these contested case hearing processes is what I'm</p> <p>4 getting.</p> <p>5 A. I hope so.</p> <p>6 Q. Okay. I'm sorry. You said another thing that</p> <p>7 you're looking for or another thing?</p> <p>8 A. Yeah. The Gulf Coast -- I said in the</p> <p>9 Gulf Coast. Gulf Coast has alternating sand and clay</p> <p>10 stratigraphy.</p> <p>11 Q. Uh-huh.</p> <p>12 A. And so I need to know whether I need to drill</p> <p>13 deeper or not. So...</p> <p>14 Q. Okay. Sand and clay.</p> <p>15 And you have quite a bit of experience in</p> <p>16 the Gulf Coast?</p> <p>17 A. I'm experienced in the Gulf Coast.</p> <p>18 Q. Okay. All righty. How about the -- so we</p> <p>19 talked about who, you know, chose the -- the boring</p> <p>20 depths. And then -- and why. I get that. We talked</p> <p>21 about who chose the drilling method, and that was</p> <p>22 Mr. Adams. I get that.</p> <p>23 What about the sampling methods? Did you</p> <p>24 tell me that Mr. Adams picked that as well?</p> <p>25 A. I don't know if I told you that or not.</p>	132	<p>1 Q. Okay.</p> <p>2 A. It dictates what you can do, how you can</p> <p>3 sample it.</p> <p>4 Q. All right. Now, when we're talking about --</p> <p>5 well, let's look at 11.</p> <p>6 MS. JACOBS: This really isn't that many</p> <p>7 exhibits. It just looks so thick because the</p> <p>8 application is really big. Thank you.</p> <p>9 (Exhibit 11 marked)</p> <p>10 Q. (BY MS. JACOBS) Okay. I'm going to mark this</p> <p>11 exhibit Exhibit 11 and ask you just to glance over that.</p> <p>12 This is an e-mail from Bill Hodges to Mike Snyder,</p> <p>13 Ernest Kaufmann, Oscar Allen, copying Clint Courson and</p> <p>14 Kenneth Welch. And it's dated July 8th, 2011. And the</p> <p>15 PIN number at the bottom is 019082.</p> <p>16 And do you recognize this e-mail?</p> <p>17 A. I don't remember it, but it looks like my</p> <p>18 e-mail.</p> <p>19 Q. Okay. So the -- so with respect to timing of</p> <p>20 your visits, this is July 8th. It looks like your</p> <p>21 initial e-mail was July 8th. And you wrote, "Yesterday,</p> <p>22 the Biggs and Mathews staff members who will be working</p> <p>23 on the subsurface aspects of the Pintail project made a</p> <p>24 site visit to observe the drilling and sampling</p> <p>25 operation, procedures, etc."</p>
131	<p>1 Q. Yeah. I can't remember either.</p> <p>2 Did Mr. Adams pick those, the sampling</p> <p>3 methods?</p> <p>4 A. In general. The sampling methods are the</p> <p>5 things that Gregg would need for his -- for his</p> <p>6 geotechnical work.</p> <p>7 Q. And by that I really -- I'm talking about the</p> <p>8 Shelby tubes you're talk- -- you know --</p> <p>9 A. Yeah.</p> <p>10 Q. We're on the same page there, right?</p> <p>11 A. Yes.</p> <p>12 Q. Okay. How about the sampling intervals? Did</p> <p>13 Mr. Adams also pick the sampling intervals?</p> <p>14 A. Well, the sample intervals are -- I mean, when</p> <p>15 we drill -- when we were doing the pushing tubes,</p> <p>16 they're continuous so those are what they are. And</p> <p>17 after that, it was a standard penetration test using</p> <p>18 thin wall tubes. So...</p> <p>19 Q. The -- the three feet and then the two feet --</p> <p>20 A. Yeah.</p> <p>21 Q. -- two by -- okay.</p> <p>22 So that's -- that's standard, in other</p> <p>23 words? So there was no real choice to be made?</p> <p>24 A. Yeah. There's one other element of that,</p> <p>25 which is the material that you have.</p>	133	<p>1 Are you with me there?</p> <p>2 A. Yes.</p> <p>3 Q. Okay. So that sounds like July 7th you made a</p> <p>4 site visit.</p> <p>5 A. That's what it sounds like.</p> <p>6 Q. Okay. So -- and when you're saying "the Biggs</p> <p>7 and Mathews staff members," would that be you, Beth</p> <p>8 Floyd and then who else did you say?</p> <p>9 A. Gregg Adams.</p> <p>10 Q. Gregg Adams. Okay.</p> <p>11 And so then would that have been your</p> <p>12 second visit out there, do you think? We talked about</p> <p>13 the one you made before the exploratory borings were</p> <p>14 done.</p> <p>15 A. I don't remember. I might have made another</p> <p>16 site visit myself before that. But I -- I don't</p> <p>17 remember the dates and the sequence of my visits.</p> <p>18 Q. Got you. I just -- I'm asking -- again, I</p> <p>19 know some of this seems a little bit repetitive and I</p> <p>20 apologize for that. It's just sometimes if you see</p> <p>21 something, it jogs your memory a little bit.</p> <p>22 A. Uh-huh.</p> <p>23 Q. At least works that way with me. But</p> <p>24 sometimes not too, obviously.</p> <p>25 So then as you kind of go down to the end</p>

134	<p>1 of your e-mail, close to the end, it says, "As I 2 mentioned previously, we will then take a few days to 3 study the logs and select appropriate screened intervals 4 for the piezometers." 5 Do you see where I'm reading that? 6 A. Yes, ma'am. 7 Q. And so were you the person that selected the 8 screened intervals for the piezometers? 9 A. I was. 10 Q. And how did you select those? It says you 11 were studying the logs. What did you study on the logs 12 that -- 13 A. We -- we were studying to see if we had one 14 hydrogeologic unit, which we did. And not knowing 15 exactly where water table would be, we put a piezometer 16 at the interface between the sand and the underlying 17 clay. 18 Q. Which is about how -- I vary -- I realize the 19 depth varies, but how -- about how deep is that, that 20 interface at the site? 21 A. Somewhere between 50 and 80 feet different 22 across the site. 23 Q. And so if you had known where the water table 24 was, you -- are you saying that you would have screened 25 it differently? You would have screened the piezometers</p>	136	<p>1 knew that there was one hydrogeologic unit." Who is the 2 "we"? 3 A. I was speaking colloquially. It was -- 4 Q. Okay. The "we" is you? 5 A. Yeah. 6 Q. Okay. I do that too. I -- I always do that. 7 So -- and how did you know at that point 8 looking at the logs that you had one hydrogeologic unit? 9 A. Well, as we -- as we began to correlate boring 10 to boring to boring, we -- we began to -- to in an 11 iterative process understand what the stratigraphic 12 occurrences were. And once we saw that we had a -- a 13 sand that was sandy and at the base of it often 14 gravelly, it was -- it was one permeable unit. 15 Q. What is the -- and I should have asked this 16 before I asked that previous question. What is the 17 definition of a hydrogeologic unit? 18 A. Well, I think there's probably -- 19 Q. We're not -- and you don't have to -- I'm not 20 asking -- like saying, Hey, you know, quote from memory 21 from a book. I'm really just saying, okay, what do you, 22 Mike Snyder -- how do you define that? How are you 23 using that phrase in this context? 24 A. If you have a zone that is of similar 25 material, meaning it's a permeable material, and it's</p>
135	<p>1 differently? 2 A. Not necessarily. 3 Q. Okay. I thought you just said, though, that 4 because you didn't have a good idea about where the 5 water table was, you screened them at the interface? 6 A. I did say that. 7 Q. Okay. So what part of -- how does the water 8 table fit into or influence -- or the -- the information 9 you had about the water table, how does that influence 10 where you decided to screen the piezometers? 11 A. If you don't know where the water table is, 12 the most likely place to find water is where you go from 13 a permeable zone into a low permeability zone. So if 14 it's 4 feet -- if the saturated thickness is 4 feet or 15 8 feet or 12 feet or 20 feet, if your piezometer screen 16 is above that interface, then you will get whatever is 17 there. 18 Q. So you were worried that if you put it higher 19 in the formation, that you wouldn't have water? If you 20 screened it higher in the formation, you wouldn't have 21 water? 22 A. I wasn't worried. I wanted to know what the 23 potentiometric surface was and I could get that by 24 putting it where I put it. 25 Q. Okay. And -- and you said -- you said, "We</p>	137	<p>1 all connected and there's no sitewide aquitards, clay 2 units to separate different zones of that, that to me is 3 a hydrogeologic unit. 4 Q. And -- and you can tell that just from 5 borings? Or I shouldn't say that, just from borings. 6 But you can tell that just from boring logs? 7 A. Well, you can tell that by experience that you 8 have a zone that is permeable and has water in it and 9 there's nothing to separate the water into two separate 10 zones meaning a clay that correlates across the site. 11 Q. Uh-huh. 12 A. It's all hydraulically connected. That helps 13 define what to me is a hydrogeologic unit. 14 Q. Okay. And so when you were going through 15 and -- how often -- when -- so when Stefan is out in the 16 field and he's doing all this drilling and you're 17 reporting to Mr. Hodges about progress and, you know, 18 how many you've completed at what time, how often were 19 you talking to Stefan at that point or communicating 20 with him? 21 A. Pretty much every day. 22 Q. Okay. And -- 23 A. There might have been times where he didn't 24 get done until it was dark, 9:30, and get back and then 25 we might have talked first thing in the morning the next</p>

138	<p>1 morning. But typically we would talk every day.</p> <p>2 Certainly we talked about every boring.</p> <p>3 Q. Okay. And so it sounds like from what you've</p> <p>4 said that you were sort of -- he's giving you a report</p> <p>5 at the end of the day, then?</p> <p>6 A. Well, not necessarily.</p> <p>7 Q. Okay.</p> <p>8 A. We might have talked during the day as well.</p> <p>9 Q. Okay. And what kind of thing -- what kinds of</p> <p>10 things is he talking to you about or reporting in on</p> <p>11 about?</p> <p>12 A. Mostly giving me a progress report. We</p> <p>13 drilled this much. Here's where we're at.</p> <p>14 Q. Talking about like whether he hit clay or not</p> <p>15 or --</p> <p>16 A. Yes.</p> <p>17 Q. Okay. Did he -- did you guys ever sort of</p> <p>18 make course corrections in terms of, Well, we need to</p> <p>19 drill this boring deeper than we thought or we don't</p> <p>20 need to drill this boring as deep, and was he trying --</p> <p>21 did he -- did he -- did you have those kind of</p> <p>22 discussions and did he get your direction and feedback</p> <p>23 on that?</p> <p>24 A. I'm sure we did. I -- I don't have a specific</p> <p>25 recollection. That would be typical in any project that</p>	140	<p>1 try to go through any equilibration process or anything</p> <p>2 like that, you just took those, put them on the logs and</p> <p>3 went with that?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. So to make sure I'm understanding, when</p> <p>6 you were deciding where to screen your piezometers, you</p> <p>7 didn't feel like the information that you got from those</p> <p>8 initial water levels, be it from the EB logs or from the</p> <p>9 BMEs that you had drilled at the time that you wrote</p> <p>10 this -- this e-mail to Mr. Hodges that is Exhibit 11 --</p> <p>11 you didn't feel that you had gotten information</p> <p>12 regarding the water table that would be -- that would --</p> <p>13 that would allow you to say, Hey, you know what, I can</p> <p>14 put these -- I can screen these at a shallower depth</p> <p>15 or -- or maybe I should screen them shallower and then</p> <p>16 some at the interface? That wasn't information that you</p> <p>17 could use for that purpose?</p> <p>18 A. I could have used it. I didn't. I -- I don't</p> <p>19 find it to be reliable.</p> <p>20 Q. Okay. So do you know when -- actually -- did</p> <p>21 you have time to think about my question that I asked at</p> <p>22 the beginning about whether you would characterize your</p> <p>23 work on this project as conservative?</p> <p>24 A. No, I didn't.</p> <p>25 Q. Just too busy eating lunch?</p>
139	<p>1 you're -- as you're seeing what you're collecting as you</p> <p>2 go along, you make minor course corrections.</p> <p>3 Q. Was -- was Gregg Adams involved in these</p> <p>4 discussions?</p> <p>5 A. Not generally. I mean, I don't know what</p> <p>6 conversations Gregg may have had with Stefan. He might</p> <p>7 have communicated with him. But he wasn't getting the</p> <p>8 updates of -- that I was getting from Stefan on the</p> <p>9 daily progress.</p> <p>10 Q. Yeah. And I didn't say that very well. What</p> <p>11 I meant to say was, was he participating in these daily</p> <p>12 calls with you?</p> <p>13 A. No.</p> <p>14 Q. Okay. So at one point -- and I don't have the</p> <p>15 document in front of me, but with respect to the --</p> <p>16 actually, I'll just -- let me just get this -- this</p> <p>17 point of clarification. So we talked before about the</p> <p>18 EB logs and the information that you had with respect to</p> <p>19 the water levels in some of those and how you describe</p> <p>20 those in your memo to Mr. Hodges. And then we also, I</p> <p>21 think, touched upon -- well, maybe we haven't.</p> <p>22 You know, with respect to the BME logs,</p> <p>23 was that pretty much the same process where you -- you</p> <p>24 got the water levels, whatever was initial, Stefan</p> <p>25 looked at that and then reported it, but then you didn't</p>	141	<p>1 A. Uh-huh.</p> <p>2 Q. Okay. Well, you'll have time to think about</p> <p>3 it.</p> <p>4 Okay. So let's look at No. 12.</p> <p>5 (Exhibit 12 marked)</p> <p>6 Q. (BY MS. JACOBS) I'm going to hand you a</p> <p>7 document that's been marked Exhibit 12. Just take a</p> <p>8 look at that. And the PIN ID numbers are 025046 and</p> <p>9 025047. And this appears to be an e-mail from you</p> <p>10 dated Monday, July 25th to Bill Hodges, Clint Courson,</p> <p>11 Amanda McAlevy and copying Kenneth Welch.</p> <p>12 And who is Amanda?</p> <p>13 A. It was one of HHNT's admins.</p> <p>14 Q. Got it. Okay.</p> <p>15 And why were you copying her on these</p> <p>16 e-mails?</p> <p>17 A. I don't remember.</p> <p>18 Q. Was she sort of keeping track of records or --</p> <p>19 A. I don't know. Bill may have asked me to copy</p> <p>20 her. I just -- I don't remember.</p> <p>21 Q. Right.</p> <p>22 Okay. So looking at the second page of</p> <p>23 this document entitled "PINTAIL LANDFILL, WALLER COUNTY,</p> <p>24 TEXAS, Piezometers," can you tell me what this table is?</p> <p>25 A. It -- it's a table to -- I don't know why I</p>

142	<p>1 sent it to them, but maybe he asked me to give him a</p> <p>2 summary. But it's a table that I probably gave to</p> <p>3 Stefan to say, Here's where I want the piezometers set.</p> <p>4 Q. Okay. And so let's just kind of walk through</p> <p>5 this table. First of all, on Column 1 entitled</p> <p>6 "Location" you've -- you've said -- you have -- you have</p> <p>7 a p and then A-1.</p> <p>8 Does that -- and I think that -- I can't</p> <p>9 remember who it was. I think it was Mr. Stamoulis.</p> <p>10 He -- I can't remember who it was. Somebody was</p> <p>11 testifying about how far away the piezometers were</p> <p>12 located from the bore holes.</p> <p>13 Who made that decision as to where the</p> <p>14 piezometers were going to be located precisely?</p> <p>15 A. I generally made that decision. We generally</p> <p>16 try to drill it within 15 feet of the original location.</p> <p>17 The exact location of it sometimes is dependent on where</p> <p>18 the drill rig can get to easily or whatever. But we try</p> <p>19 to make sure that we're within 15 feet.</p> <p>20 Q. Okay. And did -- and so -- and of the exact</p> <p>21 locations of the piezometers with respect -- the exact</p> <p>22 coordinates for those piezometers in the application?</p> <p>23 A. Yes.</p> <p>24 Q. Okay. And so if we looked at the coordinates</p> <p>25 for the -- we could find out how -- exactly how far some</p>	144	<p>1 Q. And why do you typically use ten-foot screens?</p> <p>2 A. It's a -- it's a standard screen interval for</p> <p>3 a relatively discrete sampling.</p> <p>4 Q. And -- and what do you mean by "relatively</p> <p>5 discrete"?</p> <p>6 A. Well, of course, you could have a one-foot</p> <p>7 screen or a five-foot screen, which would make it even</p> <p>8 more discrete, so relative to a 20-foot screen or a</p> <p>9 30-foot screen, a 10-foot screen is relatively discrete.</p> <p>10 Q. Well, I guess it sounded to me like you</p> <p>11 were -- you were saying that this was -- that that's</p> <p>12 what you were looking to get is a discrete sample.</p> <p>13 Is that something you looked to get for</p> <p>14 these kinds of piezometers for MSW landfill projects?</p> <p>15 A. Relative to -- relative to some of the old</p> <p>16 practices where they had long screened intervals?</p> <p>17 Q. Right.</p> <p>18 A. Yes.</p> <p>19 Q. Okay.</p> <p>20 A. A ten-foot screen qualifies to me as a</p> <p>21 discrete screen --</p> <p>22 Q. Okay. So the --</p> <p>23 A. -- at least for this purpose.</p> <p>24 Q. So the longer screens, why would that not be</p> <p>25 advantageous?</p>
143	<p>1 of these piezometers were from the borings if we just</p> <p>2 took the coordinates --</p> <p>3 A. Yes.</p> <p>4 Q. -- in the application, right?</p> <p>5 Okay. So you try to get it within</p> <p>6 15 feet. So that's why you're just -- you're -- is that</p> <p>7 why you're -- is that why you're not naming the</p> <p>8 piezometers individually and just calling them by their</p> <p>9 corresponding bore hole or is it just --</p> <p>10 A. I'm not sure what you mean by that?</p> <p>11 Q. I guess I'm kind of -- I was curious as to why</p> <p>12 you didn't just say Piezometer 1, Piezometer 2, instead</p> <p>13 you're Piezometer A-1, Piezometer A-3.</p> <p>14 Are you trying to indicate that these are</p> <p>15 the piezometers that are associated with Borehole A-1 --</p> <p>16 A. Yes.</p> <p>17 Q. -- Borehole A-3? Okay.</p> <p>18 So second column "Screened Intervals."</p> <p>19 This is the -- well, tell me what this is.</p> <p>20 A. Elevation of the screens.</p> <p>21 Q. Elevation of the screens.</p> <p>22 And how did you decide how long to make</p> <p>23 the screens?</p> <p>24 A. Well, I typically use ten-foot screens, and I</p> <p>25 think that's what I did here. So...</p>	145	<p>1 A. Because I think it is -- I think when you put</p> <p>2 a discrete screen and you know what the elevation is in</p> <p>3 that screened interval.</p> <p>4 Q. Okay. Whereas if you had a longer screen, you</p> <p>5 would have some question?</p> <p>6 A. You could have. I don't know that it would</p> <p>7 have made any difference here, but you could have.</p> <p>8 Q. Okay. Now, I remember from some of the</p> <p>9 documents that we can -- and we can look at that a</p> <p>10 little bit later, but at some point you had proposed</p> <p>11 cluster piezometers, is that right?</p> <p>12 A. In my original proposal, which was a cost</p> <p>13 proposal for budget numbers, not knowing what we were</p> <p>14 going to find or not find, I had proposed to put</p> <p>15 piezometers in two zones.</p> <p>16 Q. Okay.</p> <p>17 A. Once we determined that we had one</p> <p>18 hydrogeologic unit with a continuous relatively thick</p> <p>19 clay beneath it, we determined we didn't need to</p> <p>20 characterize two different zones.</p> <p>21 Q. So you don't think that there would be any</p> <p>22 significant difference between the upper portion of the</p> <p>23 unconfined aquifer that we're talking about and the</p> <p>24 lower portion where you ultimately screened your</p> <p>25 piezometers?</p>

146	<p>1 A. At this site, I do not.</p> <p>2 Q. Okay. So -- so then when we're looking at</p> <p>3 "Approximate Depth," this third column, is that -- tell</p> <p>4 me what that is.</p> <p>5 A. It's approximate depth. To hit those screened</p> <p>6 intervals, you will have to drill to this depth</p> <p>7 approximately.</p> <p>8 Q. And that would represent the -- where the --</p> <p>9 the -- that would represent -- 82, for example, on the</p> <p>10 first one would be the bottom of the piezometer bore</p> <p>11 hole?</p> <p>12 A. Yes.</p> <p>13 Q. Okay. And then what about the last column,</p> <p>14 "Notes"?</p> <p>15 A. Notes were just to suggest that we were -- it</p> <p>16 was really more a note to me and mostly in part to</p> <p>17 sug- -- to say that I'm going to try to screen</p> <p>18 piezometers in different lithologies to make sure that</p> <p>19 I've screened all of them, to make sure that I screened</p> <p>20 medium sand, fine sand, sand with gravel, sand with</p> <p>21 clay, gravel, whatever is there. I tried to get a</p> <p>22 representative thing there so I could compare water</p> <p>23 levels to see if they were similar.</p> <p>24 Q. But I thought you just said a little bit</p> <p>25 earlier that the reason you picked the depths that you</p>	148	<p>1 A. In A -- B -- BME A-1.</p> <p>2 Q. Okay. So then A-3 at depth 78, you had</p> <p>3 "Med Sand w/ Gravel."</p> <p>4 Is that what you're saying?</p> <p>5 A. Yes.</p> <p>6 Q. And A-5 at depth -- and we're talking about</p> <p>7 A -- Boring A-5, right?</p> <p>8 A. Yes. And -- and those are what I -- these</p> <p>9 were just based off of the original Stefan descriptions,</p> <p>10 not lab-tested descriptions. There was nothing magic</p> <p>11 about that. Just me looking at it and saying, Okay. I</p> <p>12 want to try to get -- in addition to being distributed</p> <p>13 across the site, I want to have a distribution. I</p> <p>14 didn't want to selectively leave out borings for -- to</p> <p>15 have a piezometer in for a sand, for instance, and have</p> <p>16 them all selectively in a gravel or vice versa. So I</p> <p>17 was trying to make sure that I had them spread around.</p> <p>18 MS. JACOBS: Okay. Let's go with</p> <p>19 number...</p> <p>20 Q. (BY MS. JACOBS) Okay. So you said that you</p> <p>21 were trying to get represent- -- representative</p> <p>22 materials -- different representative materials because</p> <p>23 you thought that that might have some impact on the</p> <p>24 water level, right?</p> <p>25 A. I don't want to quibble too much.</p>
147	<p>1 did for the piezometer screens was because of the -- you</p> <p>2 wanted to get the interface between the bottom of the</p> <p>3 aquifer formation and the clay?</p> <p>4 A. I did. That's consistent.</p> <p>5 Q. So you were also trying to in addition to that</p> <p>6 get different types of materials at the bottom at that</p> <p>7 interface?</p> <p>8 A. Uh-huh.</p> <p>9 Q. Okay. And -- and tell me again why that is.</p> <p>10 A. I just thought it would be useful to see if</p> <p>11 there was differences in the -- in the water levels, if</p> <p>12 there was some discernible difference from these</p> <p>13 different hydrogeologic materials, you know, if the</p> <p>14 gravel might have had some impact on what the -- what</p> <p>15 the water table might have been or the -- or the clayey</p> <p>16 sandy zone. So I was just trying to see if there was</p> <p>17 any -- any difference there. I was trying to get a</p> <p>18 spread across the site.</p> <p>19 Q. Okay. And so in this "Notes" column, does</p> <p>20 that represent -- I mean, if we take the first one, A-1,</p> <p>21 "Med to Coarse Sand," does that represent what you think</p> <p>22 is at that approximate depth?</p> <p>23 A. That represents what was at that depth in that</p> <p>24 boring.</p> <p>25 Q. In that boring?</p>	149	<p>1 Q. No. It's okay. No. We need to get --</p> <p>2 A. It's not --</p> <p>3 Q. I need -- we need to get it right. And that's</p> <p>4 part of the reason why I'm making sure that it's clear.</p> <p>5 A. It's not that I thought that was the case. It</p> <p>6 was that I was -- I was wanting to take some to see if</p> <p>7 it was -- it was the case.</p> <p>8 Q. Had you not done that on any other project or</p> <p>9 has that -- have you done it on another project where</p> <p>10 you've gotten representative samples and you said, Okay.</p> <p>11 I'm going to go in to -- you know, I'm going to make</p> <p>12 sure I have medium to coarse sand. I'm going to make</p> <p>13 sure I have sand with abundant gravel. I'm going to</p> <p>14 make sure I have these different --</p> <p>15 A. Sure.</p> <p>16 Q. And have you seen it have a difference in</p> <p>17 water level effects --</p> <p>18 A. Well --</p> <p>19 Q. -- or water levels? I'm sorry.</p> <p>20 A. I don't know that I've ever seen it in work</p> <p>21 that I've done. I -- I may have read papers at times</p> <p>22 where -- where certain occurrences of material can have</p> <p>23 an effect on the -- on the potentiometric surface.</p> <p>24 Q. Okay. And so you -- so you say you read</p> <p>25 papers. Do you -- I guess we talked about CLEs before.</p>

150	<p>1 Do you read professional journals like --</p> <p>2 well, do you read any professional journals to keep --</p> <p>3 sounds like it.</p> <p>4 A. Sure.</p> <p>5 Q. -- to keep up on stuff?</p> <p>6 What -- what kind of journals?</p> <p>7 A. I read Groundwater, which is from the National</p> <p>8 Groundwater Association.</p> <p>9 Q. Aptly titled.</p> <p>10 A. I -- I used to read the groundwater monitoring</p> <p>11 paper that was put out by the Association of Groundwater</p> <p>12 Scientists and Engineers, which was part of National</p> <p>13 Groundwater Association, but I don't think they publish</p> <p>14 that anymore. So...</p> <p>15 Q. Do you know if Mr. Adams reads those</p> <p>16 periodicals?</p> <p>17 A. I -- I don't know what he reads. I'm sure he</p> <p>18 reads periodicals. I don't know what he reads.</p> <p>19 Q. I don't know what Diana reads either. So I</p> <p>20 don't blame you.</p> <p>21 And so when we're talking -- okay. So</p> <p>22 we've been talking about the difference in materials,</p> <p>23 difference in water levels. And I still need to ask you</p> <p>24 what is the difference between the water table and --</p> <p>25 and the piezometric surface that you measure in your</p>	152	<p>1 want to ask you, do you recognize this diagram?</p> <p>2 A. Yes.</p> <p>3 Q. And is this something that you drafted?</p> <p>4 A. Yes. Well --</p> <p>5 Q. Did you -- okay. Is the handwriting on here</p> <p>6 in pen your handwriting?</p> <p>7 A. Yes, it is.</p> <p>8 Q. Ah. See, I'm getting better.</p> <p>9 So -- and down in the corner here it says,</p> <p>10 "STRATUM II CLAY THICKNESS PENETRATED."</p> <p>11 Is that right?</p> <p>12 A. Yes.</p> <p>13 Q. And so what was your -- I'm just going to ask</p> <p>14 the obvious. What was your purpose in creating this --</p> <p>15 this -- the handwriting on this diagram?</p> <p>16 A. Well, I mean, I -- I don't remember</p> <p>17 specifically what my purpose was. I can assume that I</p> <p>18 was looking at -- just to look to see how much clay we</p> <p>19 had penetrated across the site. I already had known</p> <p>20 that from our cross-sections, but I obviously was</p> <p>21 looking at it to put numbers to it.</p> <p>22 Q. Okay. And -- and so this you feel pretty</p> <p>23 confident you created after your cross-sections, and I</p> <p>24 guess because have you your little seal on the side here</p> <p>25 dated?</p>
151	<p>1 piezometers?</p> <p>2 A. In this case not much. It's the same thing.</p> <p>3 Q. Is it always the same thing?</p> <p>4 A. No. It isn't necessarily always. But in a</p> <p>5 highly permeable sand with relatively high velocities,</p> <p>6 it is likely that it's that way.</p> <p>7 Q. And so that's what you anticipated at this</p> <p>8 site?</p> <p>9 A. I don't -- I don't know that I anticipated</p> <p>10 that.</p> <p>11 Q. But you knew before you started doing the</p> <p>12 borings that this was a recharge zone, right?</p> <p>13 A. Yes.</p> <p>14 Q. Okay. And my understanding, although I</p> <p>15 haven't been out there, is that when you go out there</p> <p>16 and you just look at the ground, it's really sandy, you</p> <p>17 can see sand just on the surface, is that right?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. That's why I thought you might have</p> <p>20 anticipated that.</p> <p>21 Okay. Let us look at what is going to be</p> <p>22 Exhibit No. 13.</p> <p>23 (Exhibit 13 marked)</p> <p>24 Q. (BY MS. JACOBS) And this has been</p> <p>25 identified -- it has a PIN number 001254. And I just</p>	153	<p>1 A. Well, yeah. That was after -- after our</p> <p>2 technically complete version, I assume.</p> <p>3 Q. Okay. Well, now, the date down at the bottom</p> <p>4 says 4/12, which I guess is April 2012?</p> <p>5 A. Yeah. That -- that was the date that this</p> <p>6 figure was -- the base figure for this might have been</p> <p>7 originally drafted. The cross-section location map that</p> <p>8 it's on.</p> <p>9 Q. Uh-huh. Are you guys, like, internally with</p> <p>10 respect to, you know, quality control and all of that,</p> <p>11 are you pretty rigorous about filling in these little</p> <p>12 areas at the bottom where it has, you know, when the</p> <p>13 revisions were made and whatnot?</p> <p>14 A. I don't know how to characterize that.</p> <p>15 Q. You don't know how I'm using the term</p> <p>16 "rigorous"?</p> <p>17 A. And I don't know how to characterize what we</p> <p>18 do about it. We do it.</p> <p>19 Q. Okay. That's really what I'm asking. Well,</p> <p>20 let's put it this way.</p> <p>21 You know, I'm assuming that you have</p> <p>22 certain internal procedures for how you handle important</p> <p>23 documents. We've already discussed your document</p> <p>24 retention policy.</p> <p>25 I am also assuming that it would be</p>

154	<p>1 important for you to know given the fact that you are</p> <p>2 discarding all of your drafts that, you know, what</p> <p>3 version you're on, what did we do.</p> <p>4 You don't have any other documentation of</p> <p>5 that, right? So I'm wondering are you -- do you</p> <p>6 routinely as a matter of course -- is that sort of an</p> <p>7 internal policy that you have that you fill in this</p> <p>8 revision box?</p> <p>9 A. I think it is. And my hesitation is, is that</p> <p>10 I'm generally not involved in that.</p> <p>11 Q. Okay.</p> <p>12 A. I don't generally make that happen. Kenneth</p> <p>13 Welch works with the drafting staff and they decide what</p> <p>14 version this is.</p> <p>15 Q. Okay.</p> <p>16 A. And they put those things on there. So...</p> <p>17 Q. So he's the one that would be responsible for</p> <p>18 making sure that the revisions are noted at the proper</p> <p>19 time and in the proper way?</p> <p>20 A. Yeah. I mean, there may be other people too,</p> <p>21 but I'm generally not.</p> <p>22 Q. But as a firm, even though you're not the</p> <p>23 person that's responsible for that, you feel pretty</p> <p>24 confident that you guys do that as a matter of course?</p> <p>25 A. Yeah. Since I don't do it, I probably</p>	156	<p>1 A. At least that thick.</p> <p>2 Q. All right. And then going over to A5, where</p> <p>3 it says "P-A5."</p> <p>4 A. Uh-huh.</p> <p>5 Q. And you've got "4," which I guess just means</p> <p>6 four feet?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. There's no circle around that.</p> <p>9 Is there a reason for that? This is the</p> <p>10 only one that I can see besides the NDE one on D-5 that</p> <p>11 doesn't have a circle around it.</p> <p>12 A. I can't explain that. I don't know.</p> <p>13 Q. Okay. How about when we go down to B-1, we</p> <p>14 have "21+" and then in parentheses you have "31.5"?</p> <p>15 A. Could I look at the boring?</p> <p>16 Q. Oh, absolutely, yeah.</p> <p>17 A. The boring may be more accurately. But we</p> <p>18 don't have the cross-sections out. Oh, let's see.</p> <p>19 Q. So you're looking at Exhibit 5?</p> <p>20 A. Okay. So what I was denoting there was it was</p> <p>21 21 plus feet and then I put in parentheses 31.5 feet --</p> <p>22 Q. Uh-huh.</p> <p>23 A. -- which rep- -- represented another 31.5 feet</p> <p>24 below the little internal sand.</p> <p>25 Q. Ah, okay. And is the little internal sand --</p>
155	<p>1 shouldn't say whether I'm confident or not.</p> <p>2 Q. Well, as I think you mentioned, it's a</p> <p>3 regulatory requirement, is it not?</p> <p>4 A. I don't think I mentioned that, but...</p> <p>5 Q. I thought you said it was required.</p> <p>6 A. What did I say was required?</p> <p>7 Q. That you note revisions.</p> <p>8 A. I don't think I said that.</p> <p>9 Q. Okay. So it's not a regulatory requirement?</p> <p>10 A. I don't know that it is or it isn't.</p> <p>11 Q. Okay. That's fair.</p> <p>12 Okay. So if we're looking at this, I just</p> <p>13 have a couple of clarification questions. As we go</p> <p>14 looking sort of at the top of this on A2 -- do you see</p> <p>15 where I'm at?</p> <p>16 A. Yes.</p> <p>17 Q. And your notation it looks to me is at 26</p> <p>18 point -- is that 99 or 49?</p> <p>19 A. I think it's 49.</p> <p>20 Q. 49. Okay. So 26.49+.</p> <p>21 What did you mean by that? What does that</p> <p>22 signify?</p> <p>23 A. I don't know for sure. Without looking at the</p> <p>24 log, I suspect that I'm saying it's at least that deep.</p> <p>25 Q. Okay.</p>	157	<p>1 is that the stratum 2A that you guys identified?</p> <p>2 A. Yes.</p> <p>3 Q. Okay. So -- all right. So then again we've</p> <p>4 got on C-1 -- really this is just because I was having</p> <p>5 trouble reading it. Is that "52.7"?</p> <p>6 A. It looks like it.</p> <p>7 Q. Okay. Then we go over to C5.</p> <p>8 A. Uh-huh.</p> <p>9 Q. And that's "1"?</p> <p>10 A. Yes.</p> <p>11 Q. Okay. And then we go down to DE -- D-5 and</p> <p>12 what does that "NDE" stand for?</p> <p>13 A. "NDE" stands for not deep enough.</p> <p>14 Q. Okay.</p> <p>15 A. And let's look at D-5.</p> <p>16 Q. And again, you're looking in Exhibit 5?</p> <p>17 A. Yes.</p> <p>18 Q. Okay.</p> <p>19 A. And the reason is, is that in that boring we</p> <p>20 tagged the clay.</p> <p>21 Q. All right. Let me -- hold on one second. I'm</p> <p>22 trying to get there. Okay. D-5. Okay. So you're on</p> <p>23 Page E2-44.</p> <p>24 What do you mean "tagged to the clay"?</p> <p>25 A. It means that when he drilled it, he got to</p>

158	<p>1 clay and stopped, not drilled into it. And so when I</p> <p>2 put not deep enough, I meant it was not deep enough for</p> <p>3 me to -- you know, I could have put less than a foot,</p> <p>4 for instance, rather than not deep enough, but --</p> <p>5 Q. Uh-huh.</p> <p>6 A. -- same thing.</p> <p>7 Q. Well, I don't see any clay at the bottom of</p> <p>8 this boring on D-5.</p> <p>9 Why -- why is there no clay at the bottom</p> <p>10 on the boring?</p> <p>11 A. Because he didn't note that.</p> <p>12 Q. How do you know it was there then?</p> <p>13 A. Because he told me he hit it.</p> <p>14 Q. Was it on his field log?</p> <p>15 A. I don't know. I don't remember.</p> <p>16 Q. Okay. So all right. So let me go over here,</p> <p>17 though. Let's go back over to C-5. And I'm on Page</p> <p>18 E2-34 of Exhibit 5. And that was the one that you had</p> <p>19 identified on your drawing in Exhibit 13 as one foot --</p> <p>20 A. Uh-huh.</p> <p>21 Q. -- that we were going through and I was just</p> <p>22 clarifying that.</p> <p>23 Now, in this one it looks again like he</p> <p>24 kind of did what you said, tagged the clay.</p> <p>25 A. Yeah.</p>	160	<p>1 on the log given it's important?</p> <p>2 A. I sim- -- I didn't say that he wouldn't. I</p> <p>3 said that I don't remember whether he did or not.</p> <p>4 Q. Okay. Given its importance, why didn't you</p> <p>5 note it on the log? Or I should say why didn't -- why</p> <p>6 didn't Mr. Adams note it on the log?</p> <p>7 A. I -- I can't answer that. I don't remember.</p> <p>8 Q. Because as you said, people like me are going</p> <p>9 to ask awkward questions. So I would think that you</p> <p>10 would want to note that if it was actually something</p> <p>11 that was described in the field, right?</p> <p>12 A. I guess. I mean, I understand what you're</p> <p>13 asking, but I just don't know. I just don't remember.</p> <p>14 Q. Okay. So just kind of clarifying further</p> <p>15 here, if we go over to -- and again, I just want to make</p> <p>16 sure I'm understanding. Back to Exhibit 13. On E-1 we</p> <p>17 have -- it looks like "21'" and then you've got that</p> <p>18 30-foot thing again?</p> <p>19 A. Yes.</p> <p>20 Q. Is that kind of -- do you think that's -- you</p> <p>21 can check if you need to, but you think that's the same</p> <p>22 thing as what we were talking about on B-1?</p> <p>23 A. I'm looking at it. It is the same.</p> <p>24 Q. Okay. Okay. And then same thing, just</p> <p>25 legibility-wise, on F-4, that's another one of those --</p>
159	<p>1 Q. So it looks like here we've got --</p> <p>2 A. Actually, it's half a foot.</p> <p>3 Q. A half a foot. Right. Okay. So you kind of</p> <p>4 rounded up on your -- on Exhibit 13 there.</p> <p>5 A. Yeah.</p> <p>6 Q. So -- so half a foot.</p> <p>7 So then that must mean that on D-5 he went</p> <p>8 less than half a foot?</p> <p>9 A. I suppose, yeah.</p> <p>10 Q. And didn't --</p> <p>11 A. And -- and did what we called tagging it.</p> <p>12 Q. Tagging it. Okay.</p> <p>13 Now, did he -- do you -- did he note that</p> <p>14 on the -- so you don't know if he noted that on the</p> <p>15 field log or not?</p> <p>16 A. I don't remember if he did or not. I know</p> <p>17 that he tagged it. I don't know if he noted it on the</p> <p>18 log or not.</p> <p>19 Q. Would he generally have noted something like</p> <p>20 that on the log?</p> <p>21 A. He might have. I just don't remember.</p> <p>22 Q. Well, let's -- let me say this. We've talked</p> <p>23 about how important it is that you hit clay. We talked</p> <p>24 about, you know, your -- you told me about the rule you</p> <p>25 don't stop until you hit clay, and he wouldn't note that</p>	161	<p>1 is that a one -- a one foot?</p> <p>2 A. I believe so.</p> <p>3 Q. Let's look back at 04. And again, we're</p> <p>4 referring here to the BME logs on all of this --</p> <p>5 A. Yeah.</p> <p>6 Q. -- is that right?</p> <p>7 A. Yeah.</p> <p>8 Q. Okay. When -- so when you're checking these,</p> <p>9 you're looking at the BME logs, is that right?</p> <p>10 A. I assume I did. I don't really remember how I</p> <p>11 did this.</p> <p>12 Q. Oh, no, no, no. I'm saying when you're</p> <p>13 checking them right now, you're looking at the --</p> <p>14 A. Oh, yeah. I'm sorry.</p> <p>15 Q. No, that's okay. That's okay.</p> <p>16 Okay. So again, this is where we've got</p> <p>17 like a -- on F-4 it looks like the -- the tagging that</p> <p>18 you talked about, the --</p> <p>19 A. Well, this looks like we actually had a -- six</p> <p>20 inches.</p> <p>21 Q. Okay.</p> <p>22 A. Half a foot.</p> <p>23 Q. Half a foot. Right. Okay. Okay. That is</p> <p>24 helpful.</p> <p>25 When -- when -- going back to the field</p>

162	<p>1 logs that Stefan sent you, did he send you -- he seemed</p> <p>2 to think that he sent you his original logs, like the --</p> <p>3 like rather than sending you copies, that he also sent</p> <p>4 you originals.</p> <p>5 A. You know, I think ultimately he sends me the</p> <p>6 originals, but there are times when he may send me</p> <p>7 copies first.</p> <p>8 Q. Okay. That makes sense.</p> <p>9 And did he send you field logs</p> <p>10 periodically, like as he got them done -- as he got the</p> <p>11 borings done or did he wait until, you know, he was done</p> <p>12 with all 36 before he sent them?</p> <p>13 A. Oh, no, it was probably more in one event.</p> <p>14 Q. And how long did it -- well, okay. Let me ask</p> <p>15 you this.</p> <p>16 So when the -- when the field logs came in</p> <p>17 the door, would they come in the door like right around</p> <p>18 the time that the samples that went with the log came in</p> <p>19 the door, so you had them both together?</p> <p>20 A. Not necessarily.</p> <p>21 Q. Okay. Now, how long would he wait to give you</p> <p>22 the samples from the actual borings? In other words, he</p> <p>23 said that he -- or maybe one of his staff, but he drove</p> <p>24 them to your office. And I think that's what you had</p> <p>25 indicated previously was sort of your standard operating</p>	164	<p>1 Q. Okay.</p> <p>2 A. There -- and I say "mostly" because there have</p> <p>3 been times in the course of projects that we do that</p> <p>4 I -- I might say, That clay, I need permeability on that</p> <p>5 clay.</p> <p>6 Q. Okay.</p> <p>7 A. But for the most part, Gregg made the</p> <p>8 determination of the samples and the sample assignments.</p> <p>9 Q. Do you know how he made that decision as to</p> <p>10 which ones to send to the lab and which ones not?</p> <p>11 A. I guess I'll let Gregg say that.</p> <p>12 Q. Okay. And -- and the lab I'm talking about is</p> <p>13 Landtech, right?</p> <p>14 A. I guess that's who did it. I don't really</p> <p>15 know. But I -- seems likely.</p> <p>16 Q. So you didn't deal with the lab?</p> <p>17 A. Huh-uh. That was no. Sorry.</p> <p>18 Q. And so on the BME logs -- so we have the EB</p> <p>19 logs. That was sort of just a transcription process.</p> <p>20 That was something that neither you nor Mr. Adams did.</p> <p>21 Was the -- with the BME logs, was there</p> <p>22 any part of that that you added to the logs -- to those</p> <p>23 logs, the 36 BME logs?</p> <p>24 A. Well, the logs are a collaboration. Gregg</p> <p>25 would do the edits and then we might often sit down and</p>
163	<p>1 procedure.</p> <p>2 Would he wait and kind of do that in</p> <p>3 batches or would he like every day drive them to your</p> <p>4 office?</p> <p>5 A. Not every day. And the frequency with which</p> <p>6 it was done, I don't remember, but there were times I'm</p> <p>7 sure when he -- when he had a full trailer full or -- or</p> <p>8 had enough that he didn't want to put any more in a</p> <p>9 trailer. He may have brought them because Gregg and I</p> <p>10 had some time and availability to start working on them.</p> <p>11 Q. Right.</p> <p>12 A. So -- I don't remember specifically how</p> <p>13 many -- how many trips were made.</p> <p>14 Q. And I think you said before that Mr. Adams is</p> <p>15 the one that created the draft log for the BMEs or maybe</p> <p>16 you said he created the final logs for the BMEs?</p> <p>17 A. I'm not sure that I said, but -- but that's</p> <p>18 probably right.</p> <p>19 Q. I think you -- well, I thought you indicated</p> <p>20 that, but it was before lunch, so who knows.</p> <p>21 Okay. So I can't ask that question.</p> <p>22 Now, did you say that you -- okay. Who</p> <p>23 was it that decided which of the samples or cores would</p> <p>24 be sent to the lab for testing?</p> <p>25 A. Mostly Gregg.</p>	165	<p>1 look at samples together and say, This is this and this</p> <p>2 and that -- this is that. Do you agree with that? And</p> <p>3 then we'd say, Well, let's go look at this sample.</p> <p>4 Let's lay them out. So I participated in that at times.</p> <p>5 Gregg was the primary one that made decisions about what</p> <p>6 the final log was going to look like.</p> <p>7 Q. Okay. So his description -- he -- he went</p> <p>8 through his process -- you know, most aspects of his</p> <p>9 process with me during his deposition.</p> <p>10 Would you -- do you feel comfortable in</p> <p>11 deferring to him with respect to how those BME logs were</p> <p>12 developed?</p> <p>13 A. I'm comfortable with what Gregg did. But I</p> <p>14 don't want to say that I necessarily just deferred to</p> <p>15 him.</p> <p>16 Q. Okay. Then we can go over that more in</p> <p>17 detail.</p> <p>18 MS. JACOBS: So I guess we're going to</p> <p>19 need 13A.</p> <p>20 MS. NICHOLS: All right.</p> <p>21 MS. JACOBS: Actually, you know what,</p> <p>22 let's wait on that.</p> <p>23 MS. NICHOLS: Okay.</p> <p>24 Q. (BY MS. JACOBS) I just have -- so the one</p> <p>25 thing I wanted to ask basically is, his recollection of</p>

166	<p>1 the process was that, you know, he was primarily 2 responsible, as you said, for going through and -- I 3 think you said making the edits. 4 What did you have mean by "making the 5 edits"?</p> <p>6 A. Based on his evaluation of the samples -- 7 Q. Uh-huh.</p> <p>8 A. -- looking at all the samples, he may say, 9 Well, Stefan said it was this, but I look at it as this. 10 Q. Uh-huh.</p> <p>11 A. But more important than that even is that we 12 have the lab tests that confirm what materials are, 13 which is a much better determination than somebody's 14 eyeball out in the field. So Gregg, when he's editing 15 logs, is incorporating the -- the laboratory testing and 16 the classifications.</p> <p>17 Q. Did -- do you know whether he or you as part 18 of this collaborative process ever changed any of the -- 19 I don't know. What are those horizontal lines called on 20 the -- that -- that showed the demarcation between one 21 type of soil to another? Are those contact points?</p> <p>22 A. Yeah, or stratification line.</p> <p>23 Q. Stratification lines? Would you -- was that 24 something that you would feel comfortable or that he 25 would feel comfortable, I guess, changing from what</p>	168	<p>1 A. I think that I would be more comfortable 2 looking exactly.</p> <p>3 Q. Absolutely. I think we're looking at 4 Exhibit 10 and we are looking at Page E-17.</p> <p>5 A. Okay.</p> <p>6 Q. Okay. So from here it looks to me like in the 7 middle of -- and I'm looking at Table E-4(a). In the 8 middle of doing your borings, it looks like you 9 installed on July 14th -- or I should say Mr. Stamoulis 10 installed on July 13th three piezometers.</p> <p>11 A. Uh-huh.</p> <p>12 Q. Do you see where I'm looking?</p> <p>13 A. Yes, ma'am.</p> <p>14 Q. And then that was -- then it looks like that 15 you waited until early August to install the rest of 16 them.</p> <p>17 Do you recall why you chose to install 18 three piezometers in mid July?</p> <p>19 A. I don't.</p> <p>20 Q. Do you recall who made that decision?</p> <p>21 A. Well, I feel certain that I made that 22 decision.</p> <p>23 Q. Okay.</p> <p>24 A. I don't know if I made it because somebody 25 asked something or what, but I -- I remember that we did</p>
167	<p>1 Stefan saw in the field?</p> <p>2 A. If -- if what we saw in the sample or what we 3 saw in the lab test suggested that something needed to 4 be slightly changed, we would have. I don't have 5 specific recollection of that, but --</p> <p>6 Q. Uh-huh. And that -- you would classify that 7 as a slight change?</p> <p>8 A. Well, I'm guessing they would be slight 9 changes.</p> <p>10 Q. Okay.</p> <p>11 A. I mean, if some -- if he said it was here and 12 we said it was a foot or two different here, we had some 13 reason for saying such things, and I'm guessing that 14 that was the kind of thing, but I don't know. It just 15 depends.</p> <p>16 Q. I got you.</p> <p>17 Do you recall -- you know, when we were 18 looking at the summary table, I -- I took a look at that 19 summary table previously in preparation for talking to 20 you today. And I'm talking about the summary table that 21 specifies all the dates that -- on which borings were 22 drilled and also specifies the piezometers -- the dates 23 the piezometers were drilled.</p> <p>24 Do you recall what I'm talking about in 25 the application?</p>	169	<p>1 it. I don't remember in the -- in the course of the 2 rest of the project I don't remember any longer why we 3 did that.</p> <p>4 Q. What kind of drilling fluid was used for the 5 piezometers?</p> <p>6 A. Water.</p> <p>7 Q. Water.</p> <p>8 And do you know about how much it costs to 9 install a piezometer?</p> <p>10 A. Well, of course, it depends on the depth and 11 what you're drilling in, but --</p> <p>12 Q. So shallower ones would be less costly?</p> <p>13 A. Yeah. I mean, they're something on the order 14 of \$50 a foot maybe or something like that.</p> <p>15 Q. And -- now on the piezometers, did you -- did 16 you go ahead and log those or did you -- I'm sorry. Did 17 you have Stefan log those piezometers?</p> <p>18 A. I think it's described in the application that 19 we -- that the methodology was that we went out there 20 and drilled with an auger and he logged the cuttings 21 looking at the -- at his other log and confirming that 22 what he was finding was consistent with what the 23 original log would have been.</p> <p>24 Q. The original log for the corresponding BME 25 bore hole?</p>

170	<p>1 A. Yes.</p> <p>2 Q. Okay. And did you sample -- take any samples</p> <p>3 or did you have him take any samples from the piezometer</p> <p>4 borings?</p> <p>5 A. No.</p> <p>6 Q. And why not?</p> <p>7 A. Well the process by which we were doing it is</p> <p>8 a process to avoid what some people do, which is put</p> <p>9 piezometer in the original bore hole. I don't like that</p> <p>10 process. I think it's not a good process. So we -- we</p> <p>11 have adopted the process by which we drill another</p> <p>12 boring right next to the original hole. And -- and as</p> <p>13 long as what we're seeing when we log it in cuttings in</p> <p>14 the piezometer, if it's consistent with the other one,</p> <p>15 then we use that -- the -- the lithology descriptions</p> <p>16 from the original bore hole.</p> <p>17 Q. Okay. And so is that why if we go back to</p> <p>18 Exhibit 5, if I'm opening this up and I'm looking at</p> <p>19 P -- a log for P-F4, is that why it says at the bottom</p> <p>20 in the remarks, "For sample intervals see corresponding</p> <p>21 Boring Log BME-F4"?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. So if -- so he's just going through</p> <p>24 and -- and -- and making sure that -- kind of just</p> <p>25 eyeballing it, looking at the -- his original field log</p>	172	<p>1 him -- if he's taking the trouble to sit there and</p> <p>2 eyeball it and compare all of that, why wouldn't you</p> <p>3 just have him write it down so that you would --</p> <p>4 A. He --</p> <p>5 Q. -- have the different -- you'd have the</p> <p>6 different information?</p> <p>7 A. I'm sorry.</p> <p>8 Q. No, go ahead.</p> <p>9 A. I wasn't clear. He does do that.</p> <p>10 Q. Okay. Okay. So -- so he writes it down and</p> <p>11 then -- and then you compare the two and -- the -- the</p> <p>12 BME with the --</p> <p>13 A. Yes.</p> <p>14 Q. -- piezometer? Okay. I see.</p> <p>15 MS. JACOBS: Can I have No. 14, please.</p> <p>16 Q. (BY MS. JACOBS) And when he writes it down,</p> <p>17 that's -- it -- that's a field log?</p> <p>18 A. Uh-huh.</p> <p>19 Q. Okay.</p> <p>20 MS. JACOBS: Thanks (indicating).</p> <p>21 Q. (BY MS. JACOBS) Okay. I guess this is No. --</p> <p>22 (Exhibit 14 marked)</p> <p>23 Q. (BY MS. JACOBS) I'm going to hand an exhibit</p> <p>24 that's being marked Exhibit 14. And it is a letter.</p> <p>25 And the letter has the PIN numbers 001230 and 001231,</p>
171	<p>1 or is he looking at the final log for the BME?</p> <p>2 A. Wouldn't be the final log.</p> <p>3 Q. Wouldn't be the final log?</p> <p>4 A. He wouldn't have the final logs, yes.</p> <p>5 Q. He wouldn't have the final logs.</p> <p>6 A. I don't think he ever had the final logs.</p> <p>7 Q. Okay. Okay.</p> <p>8 A. I don't think we ever would have sent him the</p> <p>9 final logs.</p> <p>10 Q. Okay. Well, what happens if he comes up with</p> <p>11 something -- I mean, has he ever come up with something</p> <p>12 different if he's eyeballing that?</p> <p>13 A. Occasionally.</p> <p>14 Q. Okay. And so what do you -- what do you do</p> <p>15 then?</p> <p>16 A. Well, we may -- we may use that information to</p> <p>17 modify our original boring log. If we found something</p> <p>18 at a different depth or something, we use a second one</p> <p>19 to say, Okay. This is where it's at. We -- we might do</p> <p>20 that, but it doesn't happen often.</p> <p>21 Q. Okay. So you take information from one bore</p> <p>22 hole and use it to edit the log for another bore hole.</p> <p>23 Is that what you're saying?</p> <p>24 A. We have, yeah.</p> <p>25 Q. Okay. And again, why would you just not have</p>	173	<p>1 001232.</p> <p>2 And do you recognize this letter?</p> <p>3 A. Generally.</p> <p>4 Q. Okay.</p> <p>5 A. It's been a while.</p> <p>6 Q. And -- and again, I just want to make sure I</p> <p>7 understand here. If you look at "Task 2 - Piezometer</p> <p>8 Installations," is this what you were referring to when</p> <p>9 you said in the initial proposal you had thought you</p> <p>10 might do piezometers at shallow and then a deeper depth</p> <p>11 where we have the -- here in this first part it says,</p> <p>12 "Drilling and installations of 24 piezometers will</p> <p>13 consist of twelve (12) at 80', twelve (12) at 50'"? Is</p> <p>14 that right?</p> <p>15 A. Yes, ma'am, it is.</p> <p>16 Q. Okay. And so you didn't end up doing 24</p> <p>17 piezometers. You ended up doing 15, correct?</p> <p>18 A. That's correct.</p> <p>19 Q. And was that your decision?</p> <p>20 A. Yes.</p> <p>21 Q. Okay. And again, you didn't end up putting</p> <p>22 piezometers at 50 feet or at a shallower depth.</p> <p>23 You put them all at that sand/clay</p> <p>24 interface, correct?</p> <p>25 A. Well, the second part of your question was --</p>

174	<p>1 is yes.</p> <p>2 Q. Uh-huh.</p> <p>3 A. The answer. The first part was we didn't end</p> <p>4 up doing that because we didn't end up with two</p> <p>5 different zones.</p> <p>6 Q. Didn't end up with two different zones. Okay.</p> <p>7 That's what I thought you had said.</p> <p>8 So -- and so that's why you didn't put in</p> <p>9 shallower piezometers, that's what you're saying,</p> <p>10 because it wasn't two different zones?</p> <p>11 A. And I guess I'm having trouble reconciling</p> <p>12 the -- the depths and the two different zones thing.</p> <p>13 Q. No. I'm trying to -- and I may be not</p> <p>14 repeating what you said correctly, but you're saying</p> <p>15 that you didn't end up doing the cluster piezometers</p> <p>16 because you didn't have two different zones?</p> <p>17 A. That's true.</p> <p>18 Q. Okay. Now, is there a vertical gradient in</p> <p>19 this hydrogeological unit that you referred to</p> <p>20 previously?</p> <p>21 A. I believe not.</p> <p>22 Q. Okay. And why do you think that there is not</p> <p>23 a vertical gradient?</p> <p>24 A. Because there is a highly permeable zone and</p> <p>25 once the recharged groundwater hits the groundwater</p>	176	<p>1 Why eight?</p> <p>2 A. It -- well, first of all, anything in this</p> <p>3 proposal were just estimates based ahead of time before</p> <p>4 we drill.</p> <p>5 Q. Right.</p> <p>6 A. So we ended up doing eight because I decided</p> <p>7 that we could get lateral distribution sufficient to</p> <p>8 give us numbers across the site. That was my judgment.</p> <p>9 Q. Okay. And that was based on what?</p> <p>10 A. Based on that it was -- it was the same</p> <p>11 hydrogeologic unit, based on that the lithology was</p> <p>12 relatively consistent, primarily fine sand, and we did</p> <p>13 tests, however, and a whole slew of different</p> <p>14 piezometers that were screened in different hydro- -- in</p> <p>15 different lithologies. And -- and so that's -- just for</p> <p>16 my experience, I thought that would be enough.</p> <p>17 Q. And -- and again, the different lithologies</p> <p>18 that you found at the interface between the sand and the</p> <p>19 clay at the bottom of Stratum I?</p> <p>20 A. Yeah. I believe that's where all the</p> <p>21 piezometers are screened.</p> <p>22 Q. Okay. Right.</p> <p>23 And going back to the -- when you were</p> <p>24 describing the Vadose zone and the -- what you think is</p> <p>25 the -- the lateral -- or I guess rapid lateral movement</p>
175	<p>1 through the Vadose zone, it's traveling rapidly and will</p> <p>2 move horizontally. And that being the case, it will</p> <p>3 have heads distributed vertically -- I mean, not</p> <p>4 vertically so that if you put a piezometer here a little</p> <p>5 deeper and a little deeper, you should end up with the</p> <p>6 same piece of metric head.</p> <p>7 Q. Okay. And when you say -- and we're</p> <p>8 talking -- all of this that we're talking about is what</p> <p>9 you guys would call Stratum I?</p> <p>10 A. Yes.</p> <p>11 Q. Is that right?</p> <p>12 And so when you're talking about a -- the</p> <p>13 hydrogeologic unit, you're talking about Stratum I?</p> <p>14 A. Yes.</p> <p>15 Q. And when you're saying, We don't have two</p> <p>16 zones, you're saying there are not two zones in what you</p> <p>17 have designated Stratum I?</p> <p>18 A. Two separate aquifers -- two -- or two</p> <p>19 separate sand zones that are separated by a clay.</p> <p>20 Q. Okay.</p> <p>21 A. Continuous across the site.</p> <p>22 Q. Okay. And then just another quick question</p> <p>23 here. At the bottom here where we're talking about slug</p> <p>24 tests, it says, "We will test a maximum of (8)</p> <p>25 piezometers."</p>	177	<p>1 of the groundwater after it gets through that Vadose</p> <p>2 zone, how did you determine -- how did you determine</p> <p>3 that? How did you learn that there was not a vertical</p> <p>4 gradient present?</p> <p>5 A. It was my judgment.</p> <p>6 Q. Okay. Is anything else that you looked at</p> <p>7 that led you to believe that?</p> <p>8 A. No.</p> <p>9 Q. If you wanted to find out for sure if you were</p> <p>10 correct in that judgment, how would you do that?</p> <p>11 A. I suppose you could place piezometers at</p> <p>12 different levels within the saturated zone.</p> <p>13 Q. So you do clustered or nested piezometers?</p> <p>14 A. Yes.</p> <p>15 Q. Okay. And we can go back and look at this if</p> <p>16 you want to, but in your IESI prefiled testimony you</p> <p>17 testified that the purpose of the groundwater</p> <p>18 investigation report is intended to provide the basic</p> <p>19 data regarding the groundwater beneath the site that</p> <p>20 would be used to characterize the groundwater setting at</p> <p>21 the site and design an appropriate groundwater</p> <p>22 monitoring system for the facility.</p> <p>23 My question is, is that true here as well?</p> <p>24 And by "here" I mean is that true with respect to this</p> <p>25 application?</p>

JOHN MICHAEL SNYDER. P.G. - VOLUME 1 - July 09, 2015

178	<p>1 A. Yes.</p> <p>2 Q. Okay. The Pintail application I should say,</p> <p>3 not this application. Okay.</p> <p>4 MS. JACOBS: Okay. Let's look at No. 15.</p> <p>5 Do you want to take a break?</p> <p>6 (Interruption)</p> <p>7 MS. JACOBS: Anybody want to take a</p> <p>8 break? Do you want to take a -- okay. Do you want to</p> <p>9 take a break, your hands? We can take a five-minute</p> <p>10 break.</p> <p>11 THE VIDEOGRAPHER: We're going off the</p> <p>12 record at 2:29. This ends Video File No. 3.</p> <p>13 (Recess from 2:29 p.m. to 2:36 p.m.)</p> <p>14 (Exhibit 15 marked)</p> <p>15 THE VIDEOGRAPHER: We're back on the</p> <p>16 record at 2:36. This is the beginning of Video File</p> <p>17 No. 4.</p> <p>18 Q. (BY MS. JACOBS) Okay. I'm going to hand you</p> <p>19 an exhibit that is Exhibit 15. And it is entitled</p> <p>20 "PINTAIL LANDFILL, APPENDIX E3, SITE GEOLOGIC DATA."</p> <p>21 Do you recognize that?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. And I wanted to again use this sort of</p> <p>24 to help us discuss the cross-sections. And in</p> <p>25 particular I wanted you to walk me through the process</p>	180	<p>1 A. Designed.</p> <p>2 Q. Designed.</p> <p>3 That's -- is that you?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. And then DWN is drawn?</p> <p>6 A. Yes.</p> <p>7 Q. Okay. And you said that SRC is --</p> <p>8 A. Steve Cundiff.</p> <p>9 Q. Cundiff. Okay.</p> <p>10 And then the CHK, is that Chuck?</p> <p>11 A. Yes.</p> <p>12 Q. And that's you again?</p> <p>13 A. Yes.</p> <p>14 Q. All right. So -- so are you saying that this</p> <p>15 is kind of -- so -- okay. So they -- they put the --</p> <p>16 this program -- using that program, the GINT program,</p> <p>17 the CAD operator then takes these various logs and it</p> <p>18 gives you what? What does it look like when they give</p> <p>19 it to you?</p> <p>20 A. It -- it has this on it with only the surface</p> <p>21 line drawn and -- and none of the correlations would be</p> <p>22 on there.</p> <p>23 Q. Okay. So just the -- the boring logs kind of</p> <p>24 hung on the surface line?</p> <p>25 A. And -- and hung to the elevation -- these</p>
179	<p>1 of creating the cross-sections, starting with who is it</p> <p>2 that created the cross-sections?</p> <p>3 A. Cross-sections are a drafting product. So our</p> <p>4 CAD operators draft them. They draft them by insert- --</p> <p>5 in part by inserting the lithologic pieces from the logs</p> <p>6 from the GINT program. The GINT program that created</p> <p>7 those logs takes those and do what we call sticks.</p> <p>8 And -- and -- and then they take those and scale them</p> <p>9 and insert them into a cross-section -- a line of</p> <p>10 cross-section.</p> <p>11 Q. The CAD --</p> <p>12 A. Uh-huh.</p> <p>13 Q. -- operator or --</p> <p>14 A. Uh-huh.</p> <p>15 Q. Okay. And is that -- so that they come up</p> <p>16 with the -- and who is that in your office that you used</p> <p>17 for these cross-sections?</p> <p>18 A. Well, I see Steve Cundiff's initials, SRC. So</p> <p>19 he -- he would have been one of them.</p> <p>20 Q. Oh, I see. Okay. So down at the bottom here,</p> <p>21 I'm looking at -- are you looking at E3-2?</p> <p>22 A. Yeah.</p> <p>23 Q. Okay. And so this is geologic cross-section</p> <p>24 A-A prime, and then we have DSM.</p> <p>25 What does DSM mean?</p>	181	<p>1 should be in there relatively close to their exact</p> <p>2 elevations.</p> <p>3 Q. Okay. And do you go back and check and make</p> <p>4 sure that the elevations are correct and --</p> <p>5 A. I do and others do.</p> <p>6 Q. Okay. And so then what -- what happens next?</p> <p>7 A. So then I -- in -- in pencil I draw the</p> <p>8 correlation lines and -- and then -- then they draft the</p> <p>9 correlation lines and then we begin to put in all the</p> <p>10 other little pieces like the piezometer -- the screen</p> <p>11 intervals of the piezometers and the water level</p> <p>12 notations.</p> <p>13 Q. And what about those little circled areas</p> <p>14 within Stratum I? What are those?</p> <p>15 A. I think my text in the application indicates</p> <p>16 that those are thin inner beds of clay that are -- that</p> <p>17 are discontinuous. So someone might call that a lens.</p> <p>18 Q. Okay. And -- and again down at the bottom --</p> <p>19 okay. So you were looking at -- and where were you</p> <p>20 looking at your notes that -- that you said explain</p> <p>21 that? Was that something in the application or --</p> <p>22 A. I'm sorry. I'm not sure what you mean. I --</p> <p>23 I don't --</p> <p>24 Q. You said something like "my notes," I think,</p> <p>25 indicate that those are --</p>

182	<p>1 A. Oh, not my -- I didn't say "my notes." The</p> <p>2 application text indicates --</p> <p>3 Q. Okay. And so No. 3 again down here, we have</p> <p>4 bore holes drilled with mud rotary.</p> <p>5 Why is it -- why do you -- why would you</p> <p>6 put that on here as a note? I mean, why does it matter</p> <p>7 for the cross-section?</p> <p>8 A. Well, if you tie it back into the text --</p> <p>9 Q. Uh-huh.</p> <p>10 A. -- we talk about that -- that when you drill</p> <p>11 with mud rotary -- and by the way, when you install</p> <p>12 piezometers -- the water levels that you get in a bore</p> <p>13 hole don't really matter. We show them because they ask</p> <p>14 us to show them. The rules ask us to discuss it and</p> <p>15 show them. But using mud rotary indicates that at some</p> <p>16 point you started drilling mud rotary, and so you can't</p> <p>17 know where a water level is at that point because --</p> <p>18 because now you're mixing and introducing water to</p> <p>19 the -- to the bore hole.</p> <p>20 Q. Can you know reliably where the water level is</p> <p>21 if you've done what we talked about that Stefan said he</p> <p>22 did and you used the dry drilling process and you come</p> <p>23 across water before you introduce the mud?</p> <p>24 A. I think I've said that I'm -- I'm not</p> <p>25 comfortable relying on visual observations of where</p>	184	<p>1 Q. -- the -- how did you choose what</p> <p>2 cross-sections to do here? It looks like you were</p> <p>3 following sort of a grid pattern except for MM prime.</p> <p>4 What was the thinking behind that?</p> <p>5 A. If you'll -- if you'll note, the borings</p> <p>6 themselves were laid out in a -- in an alphanumeric grid</p> <p>7 pattern.</p> <p>8 Q. Uh-huh.</p> <p>9 A. And so -- so we -- in this case we ran a</p> <p>10 cross-section through every east/west and every</p> <p>11 north/south grid.</p> <p>12 Q. Okay. What -- and what was the thinking</p> <p>13 behind MM prime?</p> <p>14 A. MM prime was -- was -- I decided to put that</p> <p>15 there because it's strung in a down dip -- relative down</p> <p>16 dip direction.</p> <p>17 Q. And did you ever do a corresponding boring --</p> <p>18 or sorry, a corresponding cross-section that would kind</p> <p>19 of complete the X there and go across from the -- I</p> <p>20 mean, go across diagonally in the other direction from</p> <p>21 the MM prime?</p> <p>22 A. I didn't produce one. I probably laid out</p> <p>23 sections and looked at them, but I didn't produce one.</p> <p>24 Q. So that didn't provide any information that</p> <p>25 you thought would be worth including in the application?</p>
183	<p>1 water levels are in open bore hole.</p> <p>2 Q. And you're not comfortable for it -- with it</p> <p>3 for any purpose or for just engineering design purposes?</p> <p>4 A. Well, for engineering design or hydrogeologic</p> <p>5 interpretation.</p> <p>6 Q. Okay. Now, did anybody else have any input</p> <p>7 into the cross-sections, the -- the content or what</p> <p>8 appears on the cross-sections that are contained in</p> <p>9 Appendix E-3 of the application?</p> <p>10 A. I don't think so.</p> <p>11 Q. And again, those initial drawings that you did</p> <p>12 by hand, those were also discarded by you in accordance</p> <p>13 with your document retention policy?</p> <p>14 A. I'm sorry. Could you ask me that again?</p> <p>15 Q. Absolutely.</p> <p>16 Were the drawings that you just described</p> <p>17 that you did by hand after you received the initial</p> <p>18 document from your CAD person, were those also discarded</p> <p>19 by you in accordance with your document retention</p> <p>20 policy?</p> <p>21 A. Yes, ma'am.</p> <p>22 Q. Now, if we look at the -- back at Page E3 --</p> <p>23 or Figure E3-1 entitled "GEOLOGIC CROSS SECTION LOCATION</p> <p>24 MAP" --</p> <p>25 A. Uh-huh.</p>	185	<p>1 A. I didn't think so.</p> <p>2 Q. Okay. So -- and just for clarity purposes,</p> <p>3 let's just look back at AA prime. So we've got these</p> <p>4 Roman numeral I's indicating Stratum I, I presume.</p> <p>5 Is that right?</p> <p>6 A. Yes.</p> <p>7 Q. And -- and that is what you are characterizing</p> <p>8 as, for purposes of this application -- what are you</p> <p>9 characterizing that Stratum I as?</p> <p>10 A. Single hydrogeologic unit.</p> <p>11 Q. I'm -- I'm really kind of -- is that what</p> <p>12 you're -- you're characterizing as the uppermost</p> <p>13 aquifer?</p> <p>14 A. Yes.</p> <p>15 Q. Okay. And then Stratum II, you are</p> <p>16 characterizing as the -- as both a continuous clay layer</p> <p>17 and as a -- an aquiclude?</p> <p>18 A. Yes.</p> <p>19 Q. Okay.</p> <p>20 A. Or lower confining unit.</p> <p>21 Q. Okay. And you do recognize the distinction</p> <p>22 between those? I'm not wrong about that, right?</p> <p>23 A. I'm not sure what you said about those.</p> <p>24 Q. Okay. So you're -- my understanding is, is</p> <p>25 that you're saying that Stratum II is both continuous in</p>

186	<p>1 nature and also provides sort of as an aquiclude?</p> <p>2 A. Yes, I think it does. There's a large debate</p> <p>3 that goes on between hydrogeologists about whether there</p> <p>4 is any such a thing as an aquiclude.</p> <p>5 Q. Uh-huh.</p> <p>6 A. Some people like to use the term aquitard</p> <p>7 indicating that nothing is -- is perfectly</p> <p>8 impermeable --</p> <p>9 Q. Uh-huh.</p> <p>10 A. -- which may be true over a wide area, but I</p> <p>11 found that in short areas such as the size of the site,</p> <p>12 it's a -- it's a reasonable term. Certainly the term</p> <p>13 "lower confining unit" is a -- is a reasonable term.</p> <p>14 Q. Okay. So in other words, Stratum II you think</p> <p>15 is both continuous and serves as a lower confining unit?</p> <p>16 A. Yes.</p> <p>17 Q. Okay. And then we've got Stratum IIA, and</p> <p>18 what are you characterizing that as?</p> <p>19 A. That is a relatively discontinuous interbed of</p> <p>20 sand within the overall larger and thicker clay unit of</p> <p>21 Stratum II.</p> <p>22 Q. And what do you mean by "relatively</p> <p>23 discontinuous?"</p> <p>24 A. Well, for instance, in A-1 -- 8A prime there</p> <p>25 are two that I've correlated there. Those seem to me to</p>	188	<p>1 Q. And I think in the application you mentioned</p> <p>2 that it only shows up in five borings?</p> <p>3 A. I might have said that.</p> <p>4 Q. Okay. Let me look back. So if we look back</p> <p>5 at Exhibit 10 and --</p> <p>6 A. Exhibit 10.</p> <p>7 Q. -- Page E-30, I'm looking at the bottom of</p> <p>8 that page, where it says, "Interbeds of" -- very last</p> <p>9 paragraph, again Page E-30, "Interbeds of discontinuous</p> <p>10 sand occur primarily in a limited area of the north</p> <p>11 central area of the site."</p> <p>12 A. Uh-huh.</p> <p>13 Q. "One boring had 5 feet of this sand. The sand</p> <p>14 appears to correlate for only short distances and was</p> <p>15 identified in only 5 of the borings."</p> <p>16 Now, was it identified -- I mean, why do</p> <p>17 you think it was only identified in five borings?</p> <p>18 A. Apparently I counted that at one time.</p> <p>19 Q. Well, guess what I'm asking is, was it</p> <p>20 identified only in five borings because it wasn't there</p> <p>21 in any other borings or because you didn't drill deep</p> <p>22 enough to see whether it was there or did you consider</p> <p>23 that issue?</p> <p>24 A. Sure. I think that's a fair question. And --</p> <p>25 and -- and I think I tried to say that where -- where</p>
187	<p>1 be continuous over that period -- over that space.</p> <p>2 Q. Okay.</p> <p>3 A. But if you look at the rest of them,</p> <p>4 throughout the -- the course of it -- and that sand, by</p> <p>5 the way, was found more often than not than on the</p> <p>6 northern part of the site. But you see little bits and</p> <p>7 pieces of it that clearly don't correlate. For instance</p> <p>8 go to E to E prime.</p> <p>9 Q. Okay.</p> <p>10 A. E3-6.</p> <p>11 Q. I see where you're at.</p> <p>12 A. There is one small, relatively thin little</p> <p>13 lens there that doesn't appear to show up anywhere else</p> <p>14 in the borings that went that deep.</p> <p>15 Q. Okay.</p> <p>16 A. So --</p> <p>17 Q. I see. Okay.</p> <p>18 And then same thing on G-G prime?</p> <p>19 A. That's -- that -- those are ones that you</p> <p>20 directed me to look at earlier in the boring logs, for</p> <p>21 instance.</p> <p>22 Q. I see. I remember that. Okay.</p> <p>23 A. It becomes clear when you look at that section</p> <p>24 why you wouldn't correlate those two as a continuous</p> <p>25 zone.</p>	189	<p>1 the boring was deep enough. Some of the places the</p> <p>2 boring wasn't deep enough to have found that. But in</p> <p>3 other places we had -- such as on that cross-section G</p> <p>4 to G prime that we just looked at, you could see where</p> <p>5 you had a significant number of borings along a line of</p> <p>6 section, it didn't correlate. It was found only in thin</p> <p>7 beds and two disparate ends of that cross-section.</p> <p>8 So I -- I -- I certainly didn't mean to</p> <p>9 imply that it couldn't be in any of those other ones,</p> <p>10 but it wasn't found in -- in where we drilled.</p> <p>11 Q. That was really what I was getting at, because</p> <p>12 it looked like from this sentence you were saying it was</p> <p>13 only in five borings, not we didn't drill other ones</p> <p>14 deep enough, so we don't know whether it's there or not.</p> <p>15 A. Okay.</p> <p>16 Q. And I just wanted to clarify if that was what</p> <p>17 your thinking was. But that now makes sense to me.</p> <p>18 Now, is -- if we go back to our</p> <p>19 cross-sections, which is Exhibit 15, do we -- do you</p> <p>20 have a feeling -- and if -- I guess we can look at A-A</p> <p>21 prime again.</p> <p>22 Do you know whether Stratum IIA, where it</p> <p>23 occurs, is in hydraulic connection with Stratum I?</p> <p>24 A. My interpretation is that it's not. As</p> <p>25 described in the application, there are significant</p>

190	<p>1 thickness of clay that separates the -- the base of</p> <p>2 Stratum I with a significantly low hydraulic</p> <p>3 conductivity, and I'm satisfied with the borings that we</p> <p>4 drilled that would have encountered those things that we</p> <p>5 are hydraulically separated from those.</p> <p>6 Q. And if you wanted to test it to make sure, how</p> <p>7 would you go about doing that?</p> <p>8 A. Well, I think maybe the only way to prove it</p> <p>9 in a test other than an interpretation -- and I think</p> <p>10 this interpretation is a very reasonable interpretation,</p> <p>11 one that's been looked at and approved multiple times by</p> <p>12 the agency -- I think you could do a pumping test.</p> <p>13 Q. Any -- any other way?</p> <p>14 A. That's -- that's the only way I would suggest.</p> <p>15 Q. Have you ever done a pump test at MSW landfill</p> <p>16 proposed site?</p> <p>17 A. Yes.</p> <p>18 Q. And what kind of pump test was that?</p> <p>19 A. I participated -- I didn't actually do the</p> <p>20 test, but I participated in one where we did a pumping</p> <p>21 test in one zone and then in a deeper zone to see if it</p> <p>22 was connected.</p> <p>23 Q. And do you remember what site that was?</p> <p>24 A. It was Blue Ridge in Houston.</p> <p>25 Q. Blue Ridge.</p>	192	<p>1 opinion regarding what is beneath Stratum II?</p> <p>2 A. At some depth there will be another sand or --</p> <p>3 and there may be more clay before you get to that other</p> <p>4 sand. But...</p> <p>5 Q. And do you have any thought about whether that</p> <p>6 other sand might be connected to Stratum IIA?</p> <p>7 A. Yeah, I have a thought. But my guess is it's</p> <p>8 not. And I -- that is because it is relatively -- based</p> <p>9 on what work we've done, it's relatively discontinuous.</p> <p>10 It does not extend across the whole site. And</p> <p>11 everywhere we encountered it, we encountered it with a</p> <p>12 relatively significant thickness of clay beneath it.</p> <p>13 And I think that thickness of clay probably suggests</p> <p>14 that you're not hydraulically connected. But what --</p> <p>15 but I don't know. That's just what I -- that would be</p> <p>16 my suggestion.</p> <p>17 Q. Do you have any changes or corrections that</p> <p>18 you would anticipate making to the Appendix E-3</p> <p>19 information that is contained in Exhibit 15?</p> <p>20 A. I don't at this time.</p> <p>21 Q. Okay. So you haven't identified any errors</p> <p>22 that you would want to fix?</p> <p>23 A. I haven't at this time.</p> <p>24 Q. Okay.</p> <p>25 MS. JACOBS: Okay. Let's go with 16.</p>
191	<p>1 And you said you participated in it.</p> <p>2 Who -- who actually did the pump test?</p> <p>3 A. Fugro did the pumping test.</p> <p>4 Q. Fugro.</p> <p>5 And that's the fault consultant on this</p> <p>6 project?</p> <p>7 A. Yes.</p> <p>8 Q. Now, on these cross-sections in -- well, let</p> <p>9 me just finish that out.</p> <p>10 Is that the only time that you've</p> <p>11 participated in a pump test in one of these proposed</p> <p>12 landfill sites?</p> <p>13 A. I think so.</p> <p>14 Q. And how long was that? How long was the test?</p> <p>15 Was it like a 24-hour test or --</p> <p>16 A. I don't remember. Something like that. I</p> <p>17 don't remember.</p> <p>18 Q. Right.</p> <p>19 So on these cross-sections, if we're</p> <p>20 looking at Exhibit 15, is the bottom of Stratum II shown</p> <p>21 on any of these cross-sections?</p> <p>22 A. No. We never -- we never entirely -- as I</p> <p>23 said in the application, I think, we never entirely</p> <p>24 penetrated Stratum II.</p> <p>25 Q. So do you know what -- or do you have an</p>	193	<p>1 (Exhibit 16 marked)</p> <p>2 Q. (BY MS. JACOBS) I'm going to hand you a</p> <p>3 document that we are going to be marking Exhibit 16 and</p> <p>4 ask you if you recognize it.</p> <p>5 A. Yes.</p> <p>6 Q. And I'll represent to you -- I mean, this --</p> <p>7 this is again sections from the technically complete</p> <p>8 application. And in particular, we're looking at the</p> <p>9 potentiometric surface map -- or I should say maps, E-6</p> <p>10 through E-13. And then we're looking at the rest of E-6</p> <p>11 or a portion of E-6, I think, that is -- contains</p> <p>12 groundwater velocity calculations and I think slug test</p> <p>13 results.</p> <p>14 Is that -- am I correct in that, from what</p> <p>15 you can see?</p> <p>16 A. Yes.</p> <p>17 Q. So I want to look at Page E6-14, the one</p> <p>18 that's titled "GROUNDWATER VELOCITY CALCULATIONS."</p> <p>19 A. Okay.</p> <p>20 Q. And if I'm interpreting this correctly, you</p> <p>21 are -- so the purpose of this is to calculate -- first</p> <p>22 of all, just starting with a global question here, am I</p> <p>23 correct that the purpose of this calculation sheet here</p> <p>24 is to calculate the groundwater velocity in Stratum I?</p> <p>25 A. Yes.</p>

194	<p>1 Q. And you determined that you would calculate it</p> <p>2 looks like two -- in basically two different areas,</p> <p>3 "Stratum I - East and South Perimeter" and "Stratum I -</p> <p>4 Southwest Perimeter."</p> <p>5 Why did you make that decision?</p> <p>6 A. Because the gradients as indicated on the</p> <p>7 potentiometric surface map were different in those areas</p> <p>8 and that affects the velocity.</p> <p>9 Q. And what do you think causes that difference?</p> <p>10 A. I don't know.</p> <p>11 Q. Okay. I just asked because you -- you kind</p> <p>12 of -- seemed like you have a theory about, you know,</p> <p>13 when you were talking about the -- the recharge and the</p> <p>14 Vadose zone and, you know, where -- where the gradient</p> <p>15 was headed there horizontally, and I thought you might</p> <p>16 have a theory about this as well. But no?</p> <p>17 A. No.</p> <p>18 Q. Okay. So, now, you -- you did -- as we</p> <p>19 established earlier and as it's obvious from this</p> <p>20 exhibit, you did slug tests -- a series of slug tests on</p> <p>21 eight of the piezometers?</p> <p>22 A. Yep.</p> <p>23 Q. Why did you only use two different velocities,</p> <p>24 then, or -- or come up with two different velocities?</p> <p>25 Why not eight?</p>	196	<p>1 very good way of -- and I -- I don't think I'm the only</p> <p>2 one that feels this way. There is not a really very</p> <p>3 good way of determining effective porosity. So it</p> <p>4 always ends up being an estimate. So we've just -- we</p> <p>5 have just never -- it's not been our standard of</p> <p>6 practice to use for the purposes of estimated velocity</p> <p>7 calculations actually determined effective porosity</p> <p>8 numbers.</p> <p>9 Q. And so you got your porosity value from</p> <p>10 Pettijohn and Fetter?</p> <p>11 A. Pettijohn and Fetter and probably McWhorter</p> <p>12 and Sunada also. I don't see it listed there. But</p> <p>13 that -- that would have been one of the places that</p> <p>14 we've -- that we've gotten that.</p> <p>15 Q. Do you generally -- I mean, as a practice --</p> <p>16 here I am. You got me going, generally.</p> <p>17 Do you as a practice list all the sources</p> <p>18 from which you take information in the application?</p> <p>19 A. Yes, we generally do. This is -- this sheet</p> <p>20 that we refer to here is a calculation sheet that is</p> <p>21 standard.</p> <p>22 Q. Uh-huh.</p> <p>23 A. And so while I may have also looked at</p> <p>24 McWhorter and Sunaoa, I may have failed to put that in</p> <p>25 there. I -- I suspect it's in the -- the overall one,</p>
195	<p>1 A. Well, because the significantly different</p> <p>2 piece of this was the gradient. Gradient was</p> <p>3 significantly steeper on the southwest side than it is</p> <p>4 on the southeast side. So -- and of course the velocity</p> <p>5 calculation includes several different things.</p> <p>6 Hydraulic conductivity from a slug test is one of those.</p> <p>7 Q. Okay. Right.</p> <p>8 And -- and porosity is another one, right?</p> <p>9 A. Yes.</p> <p>10 Q. And so did you have actual porosity values</p> <p>11 that you obtained from testing samples?</p> <p>12 A. No.</p> <p>13 Q. Okay. So you did not do any porosity testing</p> <p>14 at all from the samples that you got from any of the</p> <p>15 borings?</p> <p>16 A. I did not.</p> <p>17 Q. You did not. Okay.</p> <p>18 And is that typical? You -- you don't do</p> <p>19 any porosity testing?</p> <p>20 A. It is typical.</p> <p>21 Q. Okay. And why is that?</p> <p>22 A. Well, because the porosity that you're</p> <p>23 determining is effective porosity.</p> <p>24 Q. Uh-huh.</p> <p>25 A. And it's my judgment that there's not really a</p>	197	<p>1 but I may have failed to put it on this sheet.</p> <p>2 Q. So -- and the overall one that you're talking</p> <p>3 about is -- that's the one that's in --</p> <p>4 A. It would --</p> <p>5 Q. -- Exhibit 10, which is our geology report?</p> <p>6 A. Yeah. Yeah.</p> <p>7 Q. Okay. And -- and so everything that you</p> <p>8 utilize or that you look at -- well, let me ask you.</p> <p>9 Is everything that you relied upon,</p> <p>10 whether or not you actually mention it in the text -- is</p> <p>11 everything that you relied upon listed in this reference</p> <p>12 list?</p> <p>13 A. I'm always interested in the term "relied</p> <p>14 upon." Everything that I might have looked at --</p> <p>15 Q. Uh-huh.</p> <p>16 A. -- or considered, not necessarily relied upon,</p> <p>17 but it's a fair reference to look at in the area, so</p> <p>18 I -- I can't say specifically that I relied on</p> <p>19 everything that's in here, but I looked at it,</p> <p>20 considered it.</p> <p>21 Q. Well, I guess what I'm asking -- and maybe I</p> <p>22 didn't -- I know I didn't ask it very well, but are</p> <p>23 there other studies, papers or sources that you looked</p> <p>24 at and considered, but did not list?</p> <p>25 A. There would not have been other things that I</p>

198	<p>1 looked at and considered in relation to this site.</p> <p>2 Q. Uh-huh.</p> <p>3 A. There may be other things that I didn't list</p> <p>4 that I look at as general references --</p> <p>5 Q. Uh-huh.</p> <p>6 A. -- that I look at all the time that -- that</p> <p>7 are --</p> <p>8 Q. Okay.</p> <p>9 A. -- that are in my practice and my</p> <p>10 consciousness. But I think this is a pretty fair</p> <p>11 representation of the things that were directly</p> <p>12 considered.</p> <p>13 Q. Okay. So later on if I'm asking you about</p> <p>14 something, you're not going to come back and say, Well,</p> <p>15 that's -- that's -- I based my opinion on X, and then</p> <p>16 I'm -- I should find whatever X is in that reference</p> <p>17 list, right?</p> <p>18 A. I hope that's true.</p> <p>19 Q. Okay. To the best of your knowledge?</p> <p>20 A. Yeah.</p> <p>21 Q. Okay. All right. So let's go back to</p> <p>22 Exhibit 16 again, our groundwater velocity calculations.</p> <p>23 And I want to ask you, do you have a good feel for -- I</p> <p>24 know -- I know Stefan did the actual slug tests in the</p> <p>25 field.</p>	200	<p>1 electronic information that he provided to you?</p> <p>2 A. I guess it would.</p> <p>3 Q. Okay. Now, he also testified that, for</p> <p>4 example, he would indicate the size of the slug that he</p> <p>5 dropped --</p> <p>6 A. Uh-huh.</p> <p>7 Q. -- things like that by doing drawings and</p> <p>8 notes that and that he sent those along with the</p> <p>9 electronic data to you.</p> <p>10 Is that what you recall?</p> <p>11 A. I do.</p> <p>12 Q. Okay. Did you -- just have to ask, did you</p> <p>13 retain any of those drawings or notes?</p> <p>14 A. I don't know. I don't remember.</p> <p>15 Q. Okay. If you retained them -- well, if you</p> <p>16 don't remember, you probably don't remember whether you</p> <p>17 produced those to us?</p> <p>18 A. If -- if I had them, they were produced.</p> <p>19 Q. Okay. Do you think that that would also be</p> <p>20 the kind of information that you routinely discard or</p> <p>21 does that come into a different category?</p> <p>22 A. At this point, the slug test graphs would be</p> <p>23 more important to me than those figures, those things</p> <p>24 where he was describing where -- what he did and where</p> <p>25 he set it, where the XO was and, you know, where the</p>
199	<p>1 A. Uh-huh.</p> <p>2 Q. Do you have a good feel for his methodology</p> <p>3 that he utilized in doing that? And really what I mean</p> <p>4 by that is the instrumentation he utilized.</p> <p>5 Is that something that you guys discussed?</p> <p>6 A. I have not discussed other than that I knew he</p> <p>7 was using his TROLL, which is the data recorder and the</p> <p>8 depth devices that he puts in the wells. So I know</p> <p>9 generally what he's doing. And Stefan originally taught</p> <p>10 me how to do slug tests, so I have a pretty good feel of</p> <p>11 what he knows about doing slug tests.</p> <p>12 Q. So do you know for these particular tests how</p> <p>13 fast the data was collected?</p> <p>14 A. Not off the top of my head, I don't.</p> <p>15 Q. Okay. Do you have any idea what the maximum</p> <p>16 rate of data collection is on the Troll -- particular</p> <p>17 Troll that he was using? And I -- I'm asking you these</p> <p>18 questions because he was not -- in my opinion, he was</p> <p>19 not very clear in his answers. And so I'm trying to get</p> <p>20 the information from you because you --</p> <p>21 A. And I --</p> <p>22 Q. -- clearly spent some time with this.</p> <p>23 A. Well, I did. I don't -- I don't think I have</p> <p>24 any remembrance of -- of those kinds of details on that.</p> <p>25 Q. Where would I find that? Would that be in the</p>	201	<p>1 height of the water was and those kinds of things.</p> <p>2 Q. So it sounds like you're relying upon him</p> <p>3 completely -- and by "him" I mean Stefan -- for making</p> <p>4 sure that the equipment that he's using is reliable and</p> <p>5 has been maintained, calibrated, that kind of thing, is</p> <p>6 that right?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. So let's kind of -- let's look at --</p> <p>9 let's go to Page E6-15. And -- which is just the</p> <p>10 first --</p> <p>11 A. Uh-huh.</p> <p>12 Q. -- the first page after the -- the calculation</p> <p>13 page. And is this -- is this page -- or are these --</p> <p>14 these -- I guess E6-15 through E6-46, are these graphs</p> <p>15 and -- and information -- is this what you created?</p> <p>16 A. Yeah. Our -- our program from AQTESOLV</p> <p>17 created these. We input the data from that and then I</p> <p>18 do the interpretation if the curve fit in that program</p> <p>19 and then this -- then it prints out.</p> <p>20 Q. And so when you -- when you say "we input the</p> <p>21 information," is that one of your admin people again?</p> <p>22 A. Yeah. She imports the information for me.</p> <p>23 She takes the information that comes from -- from the</p> <p>24 field.</p> <p>25 Q. Right. Okay.</p>

202	<p>1 And who is the "she" in this?</p> <p>2 A. That was also Gwen Archer.</p> <p>3 Q. Okay. So just kind of walk me through what</p> <p>4 we're looking at. In -- in this box at the bottom --</p> <p>5 well, first of all, what -- so the program, the AQTESOLV</p> <p>6 program that you have, that -- when she imports the</p> <p>7 information, what -- what does she hand you then?</p> <p>8 A. She imports the information and then we sit at</p> <p>9 the computer and I fit the curve.</p> <p>10 Q. Okay. And by "fit the curve" you mean draw</p> <p>11 the line through these dots --</p> <p>12 A. Yes.</p> <p>13 Q. -- and this thing up that says "Normalized</p> <p>14 Head" --</p> <p>15 A. Yes.</p> <p>16 Q. -- on the Y axis and "Time" on the X axis?</p> <p>17 A. Yes.</p> <p>18 Q. Okay. And so is this information in the --</p> <p>19 the -- at the bottom of the page in the box, is that</p> <p>20 something that the program supplies or spits out or --</p> <p>21 A. Well -- yes.</p> <p>22 Q. Okay.</p> <p>23 A. It does. And the number down here what the</p> <p>24 hydraulic conductivity is is calculated there at the</p> <p>25 bottom left, K equals.</p>	204	<p>1 top "FALLING HEAD - 3' SLUG."</p> <p>2 That's right?</p> <p>3 A. Yes, ma'am.</p> <p>4 Q. And what does that mean? What -- what does</p> <p>5 that indicate to you?</p> <p>6 A. We conducted four individual tests in each</p> <p>7 bore hole in each piezometer we did a slug test in. A</p> <p>8 typical way to do this is to put a slug or a -- a known</p> <p>9 volume displacement device like a slug, a metal tube or</p> <p>10 a PVC tube, into the -- down into the water column.</p> <p>11 When you do that, the water column raises and so you'll</p> <p>12 get a displacement.</p> <p>13 Q. Uh-huh. Okay.</p> <p>14 A. And then the water level will fall to -- when</p> <p>15 it begins to equilibrate. So you've artificially</p> <p>16 displaced it. It's now going to try to equilibrate to</p> <p>17 the -- to the aquifer at a -- at a certain rate. And</p> <p>18 that's called a falling head test. Once that</p> <p>19 equilibrates and gets back to where you started, then</p> <p>20 you pull the slug out and it drops the water level and</p> <p>21 it rises and that's known as a rising head test. We did</p> <p>22 a three-foot slug rising and falling and a five-foot</p> <p>23 slug rising and falling.</p> <p>24 Q. And did you -- were you the one that</p> <p>25 determined the size of the slugs and the number of tests</p>
203	<p>1 Q. And is that calculated -- any -- is any of</p> <p>2 that dependent on where you fit the line?</p> <p>3 A. Yeah.</p> <p>4 Q. Okay. So it -- so the program, after you fit</p> <p>5 the line -- fit the curve, as you were saying, with the</p> <p>6 data, then calculates the K?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. But then let's go through this -- this</p> <p>9 other information here in the box. So we've got -- and</p> <p>10 again, we're -- we're looking at -- well, first of all,</p> <p>11 as we look at "PROJECT INFORMATION," we've got "Company:</p> <p>12 BME."</p> <p>13 That's Biggs & Mathews, right?</p> <p>14 A. Yes.</p> <p>15 Q. You've got the client. We've got "Project."</p> <p>16 That's just a project number, I suppose?</p> <p>17 A. Yes.</p> <p>18 Q. Okay. We've got the location. "Test Well,"</p> <p>19 that would be the piezometer that you did this</p> <p>20 particular test -- or that Stefan did the particular</p> <p>21 test in, right?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. The test date, that seems</p> <p>24 understandable.</p> <p>25 Then we've got up here at the very tippy</p>	205	<p>1 on each piezometer?</p> <p>2 A. Yes.</p> <p>3 Q. And was there any particular basis for -- for</p> <p>4 those choices?</p> <p>5 A. It's unusual to do more than one set, but I</p> <p>6 was just curious if the two would make any difference.</p> <p>7 Q. And when you say "more than one set," what do</p> <p>8 you -- what do you --</p> <p>9 A. Using only one slug -- one size slug.</p> <p>10 Q. Oh. So it would be unusual to use two</p> <p>11 different sizes, you mean?</p> <p>12 A. Yeah.</p> <p>13 Q. I got you. Okay.</p> <p>14 A. And then once I had done it, I decided I was</p> <p>15 going to use the data because they seemed reasonable and</p> <p>16 consistent.</p> <p>17 Q. Okay. And reasonable and consistent with each</p> <p>18 other or reasonable and consistent with your knowledge</p> <p>19 of the site at this point?</p> <p>20 A. Yes.</p> <p>21 Q. So both?</p> <p>22 A. Yes, ma'am.</p> <p>23 Q. It's a twofer.</p> <p>24 Okay. So let's look at the next -- next</p> <p>25 area here in this table.</p>

206	<p>1 "Saturated Thickness," what does that</p> <p>2 represent?</p> <p>3 A. The saturated thickness is the saturated</p> <p>4 thickness of the aquifer that -- in which we have</p> <p>5 that -- that -- where that slug was done.</p> <p>6 Q. And so that would be the saturated thickness</p> <p>7 at PA-1 -- the PA-1 location in Stratum I?</p> <p>8 A. At the time of the test.</p> <p>9 Q. At the time of the test.</p> <p>10 Well, does it change?</p> <p>11 A. Well, it can.</p> <p>12 Q. Is that --</p> <p>13 A. Water levels go up and down.</p> <p>14 Q. Okay. The saturated thickness can change.</p> <p>15 Okay.</p> <p>16 And how much would you expect it to</p> <p>17 change? When you say "water levels go up and down," I'm</p> <p>18 trying to get like a --</p> <p>19 A. Well, if you depended on when you did the</p> <p>20 test, you might have -- I mean, you can look at the</p> <p>21 water levels that we have here. In some piezometers</p> <p>22 there was several feet of change over time. And when</p> <p>23 the water levels go way up or way down, you have a</p> <p>24 different saturated thickness --</p> <p>25 Q. You mean in the monthly water levels that you</p>	208	<p>1 A. "Anisotropy Ratio." I'm not even sure what</p> <p>2 that refers to. It was set automatically I see at one.</p> <p>3 So I don't know even for sure what that is.</p> <p>4 Q. Okay. So we don't have information about what</p> <p>5 "Kz" or "Kr" is, eh?</p> <p>6 A. Huh-uh.</p> <p>7 Q. Okay. Okay. How about under the "WELL DATA,"</p> <p>8 "Initial Displacement"? What does that refer to?</p> <p>9 A. I think that that refers to how much -- how</p> <p>10 much the water went up when we put the slug in.</p> <p>11 Q. Now, is that -- are you surprised that that</p> <p>12 number is different -- or greater than, I should say,</p> <p>13 than the slug length?</p> <p>14 A. I'm not sure.</p> <p>15 Q. Okay. You're not sure whether you're</p> <p>16 surprised by that or --</p> <p>17 A. Yeah. I haven't looked at this in a long</p> <p>18 time, so I'd have to back and look at it, look at the</p> <p>19 logs and the piezometers and -- to really -- to really</p> <p>20 comment.</p> <p>21 Q. So in general, to use your phrase, as a</p> <p>22 general rule, would -- you would anti- -- you would --</p> <p>23 so there -- okay. Let me ask you this.</p> <p>24 So there is no general rule about the</p> <p>25 amount of initial displacement that you would see versus</p>
207	<p>1 were taking --</p> <p>2 A. Yes, ma'am.</p> <p>3 Q. -- for the -- right. Okay.</p> <p>4 And so where in that saturated thickness</p> <p>5 is the piezometer screen located?</p> <p>6 A. You know, without looking at these and pulling</p> <p>7 them out and comparing, I can't answer that question.</p> <p>8 I'd have to go sit and -- with the log and look at these</p> <p>9 things and go back and forth.</p> <p>10 Q. But you could tell if you looked at the log?</p> <p>11 A. I think so.</p> <p>12 Q. Okay. But is it important to know that for</p> <p>13 purposes of this test?</p> <p>14 A. Well, it was -- it was part of the data that</p> <p>15 went into the analysis of the test.</p> <p>16 Q. The location of the screen within that</p> <p>17 saturated thickness?</p> <p>18 A. Yeah. Which probably wouldn't make a whole</p> <p>19 lot of difference in the analysis, but...</p> <p>20 Q. So it's part of the input data in that</p> <p>21 program, the AQTESOLV?</p> <p>22 A. Uh-huh.</p> <p>23 Q. Okay. And then what about this -- oh, I'm</p> <p>24 going to say this wrong -- Ani- -- "Anisotropy Ratio"?</p> <p>25 What is that? I'm still in the "AQUIFER DATA" section.</p>	209	<p>1 the size of the slug?</p> <p>2 A. Well, the diameter of the slug matters because</p> <p>3 the diameter of the slug could -- you could put a</p> <p>4 three-foot slug in and there may be less water than that</p> <p>5 to displace, so it could go up higher. I haven't drawn</p> <p>6 this out to -- to know that. I haven't thought about</p> <p>7 all of that. But...</p> <p>8 Q. I see. Okay.</p> <p>9 So then let's -- right below that, "Total</p> <p>10 Well Penetration Depth: 37.67 ft."</p> <p>11 And what does that mean?</p> <p>12 A. I'm not sure. I'm not sure what the</p> <p>13 difference between those two is off the top of my head.</p> <p>14 Q. Between what two? I'm sorry.</p> <p>15 A. Saturated thickness and well penetration</p> <p>16 depth.</p> <p>17 Q. Okay. "Casing Radius," what is that?</p> <p>18 A. I guess it's the -- the radius of the --</p> <p>19 of the casing, but I -- again, I'm not sure. I -- I</p> <p>20 haven't looked at this in some time and I...</p> <p>21 Q. Yeah. That's what I thought too, but then it</p> <p>22 says ".1 ft." That seems like a really small</p> <p>23 piezometer.</p> <p>24 A. Yeah. I see that it does.</p> <p>25 Q. Does that strike you as odd?</p>

210	<p>1 A. I don't know. I -- I'm not comfortable</p> <p>2 commenting because I haven't had a chance to sit down</p> <p>3 and study this.</p> <p>4 Q. Well, do you want to look at the log?</p> <p>5 A. It -- not in the time that you have here, I</p> <p>6 don't. I'd want to sit down and look at all of them.</p> <p>7 Q. Okay. Okay. So "Static Water Column Height,"</p> <p>8 what is that?</p> <p>9 A. I'm not sure.</p> <p>10 Q. Do you want to make an educated --</p> <p>11 A. No.</p> <p>12 Q. No? Okay.</p> <p>13 Okay. "Screen Length," we -- that's</p> <p>14 pretty -- that looks -- I mean, you know -- we know what</p> <p>15 that is, right?</p> <p>16 A. Yes.</p> <p>17 Q. Okay. Now we've got "Well Radius."</p> <p>18 What is that?</p> <p>19 A. Well, I see that this says, "Well Radius:</p> <p>20 3.125," which doesn't seem right to me.</p> <p>21 Q. Uh-huh.</p> <p>22 A. All the other ones have a .26 on them.</p> <p>23 Q. Okay.</p> <p>24 A. So -- which does seem approximately right.</p> <p>25 Q. Got you.</p>	212	<p>1 are not -- pump tests.</p> <p>2 Did you conduct any slug tests that are</p> <p>3 not reflected here? And by "you" I mean Stefan.</p> <p>4 A. I don't think so.</p> <p>5 Q. Okay. So you didn't receive any other data</p> <p>6 from him besides what's reflected here in the</p> <p>7 application?</p> <p>8 A. If I did, I don't remember. I don't remember</p> <p>9 what that would -- or can't think what that would be.</p> <p>10 Q. Okay. All right. And then right down here on</p> <p>11 the "SOLUTION" -- still on the solution thing, we've got</p> <p>12 something that kind of looks like YO to me, but I guess</p> <p>13 that's a y0.</p> <p>14 What is that?</p> <p>15 A. I'm not sure.</p> <p>16 Q. Okay. All right. So let's look back up to</p> <p>17 the graph.</p> <p>18 A. Okay.</p> <p>19 Q. And so walk me through -- and I'm still on</p> <p>20 E6-15. Walk me through what is your process for fitting</p> <p>21 this line --</p> <p>22 A. Well, as you conduct --</p> <p>23 Q. -- to the data points. I'm sorry.</p> <p>24 A. Okay. As you conduct a test, you pull</p> <p>25 something out or put something in and it -- and then</p>
211	<p>1 A. So I'm -- I'm not sure what that is.</p> <p>2 Q. Okay. Then we go down to "SOLUTION,</p> <p>3 Aquifer Model: Unconfined."</p> <p>4 And that's because we're working in an</p> <p>5 unconfined aquifer?</p> <p>6 A. Uh-huh.</p> <p>7 Q. Okay. "Solution Method," what does that mean,</p> <p>8 Bouwer-Rice?</p> <p>9 A. It's the Bouwer-Rice solution method, which is</p> <p>10 one of many methods that -- that are used. Bouwer-Rice</p> <p>11 or Hvorslev.</p> <p>12 Q. Did you pick that method?</p> <p>13 A. Yes.</p> <p>14 Q. And why did you pick it?</p> <p>15 A. It's -- it's an appropriate method for</p> <p>16 unconfined aquifers.</p> <p>17 Q. Okay. Is it the method that you usually use?</p> <p>18 A. Well, we've used both, but I -- I use</p> <p>19 Bouwer-Rice. Sometimes we do more than one.</p> <p>20 Q. But in this particular situation, you</p> <p>21 utilized -- and by "this particular situation" I mean</p> <p>22 for this application -- you just used the Bouwer-Rice</p> <p>23 method?</p> <p>24 A. Uh-huh.</p> <p>25 Q. Okay. And did you conduct any pump tests that</p>	213	<p>1 pretty instantly things start to -- and we start</p> <p>2 recording instantly and pretty instantly things start</p> <p>3 moving to equilibrate. And -- and what we attempt to do</p> <p>4 in -- in accordance like even with Bouwer & Rice,</p> <p>5 they -- they suggest that when you have certain high</p> <p>6 permeabilities, you ignore the very first part of this,</p> <p>7 because if you look at this, we're talking about</p> <p>8 displacements of, you know, a tenth -- between a tenth</p> <p>9 and a one-hundredth. And -- And so you're trying to fit</p> <p>10 a curve that seems like it's the most representative of</p> <p>11 the -- of the decline.</p> <p>12 Q. Okay.</p> <p>13 A. This one is a particularly hard one because</p> <p>14 there's a lot of scatter at the beginning and a lot of</p> <p>15 scatter at the end.</p> <p>16 Q. I see.</p> <p>17 Do you -- and when you said ignore this at</p> <p>18 the beginning, you meant the -- the data points that are</p> <p>19 close to the Y axis?</p> <p>20 A. Well, in this case they are, because if you</p> <p>21 look at them, they go up and down and up and down.</p> <p>22 Q. I see.</p> <p>23 A. So it hasn't started to -- you're not looking</p> <p>24 at --</p> <p>25 Q. So --</p>

<p style="text-align: right;">214</p> <p>1 A. -- an equilibration of the -- or the falling. 2 Q. So when you're looking sort of from left to 3 right on that diagram, left is representing when the 4 test begins and right -- the data points towards the -- 5 closer to the right are representing towards the end of 6 the -- 7 A. Yes. 8 Q. Okay. All right. So let's look at -- so 9 let's look at, I guess, the -- just -- well, let's look 10 at the next one, the rising head for that same well, 11 PA-1. And again -- now, here you were saying that you 12 generally ignore the first part of it, the first few 13 data points, but here it looks like you kind of drew 14 your line through that. 15 A. Yeah. I think if you look at those two, it's 16 obvious what the difference was. In the first one you 17 had a few data points that were bouncing up and down -- 18 Q. Uh-huh. 19 A. -- and were not in the same line as what looks 20 to be the -- the normal. 21 Q. Uh-huh. 22 A. And the next one there was no bouncing up and 23 down and they all seem to be part of the same curve. 24 Q. I see. 25 A. And -- and I selected where I selected on that</p>	<p style="text-align: right;">216</p> <p>1 fit a curve on this part of the curve where it's -- 2 where the lines are all connected together. 3 Q. Right. 4 A. But if you did, it would have been a much 5 flatter curve. And so I judge, well, I think now you've 6 gotten past the point of the equilibration, so our 7 falling head was represented in this timeframe. 8 Q. I see. 9 A. It's an interpretation. 10 Q. But the points -- the data points themselves, 11 that's not an interpretation, though? 12 A. No. Those are the recorded data points. 13 Q. From the machine? 14 A. Yes. 15 Q. Okay. And so you -- I take it you do not have 16 an opinion as to whether the recorded data points from 17 the machine on the five-foot slug test should 18 approximate or look close to the data points from the 19 three-foot slug test? And again, I'm talking about 20 falling head test. 21 A. Yeah. I guess I don't. I -- 22 Q. And that's fine. I just -- I'm asking. 23 Okay. So let's look over at PB-6 on 24 Page E6-19. 25 A. Okay.</p>
<p style="text-align: right;">215</p> <p>1 one because at some point where it begins to deflect, 2 it's starting to -- and this is a rising head test, and 3 whether it's rising head or falling head, at some point 4 you're getting closer and closer to equilibration, and 5 so the whole thing starts to slow down. 6 Q. I see. 7 A. And it -- and you're looking at less and less 8 head affecting the test. 9 Q. Okay. Okay. Let's look over just the next 10 page, same well. Now we've got the falling head test. 11 Now, this looks like it's the five-foot 12 slug, right? 13 A. Yes. 14 Q. Okay. So first -- my first question is, 15 should this falling head five-foot slug test look -- 16 should the data -- data scatter, should that look 17 similar to the falling head three-foot slug test? 18 A. I don't know. I notice in this one for 19 several seconds there is a lot of bounce. And I -- you 20 know, every one of these is an interpretation and you -- 21 you do your best to fit the curve. 22 Q. The line is the interpretation part, correct? 23 A. The line is the interpretation part. But for 24 instance, you could have fit a curve -- kind of hard for 25 her to record what I'm saying here. But you could have</p>	<p style="text-align: right;">217</p> <p>1 Q. How did you make that call on where to put the 2 line? 3 A. Well, as you can see on that test, you had a 4 couple of scattered points that were sort of flat at the 5 beginning and then it went from here to here and then 6 you had some data points here and then a deflection 7 happens where it appears to be relatively flat where the 8 test looks like it's over. 9 Q. Uh-huh. 10 A. You know, you've equilibrated. If you look at 11 the resultant hydraulic conductivity, it's one times ten 12 to the minus two roughly. And so those would -- and 13 when it's that high of a hydraulic conductivity, it 14 might happen very fast. And so I probably played with 15 that curve fit several times trying to decide if it was 16 a valid test or not a valid test and -- and then -- and 17 then looked at the rest of them and said, Okay. Well, 18 you know, for this -- for this particular one, I'm -- 19 I'm kind of to the point sometimes where I have a data 20 point like that I'm not really sure it's valid. I might 21 not throw it out because it might have been the highest 22 one I had. So I don't -- so I don't want to throw that 23 out because someone could say, Well, you just threw that 24 out because it was high. So I've included it, you know. 25 I don't -- I don't perceive that this is a wonderful</p>

<p style="text-align: right;">218</p> <p>1 test right here (indicating). 2 Q. Okay. Well, how do you know -- what do you 3 look at to determine whether a test is valid or not 4 or -- do you know what I mean? Like how do you look 5 and -- how do you know if it's a good test? 6 A. Well, first of all, slug testing is an inexact 7 determination. It just is. It doesn't displace very 8 much and it's an estimate. And so when I go into this, 9 I look at what the material is, what -- what is the 10 lithology and say, What's the hydraulic conductivity of 11 this material going to be? What would I expect it to 12 be? 13 Q. Uh-huh. 14 A. And in this case, these tests indicate that 15 the hydraulic conductivity is just about exactly what I 16 thought it was going to be on the average. 17 Q. And what do you mean "on the average"? 18 A. Well, we -- I averaged the hydraulic 19 conductivities. 20 Q. I see. 21 Are there any tests that you could do that 22 would be better than the slug test or would provide more 23 exact data? 24 A. Well, I mean, any time the -- any time that 25 you're trying to estimate hydraulic conductivity or</p>	<p style="text-align: right;">220</p> <p>1 I think most professionals in the field 2 recognize that when we do these kind of tests, it's an 3 estimate. It's probably plus or minus in order of 4 magnitude. It is -- it is just that. It's an estimate. 5 And if you read Bouwer and Rice's stuff, they'll tell 6 you that not only is it an estimate, but it's -- for 7 most hydrogeologic characterizations, it's well good 8 enough. So I don't by any stretch think that these are 9 the definitive numbers that you might get, but they 10 certainly are numbers that I would have anticipated 11 looking at the material that we had. 12 Q. Are they conservative numbers? Given what you 13 just said, would you characterize them as conservative? 14 And by "just said," I'm referring specifically to your 15 comment about order of magnitude difference. 16 A. Well, it -- the intended purpose goes into 17 whether it's conservative or not. I mean, you can't 18 just look at that in a vacuum and say, Well, if it's 19 plus or minus order of magnitude, how can that be 20 conservative? It might be conservative because an 21 estimate is what you need. That's the intended purpose 22 here. 23 Q. Well, and I think what I was really asking and 24 I didn't say it very well is, is it conservative with 25 respect to values you might get from, say, a pump test?</p>
<p style="text-align: right;">219</p> <p>1 other aquifer parameters, lengthy pump tests might be 2 the best way to do that. I think -- 3 Q. What do you mean -- I'm sorry. What do you 4 mean by "lengthy"? 5 A. Well, depends on what situation you're looking 6 at. I mean -- 7 Q. Well, I guess what I'm asking is what -- and 8 I'm sorry. I didn't ask this very well. 9 Do you consider -- you know, we mentioned 10 a 24-hour test before. Do you consider 24 hours lengthy 11 or -- what do you consider lengthy? That's what I'm 12 trying to get at. 13 A. Well, it depends. It depends on the 14 situation. It depends on whether you're in a confined 15 or an unconfined aquifer. It depends on whether your 16 pumping test is going to be fairly local or whether 17 you're going to make it a much wider spread, one where 18 you have -- if you, for instance, were to do a pumping 19 test in an unconfined zone and -- and want to test the 20 effect over a half a mile, you'd have to pump longer to 21 affect it. In an un- -- I mean, in a confined test, you 22 could do those distances because there you're dealing 23 with pressures, not volumes of water. So it just 24 depends. But either way, a pumping test is a good way 25 to do that.</p>	<p style="text-align: right;">221</p> <p>1 A. I'm -- I guess before I'd answer that, I'd see 2 the values from the pump test, but I -- I think the 3 purposes for what we use this for within the 4 regulations, I think -- and especially because we 5 conducted 32 tests over eight piezometers, I think that 6 has a conservative nature to it. That's more than what 7 most people would have done. 8 Q. And so from what you said, the values that you 9 got here, you expected -- did -- are you -- well, let me 10 ask you this. 11 So did you expect for the east and south 12 perimeter test that you conducted that you would get 13 around 168, in that neighborhood, feet per year and that 14 the southwest perimeter would be that much different 15 or -- or was that sort of unexpected? Because -- 16 because it looks like -- if I'm reading this right, if 17 we're looking back on Page E6-14, that we've got 168 18 versus 413. And that's kind of a big difference. 19 Do you think? 20 A. Yeah. But we were talking about hydraulic 21 conductivities and this is velocity. 22 Q. Right. And -- but you said that -- maybe -- 23 maybe I misunderstood you. 24 You were saying that these were hydraulic 25 conductivities that were similar to what you had</p>

222	<p>1 anticipated?</p> <p>2 A. Yes.</p> <p>3 Q. Okay. And so then that led to these velocity</p> <p>4 calculations, correct?</p> <p>5 A. It was one element of the velocity</p> <p>6 calculation.</p> <p>7 Q. One element of the velocity calculations.</p> <p>8 So then you didn't necessarily anticipate</p> <p>9 these particular velocities or in this neighborhood?</p> <p>10 A. I guess I wasn't trying to anticipate a</p> <p>11 velocity.</p> <p>12 Q. Got you. Okay.</p> <p>13 And with respect to -- when you were, you</p> <p>14 know, kind of noodling on the issue of is this a valid</p> <p>15 test, is it not a valid test, did you ever consider</p> <p>16 perhaps rerunning the tests?</p> <p>17 A. No, I didn't.</p> <p>18 Q. Any -- any reason why?</p> <p>19 A. Well, I had 32 tests to look at and I think</p> <p>20 that the results of those tests showed a relative</p> <p>21 consistency that matched what I thought was reasonable</p> <p>22 for the lithologies that we encountered.</p> <p>23 Q. Okay. I got to ask you about one more here.</p> <p>24 Let's look at Page E6-26 and this is Test Well PC-3.</p> <p>25 A. Uh-huh.</p>	224	<p>1 now, any corrections, changes that you would make?</p> <p>2 A. None that I know of at this time.</p> <p>3 MS. JACOBS: Okay. I need 17.</p> <p>4 (Exhibit 17 marked)</p> <p>5 Q. (BY MS. JACOBS) Okay. I'm going to hand you</p> <p>6 an exhibit that is marked 17. And for the record, this</p> <p>7 has PIN numbers 018825 through 018861.</p> <p>8 A. Okay.</p> <p>9 Q. And do you generally recognize these</p> <p>10 documents?</p> <p>11 A. Yes.</p> <p>12 Q. Okay. And are these some of the field logs</p> <p>13 that Stefan provided to you?</p> <p>14 A. Yes.</p> <p>15 Q. Okay. I want to look at in particular --</p> <p>16 let's go back and look at our Exhibit 5.</p> <p>17 A. Exhibit 5.</p> <p>18 Q. This is our site exploration data.</p> <p>19 A. Okay.</p> <p>20 Q. Let's look at the first log in this packet for</p> <p>21 A-5.</p> <p>22 A. Okay.</p> <p>23 Q. And then look at -- and this is -- I think it</p> <p>24 says this is BME-A-5 up at the top of that field log.</p> <p>25 Do you see that?</p>
223	<p>1 Q. How did you pick that line? That looks like</p> <p>2 it's going through two points to me, two data points,</p> <p>3 unless I could be -- I'm not very gifted sightwise, but</p> <p>4 that looks like that's going through two points.</p> <p>5 A. It's probably right. And it -- I probably</p> <p>6 picked it because -- and I don't remember for sure how I</p> <p>7 picked it, but I probably picked it because if I went</p> <p>8 straight from one line to the very next line, it was --</p> <p>9 those were just one data point. And I -- I -- I think</p> <p>10 that there's a curve deflection in there, so I was</p> <p>11 trying to -- trying to hit where a curve deflection</p> <p>12 might have been. And --</p> <p>13 Q. And --</p> <p>14 A. And you could have adjusted a little bit or a</p> <p>15 little bit not and it wouldn't have made a lot of</p> <p>16 difference in the value.</p> <p>17 Q. Okay.</p> <p>18 A. I -- I said it wasn't here. That would have</p> <p>19 been too flat of a curve. And whether I picked here or</p> <p>20 here wasn't going to make a lot of difference</p> <p>21 (indicating).</p> <p>22 Q. I see. Okay.</p> <p>23 Are there any changes that you know of --</p> <p>24 and I may have already asked you this -- but to this</p> <p>25 Appendix E -- I think it's E-6, that you know of right</p>	225	<p>1 A. Yes, ma'am.</p> <p>2 Q. And so we look want to look at BME-A-5 in our</p> <p>3 packet, which is -- I'm sorry, our packet Exhibit 5,</p> <p>4 which is Page E2-13.</p> <p>5 Are you with me? Yes?</p> <p>6 A. Yes, I am on the same pages.</p> <p>7 Q. Okay. Great. Okay. So here I think we've</p> <p>8 got -- I really had -- had just like one question. I</p> <p>9 mean, it -- it is -- actually, I have a couple</p> <p>10 questions.</p> <p>11 First preliminary question, this packet</p> <p>12 represents the sum total -- and by "this packet," I mean</p> <p>13 Exhibit 17 -- represents the sum total of the field logs</p> <p>14 that have been produced to us.</p> <p>15 A. Yes.</p> <p>16 Q. Have you since these were produced located any</p> <p>17 additional field logs?</p> <p>18 A. No, ma'am.</p> <p>19 Q. Okay.</p> <p>20 A. I produced these when I found them.</p> <p>21 Q. And how did you find them?</p> <p>22 A. They were -- first of all, they should have</p> <p>23 been destroyed.</p> <p>24 Q. Uh-huh.</p> <p>25 A. They had mistakenly been moved into another</p>

226	<p>1 folder and I was on another project and I was looking in 2 that project and -- and there were some things in there. 3 And I said, What is that? And I opened it up and it was 4 these (indicating). So I don't know how they got there. 5 But they were mistakenly moved there. It's unlikely 6 that I did that. It was probably when they were -- when 7 one of my admins was moving things doing -- going 8 through discovery. But once I found them, I called 9 Brent and produced them to him.</p> <p>10 Q. I appreciate that. 11 Okay. So the -- the thing that I wanted 12 to ask you about really comes at -- let's see if I have 13 anything else I wanted to ask you about. I think I 14 really wanted to ask you about the end of this log.</p> <p>15 A. Okay.</p> <p>16 Q. And if we look at the end of it on the BME, 17 the final log --</p> <p>18 A. Uh-huh.</p> <p>19 Q. -- it looks like we've got "clay, light brown, 20 hard, moist" starting at 67 feet below the surface and 21 going to 71.</p> <p>22 Is that what you see?</p> <p>23 A. I believe so.</p> <p>24 Q. Okay. And then if we go over to the end of 25 the field log, we've got same total depth, 71, same</p>	228	<p>1 A. Yes.</p> <p>2 Q. So why is that?</p> <p>3 A. Well, I don't know why it is, but what I know 4 is that when we got the samples -- well, two things I 5 know. I know that he stopped in a clay because we stop 6 in a clay always. I mean, that's -- that's the rule. 7 So I know that.</p> <p>8 And secondly, when we got the sample, this 9 sample was clay. So why he had written something there, 10 I can only surmise that it was a transcription error 11 when he went from -- from one -- the version of the log 12 that he had in the field that may have been wet and 13 muddy and then he -- and he created and cleaned it up 14 and sent this to me as his draft. But what I know is, 15 is that Gregg and I saw -- it was clay in S23, which 16 made sense to me because that's where we would have 17 stopped.</p> <p>18 Q. So you saw one, two, three -- four feet of 19 clay and Stefan saw or wrote down "gravel"?</p> <p>20 A. Yeah. Well, here's what we saw. We saw the 21 two feet or within the two-foot sample zone, it was 22 clay. I knew he bottomed in clay. So I assumed that 23 he -- that that next foot was clay. Then when we 24 drill -- I think this is the one. Let me -- let me 25 double-check, but I think this is the one where we</p>
227	<p>1 elevation, 170, but it ends with -- well, first of all, 2 we've got the description of sand up at the top of that 3 column, "Sand, tan, w/ gravel, hard, unc." -- which I 4 guess is unconsolidated?</p> <p>5 A. Uh-huh.</p> <p>6 Q. -- "poorly sorted subrounded," and we've got 7 little apostrophe signs, which I guess -- does that -- 8 that means same, right?</p> <p>9 A. Uh-huh.</p> <p>10 Q. Okay. Then go down --</p> <p>11 A. Yes.</p> <p>12 Q. -- we've got -- so we've got sand and then 13 we've got "w/ trace clay."</p> <p>14 So I would interpret that as sand with 15 trace clay, correct?</p> <p>16 A. Uh-huh. Yes.</p> <p>17 Q. Okay. And then we've got sand "w/ abundant 18 gravel, multicolored."</p> <p>19 A. Uh-huh.</p> <p>20 Q. Okay. So there is not a corresponding -- it 21 does not appear to me that there is a corresponding clay 22 layer on this field log or that there is not a clay 23 layer here that corresponds with the clay layer on the 24 final log for the BME.</p> <p>25 Would you agree with me?</p>	229	<p>1 drilled the piezometer.</p> <p>2 Q. Uh-huh.</p> <p>3 A. And when we drilled the piezometer, we 4 actually found that clay a foot higher. And that's an 5 example of what I was saying to you earlier was that we 6 then adjusted the top of that clay for what we found in 7 the piezometer.</p> <p>8 Q. Well, why would you do that if you didn't 9 actually find it in this particular boring?</p> <p>10 A. Well, we found this in the boring and there 11 was no sample right above it.</p> <p>12 Q. So you found the two cleat -- feet of clay in 13 the boring?</p> <p>14 A. S23 was a clay.</p> <p>15 Q. Okay.</p> <p>16 A. Con- -- contradicting what Stefan had written 17 down here.</p> <p>18 Q. I mean, isn't there -- okay.</p> <p>19 So is there -- did you happen to -- to run 20 any sort of analysis, lab test on that clay that you 21 found in that sample?</p> <p>22 A. I don't think we did.</p> <p>23 Q. So going back to -- this is part what is 24 confusing me about this. So if I go back over to 25 Exhibit 12, which is your table --</p>

230	<p>1 A. Uh-huh.</p> <p>2 Q. -- of piezometers, and I look at A-5 --</p> <p>3 A. Let me find that for a minute. I've lost 12.</p> <p>4 MR. RYAN: Here it is. (Tendered.)</p> <p>5 A. Okay.</p> <p>6 Q. (BY MS. JACOBS) So with A-5, now, you told me</p> <p>7 before that this description in the notes says what you</p> <p>8 found at the depth.</p> <p>9 A. Uh-huh.</p> <p>10 Q. And it says here, "Sand w/abundant gravel,"</p> <p>11 which appears to correspond with what Stefan noted in</p> <p>12 the field.</p> <p>13 A. Let me make something clear.</p> <p>14 Q. Okay.</p> <p>15 A. This "Sand w/abundant gravel" was not meant to</p> <p>16 say that that was at some depth. It was within the</p> <p>17 screen interval.</p> <p>18 Q. Okay.</p> <p>19 A. And -- and notice it says "Approximate Depth."</p> <p>20 And so since -- since we had this discrepancy --</p> <p>21 Q. Uh-huh.</p> <p>22 A. -- we said, Wait a minute. That was clay.</p> <p>23 And I know he stopped in clay. So I was just saying we</p> <p>24 need to pay special attention when we drill this</p> <p>25 piezometer to make sure that we're seeing what we think</p>	232	<p>1 Q. Were you surprised that he would make such a</p> <p>2 huge error? Because I distinctly remember him saying in</p> <p>3 his deposition that he can tell a sand from a clay. So</p> <p>4 I am positive that he thinks he can tell a gravel from a</p> <p>5 clay.</p> <p>6 A. A, this would only be a huge error if I didn't</p> <p>7 look at all the samples, then it might be a huge error.</p> <p>8 Q. So you looked at all the samples, although</p> <p>9 Mr. Adams is the one that did the logs?</p> <p>10 A. Yeah. We both looked at all the samples.</p> <p>11 Q. Mr. Adams says you popped in a couple of times</p> <p>12 a day. He -- you did not indicate to me that you --</p> <p>13 that --</p> <p>14 A. I don't know that Mr. Adams said or didn't</p> <p>15 say, but when Mr. Adams gets done with his log --</p> <p>16 Q. Uh-huh.</p> <p>17 A. -- I go look at all of the samples.</p> <p>18 Q. Oh, okay. He did not mention that.</p> <p>19 A. No -- well, he wasn't necessarily present when</p> <p>20 I was doing that. So...</p> <p>21 Q. Okay. So that -- you do that and he doesn't</p> <p>22 necessarily know that you've done that?</p> <p>23 A. Yeah. He might know that if you were to ask</p> <p>24 him. I don't know. The fact that he didn't mention it</p> <p>25 doesn't mean he didn't know.</p>
231	<p>1 we're seeing, what we saw in the sample, but differed</p> <p>2 from what he did.</p> <p>3 Q. And -- and you -- and he logged that</p> <p>4 piezometer on a field log?</p> <p>5 A. Yes.</p> <p>6 Q. Do I have that? Have you produced -- was that</p> <p>7 one of the field --</p> <p>8 A. We don't -- we don't have that.</p> <p>9 Q. Okay. Did you discuss this with him, this</p> <p>10 discrepancy?</p> <p>11 A. Yes.</p> <p>12 Q. And what did he say?</p> <p>13 A. I don't remember. I remember that we</p> <p>14 discussed it. I remember that when we drilled the</p> <p>15 piezometer, we made note to say, Wait a minute, need to</p> <p>16 make sure we're into clay here. I think we're into clay</p> <p>17 because we looked at the sample and it said clay, but</p> <p>18 you logged something different. So let's make sure when</p> <p>19 we drill the piezometer that we've got the clay. And in</p> <p>20 fact, he ends up finding the actual contact a foot</p> <p>21 higher.</p> <p>22 Q. 15 feet away or so?</p> <p>23 A. Uh-huh. Or less.</p> <p>24 Q. Okay.</p> <p>25 A. Whatever it is.</p>	233	<p>1 Q. No. I mean, I specifically asked.</p> <p>2 A. Oh.</p> <p>3 Q. So yeah.</p> <p>4 Okay. Now, if we look at -- if we look</p> <p>5 at -- if we look at C-5 and we look at F-4 --</p> <p>6 A. C-5. Okay.</p> <p>7 Q. And is that the same thing in this -- in</p> <p>8 this -- in this "Notes," is that the same thing this</p> <p>9 note indicates on -- on, say, just C-5?</p> <p>10 A. Let's look at -- let's look at the log on C-5.</p> <p>11 Q. Yeah. Let's do that.</p> <p>12 A. And let's look at the log on F-4. And I think</p> <p>13 what you're going to see is those were the two that you</p> <p>14 had pointed out to me earlier from that other map that</p> <p>15 we looked at --</p> <p>16 Q. Right.</p> <p>17 A. -- where we had only drilled a half a foot.</p> <p>18 Q. Right.</p> <p>19 A. So because we only had a half a foot in our</p> <p>20 sample log --</p> <p>21 Q. Uh-huh.</p> <p>22 A. -- I was make -- trying to make special</p> <p>23 attention on those three points. Make sure we find clay</p> <p>24 in these things to confirm what we said in our boring</p> <p>25 log.</p>

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1 Q. And so you were saying that -- but why would
2 you say that -- if you found half a foot of clay and you
3 found that it looks at the depth of 62.5 and yet you're
4 noting here that "Note: Drill to top of clay that may
5 be up to 5 feet below original boring depth of 62"? You
6 already found clay here, you're saying. You found a
7 half a foot.

8 **A. We found --**

9 Q. Why are you saying it's going to be up to five
10 feet below that?

11 **A. I was only saying that. You only have a half
12 a foot there.**

13 Q. Right.

14 **A. So if he's wrong and that's all we found was a
15 half a foot, we may need to drill another few feet to
16 filed a solid clay.**

17 Q. Now, did he drill another few feet on that
18 particular piezometer?

19 **A. I'm not really sure. I'd have to look.**

20 Q. Well, if he would have drilled another few
21 feet and he would have found more clay, would you then
22 have just taken that description and imported it onto
23 this log like you did with A-5?

24 **A. He may not have. Let me look at those -- at
25 those logs. Yeah, we didn't. So that's what he found.**

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1 Q. Okay. So he went to half a foot on the
2 piezometer and you did not think it was necessary to
3 maybe even just go another couple of feet just so you
4 have more than a half a foot there?

5 **A. I did not.**

6 Q. Okay. And so that's the same thing with F-4,
7 then?

8 **A. Yes.**

9 Q. Okay.

10 MS. JACOBS: 18.

11 THE WITNESS: Mack, can you get me some
12 water?

13 (Exhibit 18 marked)

14 Q. (BY MS. JACOBS) I'm going to hand you an
15 exhibit marked Exhibit 18. And this is a memo with
16 PIN numbers 025956 through 958. And it's a memo from
17 Ernest Kaufmann to Bill Hodges dated December 28th,
18 2010.

19 Do you -- have you reviewed this memo
20 previously?

21 **A. Not that I remember.**

22 Q. Okay. I'm just going to ask you a couple of
23 questions about this.

24 THE WITNESS: Thanks, man (indicating to
25 water).

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1 Q. (BY MS. JACOBS) On Page 2, No. 6, it said --
2 it says, "Soils Information - Six soil borings were
3 advanced to depths of 60-70 feet. These borings while
4 highly variable found limited amounts of clay with
5 greater amount of silt, sand and gravel. While it might
6 be preferable to have found more clay soil, there is
7 nothing about what was found that will limit the
8 development of this tract as a landfill. To mitigate
9 this lack of clay, alternative liner systems will be
10 utilized."

11 And so I realize that you have discarded
12 the alternative liner system plan now, is that right?

13 **A. I understand they have. I wasn't involved
14 with that.**

15 Q. Okay. Do you know what the current plan is to
16 mitigate the lack of clay that is reported by Mr. Hodges
17 to Mr. Kaufmann here?

18 **A. I wasn't involved in the evaluation of that,
19 but I would point out this. This memo was written based
20 on those preliminary six borings, not on all the borings
21 that were drilled.**

22 Q. Okay. But -- but -- and this is where my
23 confusion comes in. There's a statement here that seems
24 pretty bold. It says, "To mitigate this lack of clay,"
25 we're going to go with an alter- -- alternative liner

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1 system. And y'all got pretty far down the road with
2 that and spent a lot of time and money, I am assuming,
3 on developing an alternative liner system. And you're
4 telling me now that all of that activity was done in the
5 basis of these six borings?

6 **A. I think I'm the wrong person to ask about
7 that. I don't know anything about the alternate liner
8 or decisions made about why they did or didn't do it.**

9 Q. Okay. So you haven't done any studies
10 yourself regarding the amount of clay that is on site
11 and might be available for construction of the landfill?

12 **A. I have not.**

13 Q. Okay. Now, Paragraph 4, if you look up just
14 right above that, says, second -- second line, "No
15 WJW" -- which looks like means wetlands/jurisdictional
16 waters, if you look right above that in the title --
17 "were present except for 6-7 isolated livestock tanks
18 (ponds), a few small dry streams and one or two ponds
19 with connections to streams."

20 My question to you is, do you have any
21 information about the one or two ponds with connections
22 to streams?

23 **A. I don't.**

24 Q. Okay. Do you -- have you done any work at
25 this site to characterize the connection or lack of

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238	<p>1 connection between the groundwater and surface water</p> <p>2 that's present at the site? And by "surface water" I</p> <p>3 mean the streams that are referenced here in this</p> <p>4 paragraph?</p> <p>5 A. I've not done anything specific towards that</p> <p>6 end.</p> <p>7 Q. What have you done not specifically?</p> <p>8 A. Well, we've characterized the occurrence of</p> <p>9 the groundwater and you could probably make some</p> <p>10 assumptions about the connectedness between unconfined</p> <p>11 groundwater and shallow streams somewhere.</p> <p>12 Q. Well, but not just somewhere. We're talking</p> <p>13 about on this site or on this property.</p> <p>14 A. And that's why I say I haven't done any work</p> <p>15 on that.</p> <p>16 Q. Okay. What -- what assumptions would you make</p> <p>17 about the groundwater and the streams on this property?</p> <p>18 A. I -- you know, I'm not sure I'm ready to make</p> <p>19 any assumptions about that.</p> <p>20 Q. Okay. So it's an issue that you have not</p> <p>21 thought about?</p> <p>22 A. That's probably fair.</p> <p>23 Q. Okay. And so it's something that you have not</p> <p>24 considered in any of the other work that you have done</p> <p>25 in the application, correct?</p>	240	<p>1 Q. -- about how you approach things?</p> <p>2 A. Yes.</p> <p>3 Q. You also said that you use geologic</p> <p>4 interpretations to, quote, design the groundwater</p> <p>5 monitoring system, end quote.</p> <p>6 Is that, in fact, what you do?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. And let's go back -- let's go over to</p> <p>9 the -- actually, I will --</p> <p>10 MS. JACOBS: Got it (indicating).</p> <p>11 Q. (BY MS. JACOBS) In Mr. Hodges' deposition</p> <p>12 he was asked by Mr. Woodward about a contract with</p> <p>13 Geo Syntech.</p> <p>14 Are you familiar with any of Geo Syntech's</p> <p>15 work on this project? Or let me ask you this, were</p> <p>16 you -- are you familiar that -- that Geo Syntech was at</p> <p>17 once hired to work on this project?</p> <p>18 A. I think that I remember that Gregg Adams might</p> <p>19 have worked with Geo Syntech on something that he was</p> <p>20 working on.</p> <p>21 Q. And do you know what that something was?</p> <p>22 A. I -- I don't. I don't remember.</p> <p>23 Q. Okay. Let's take a five-minute break while I</p> <p>24 collect my thoughts.</p> <p>25 THE VIDEOGRAPHER: We're going off the</p>
239	<p>1 A. I think that's correct.</p> <p>2 Q. Okay. I want to go back to our very first</p> <p>3 exhibit, which I'm really hoping is at the bottom of</p> <p>4 this pile. And I apologize for the sniffing. And I</p> <p>5 believe I am looking at -- I am not sure what I'm</p> <p>6 looking at at this point. Well, I'm going to read you a</p> <p>7 quote, which I am unable to locate in this particular</p> <p>8 exhibit, but which I will represent to you that I</p> <p>9 obtained from your prefiled testimony. I am not asking</p> <p>10 you to authenticate this quote that was in your</p> <p>11 testimony. What I'm going to ask you is whether you</p> <p>12 agree with what I am representing to you was your</p> <p>13 previous testimony.</p> <p>14 Does that make sense?</p> <p>15 A. Yes.</p> <p>16 Q. Okay. You were in this particular testimony</p> <p>17 explaining sort of your methodology about how you</p> <p>18 approach being the lead project geoscientist on that</p> <p>19 particular project, whatever it was. And you said,</p> <p>20 "Typically I start by collecting regional geologic and</p> <p>21 hydrogeologic information for context and for inclusion</p> <p>22 in the application."</p> <p>23 Does that sound right to you? Would you</p> <p>24 agree with that statement --</p> <p>25 A. Uh-huh.</p>	241	<p>1 record at 3:59. This ends video segment No. 4.</p> <p>2 (Recess from 3:59 p.m. to 4:09 p.m.)</p> <p>3 THE VIDEOGRAPHER: We're back on the</p> <p>4 record at 4:09. This is beginning of Video File No. 5.</p> <p>5 MS. JACOBS: And I'm going to pass the</p> <p>6 witness and thank you so much.</p> <p>7 THE WITNESS: You're welcome.</p> <p>8 EXAMINATION</p> <p>9 BY MR. WOODWARD:</p> <p>10 Q. Mr. Snyder, I'm Mike Woodward. I'm an</p> <p>11 attorney with Hance Scarborough. I represent the</p> <p>12 Citizens Against the Landfill in Hempstead.</p> <p>13 A. Okay.</p> <p>14 Q. And I'm going to take over and ask a few</p> <p>15 questions here. And I'm going to hand you what has been</p> <p>16 marked as Exhibit 19.</p> <p>17 (Exhibit 19 marked)</p> <p>18 Q. (BY MR. WOODWARD) We were provided these</p> <p>19 documents in discovery and they were in a folder titled</p> <p>20 "Geo Syntech." So I was thinking maybe we'd just start</p> <p>21 there and thought these documents might help you</p> <p>22 remember what they might have been hired to do. I</p> <p>23 noticed that you had a drawing here and it's on the</p> <p>24 first page.</p> <p>25 Do you recognize this drawing?</p>

242	<p>1 A. Yes. It was an early version of geologic</p> <p>2 cross-section.</p> <p>3 Q. And it's got your seal on it, correct?</p> <p>4 A. Yes. Well, it has my stamp on it. It has not</p> <p>5 been signed.</p> <p>6 Q. Okay. But your stamp indicates that you were</p> <p>7 responsible for the preparation of this drawing?</p> <p>8 A. I'd feel better about saying that if I signed</p> <p>9 it, but I -- I'm willing to say that I generated this --</p> <p>10 this figure.</p> <p>11 Q. Okay. And you said it was early because --</p> <p>12 what on this drawing indicates that it was early in the</p> <p>13 process?</p> <p>14 A. Yeah. It was when the excavation depth was</p> <p>15 deeper.</p> <p>16 Q. That's more in line with what the boring plan</p> <p>17 also said, wasn't it, that the estimated deepest</p> <p>18 excavation was going to be 175 feet, I believe?</p> <p>19 A. The first part of your question that is in</p> <p>20 line with our boring -- original boring plan, I don't</p> <p>21 remember numbers. I don't remember what I -- what we</p> <p>22 said about the numbers.</p> <p>23 Q. Okay. Let's see. The boring plan was in one</p> <p>24 of these exhibits, wasn't it?</p> <p>25 A. Yes. It is in Exhibit 5.</p>	244	<p>1 engaged?</p> <p>2 A. Well, all I can say from this information is</p> <p>3 that in Gregg's memo it says, "I need to model the 3</p> <p>4 phases of development shown on the sketch during each</p> <p>5 phase... I need to know what pumping rate is required to</p> <p>6 maintain groundwater elevation at the underdrain</p> <p>7 elevations and what the radius of influence is."</p> <p>8 Q. And you have no memory of them doing any of</p> <p>9 this work?</p> <p>10 A. Well, I would not have been involved in it</p> <p>11 after this, after the initial contact. So I don't know</p> <p>12 whether they did or didn't. And I -- and this would</p> <p>13 have been kind of thing Gregg would be using to design</p> <p>14 his excavation and dewatering systems and things like</p> <p>15 that.</p> <p>16 Q. Do you know what the approximate date would</p> <p>17 have been for -- or when was the date this drawing was</p> <p>18 prepared?</p> <p>19 A. I can't say for sure from what I see here.</p> <p>20 Q. But the indication of it being August of 2011</p> <p>21 in the right-hand corner -- that would be --</p> <p>22 A. Typically when you see that date, that means</p> <p>23 the date that the drawing was first established meaning</p> <p>24 that might have been the date that he laid cross --</p> <p>25 the -- the boring logs into the cross-section, not</p>
243	<p>1 Q. That would be E2-124?</p> <p>2 A. Yeah.</p> <p>3 Q. That said 175, but it was 175 feet meaning sea</p> <p>4 level?</p> <p>5 A. Yes, sir.</p> <p>6 Q. And if we look at your drawing, that's about</p> <p>7 where we have the estimated deepest excavation?</p> <p>8 A. Yeah. It looks to me like on this line of</p> <p>9 section that that may still be above 180, but that --</p> <p>10 that 175 could well have been in the excavation design</p> <p>11 on some other part of the site, so...</p> <p>12 Q. So do you think you provided this</p> <p>13 cross-section drawing to Geo Syntech?</p> <p>14 A. Well, I don't know if I provided or if Gregg</p> <p>15 provided it. It apparently was provided.</p> <p>16 Q. We look on the third page there on the</p> <p>17 "PROPOSAL INITIATION FORM."</p> <p>18 Does it list you as the client contact?</p> <p>19 A. It does, but only because I've worked with</p> <p>20 them before and I know the individuals involved and I've</p> <p>21 worked with Gian Yong Juan and Jim Stout at Geo Syntech.</p> <p>22 I -- I had little to do with this particular thing other</p> <p>23 than I signed the proposal. So -- and I may have made</p> <p>24 the first call to them. I don't know.</p> <p>25 Q. So does this help you remember why they were</p>	245	<p>1 necessarily the date that we were finished with it.</p> <p>2 Q. But the design of the landfill changed from</p> <p>3 when this drawing was prepared to when the application</p> <p>4 was filed in January of 2012, correct?</p> <p>5 A. Yes, it was.</p> <p>6 Q. Do you know why?</p> <p>7 A. I do not.</p> <p>8 Q. Do you think it had to be because of the</p> <p>9 dewatering calculations that Geo Syntech did?</p> <p>10 A. I don't have any idea why they decided to</p> <p>11 change the -- to not -- to -- to do away -- raise the</p> <p>12 bottom and go away with the alternate liner design. I</p> <p>13 just don't know.</p> <p>14 Q. But if we look at this drawing, we see that</p> <p>15 the water level indicated is pretty much up in the</p> <p>16 excavation, correct?</p> <p>17 A. Yes.</p> <p>18 Q. And so at some point the decision was made to</p> <p>19 raise the bottom of the landfill above the water table</p> <p>20 as indicated?</p> <p>21 A. Yes, sir.</p> <p>22 Q. Okay. Do you believe that you've established</p> <p>23 in the application the top of the water table?</p> <p>24 A. I do.</p> <p>25 Q. Do you believe there's a chance water table</p>

246	<p>1 being any higher?</p> <p>2 A. No.</p> <p>3 Q. And why is that?</p> <p>4 A. I think from the things I mentioned earlier</p> <p>5 today that I think that the groundwater is moving</p> <p>6 rapidly enough and has a significant enough aquitard,</p> <p>7 aquiclude lower confining unit beneath it, that -- that</p> <p>8 the chance of there being vertical gradients here is --</p> <p>9 is very low.</p> <p>10 Q. Have there been any water level measurements</p> <p>11 made besides those that are in the application?</p> <p>12 A. None that I'm -- well, yes. I'm sorry. There</p> <p>13 have been water levels measured since the ones that are</p> <p>14 in the application, and all of that information was</p> <p>15 produced to you guys. There was five months of water</p> <p>16 level readings taken after what's in the application.</p> <p>17 Q. So you don't have any belief that the amount</p> <p>18 of rainfall would have any impact on the -- how high the</p> <p>19 water table would be beneath this facility?</p> <p>20 A. Well, there were -- there was significant</p> <p>21 rainfall that happened during the -- some period of time</p> <p>22 during our characterization that raised the water</p> <p>23 levels. And then they went back down again over months.</p> <p>24 And so I -- my assumption would be that whenever there's</p> <p>25 significant rainfalls, that it was -- something similar</p>	248	<p>1 to us in discovery.</p> <p>2 And is this a current version of your</p> <p>3 resume?</p> <p>4 A. I -- I don't know that I've updated it since</p> <p>5 then.</p> <p>6 Q. I'm just wondering, there's not much</p> <p>7 information here about your previous work experience.</p> <p>8 So I'd like to kind of go over that with you just a</p> <p>9 little bit.</p> <p>10 How long have you been with</p> <p>11 Biggs & Mathews?</p> <p>12 A. Since 1999.</p> <p>13 Q. Where did you work before that?</p> <p>14 A. I worked for about seven years or so for</p> <p>15 MCON and their predecessor Baker-Shiflett.</p> <p>16 Q. So from about 1992 to 1999?</p> <p>17 A. Yes.</p> <p>18 Q. What did you do for them?</p> <p>19 A. Pretty much the same thing that I'm doing now.</p> <p>20 I worked on solid waste permitting projects in various</p> <p>21 functions as project manager, hydrogeologist of record,</p> <p>22 et cetera.</p> <p>23 Q. Were you working with Mr. Stamoulis at that</p> <p>24 time? Would he -- did you rely on him to do the field</p> <p>25 work for you?</p>
247	<p>1 would happen.</p> <p>2 Q. What do you consider a significant rainfall?</p> <p>3 A. I didn't have a number in mind when I said</p> <p>4 that. I mean, I -- I don't even remember what the</p> <p>5 significant rainfalls were that happened, but there were</p> <p>6 some pretty heavy rains and we were measuring water</p> <p>7 levels and they went up during that time.</p> <p>8 Q. Do you agree that 2011 was a significantly dry</p> <p>9 year?</p> <p>10 A. 2011 was dry in many places, but we had some</p> <p>11 rainfalls here that were -- that were fairly high.</p> <p>12 Q. Rainfalls in here? What do you mean "here"?</p> <p>13 A. At the site.</p> <p>14 Q. Do you recall when and amounts?</p> <p>15 A. I -- i don't, but you can look at the water</p> <p>16 levels and the water level tables we have in there and</p> <p>17 you can see where the water levels went up pretty</p> <p>18 significant amount.</p> <p>19 Q. That was in 2012, wasn't it?</p> <p>20 A. I'd have to look at -- it might have been.</p> <p>21 I'd have to look at the application at those tables,</p> <p>22 but...</p> <p>23 Q. Okay.</p> <p>24 (Exhibit 20 marked)</p> <p>25 Q. (BY MR. WOODWARD) Exhibit No. 20 was provided</p>	249	<p>1 A. He worked for me for a brief time when I went</p> <p>2 to work for them. He had -- he was working for them</p> <p>3 before I did. He was working there when I got there.</p> <p>4 Then he went through a family situation and moved back</p> <p>5 to his hometown of Galveston and started his company</p> <p>6 about that -- sometime during nine- -- late 1992.</p> <p>7 Q. Where did you work before you were with</p> <p>8 Baker-Shiflett?</p> <p>9 A. I worked in the solid waste program at the</p> <p>10 health department and then later at the water</p> <p>11 commission.</p> <p>12 Q. How long were you there?</p> <p>13 A. About two years.</p> <p>14 Q. Where -- where did you work before you went to</p> <p>15 work for the State of Texas?</p> <p>16 A. I worked for an oil company in Abilene called</p> <p>17 Davis Brothers for about five years.</p> <p>18 Q. What did you do for the Davis Brothers?</p> <p>19 A. I was an oil exploration and production</p> <p>20 geologist in their -- their district geologist. I</p> <p>21 managed their geologic group.</p> <p>22 Q. So let's see. I have you with the State of</p> <p>23 Texas from 1990 to 1992?</p> <p>24 A. Yes, sir.</p> <p>25 Q. So you were in the oil patch from 1985 to</p>

250	252
<p>1 1990?</p> <p>2 A. Actually from 1975.</p> <p>3 Q. Where did you work before you worked for the</p> <p>4 Davis Brothers?</p> <p>5 A. Well, I worked for Valero in Midland and I</p> <p>6 don't remember which years. Before that, I worked for</p> <p>7 myself. I was an independent for a couple of years with</p> <p>8 a partner.</p> <p>9 Q. In Midland?</p> <p>10 A. Yes. And before that, I worked for</p> <p>11 Hrubetz Oil Company. Before that, I worked for</p> <p>12 Mallard Exploration in Midland, and before that, I</p> <p>13 worked for Marathon Oil Company.</p> <p>14 Q. That was all in Midland?</p> <p>15 A. Yes, sir.</p> <p>16 Q. Is that where you went to work when you got</p> <p>17 out of school in --</p> <p>18 A. Yes. I --</p> <p>19 Q. -- '75?</p> <p>20 A. Well, I actually -- from '75 to '77, I</p> <p>21 actually worked for Lone Star Producing Company while I</p> <p>22 was in graduate school in Arlington. And then when I</p> <p>23 got out of graduate school, I was offered a job by</p> <p>24 Marathon Oil Company in Midland and moved to Midland at</p> <p>25 that time.</p>	<p>1 ref- -- with that in reference to regulations in terms</p> <p>2 of how they're enforced.</p> <p>3 Q. But how does somebody in a regulated community</p> <p>4 then determine what is required and what isn't?</p> <p>5 A. At this stage of the game, I think it would be</p> <p>6 best to ask them. I mean, I can answer what I thought</p> <p>7 at the time, which was 25 years ago, which is there --</p> <p>8 within any set of regulations there are some things that</p> <p>9 end up not making sense in the context of things that</p> <p>10 you're doing. And so interpretations are made by</p> <p>11 regulators every day in that regard.</p> <p>12 Q. Okay.</p> <p>13 (Exhibit 21 marked)</p> <p>14 A. Okay.</p> <p>15 Q. (BY MR. WOODWARD) This has been marked as</p> <p>16 Exhibit 21. This was also provided to us in discovery.</p> <p>17 And really what I'd like you to do, if you can, for me</p> <p>18 is -- this was in a folder from Midwest Geosciences.</p> <p>19 And it -- we can just flip through it. It's got what's</p> <p>20 called "Data Acquisition Sheets."</p> <p>21 Who would have prepared these?</p> <p>22 A. These were prepared by Stefan in the field.</p> <p>23 And I -- and I produced this to you. It was in a folder</p> <p>24 that I had marked Midwest Geosciences.</p> <p>25 Q. Okay. Good. Well, I --</p>
251	253
<p>1 Q. So really your work in the solid waste</p> <p>2 business started in 1990?</p> <p>3 A. Yes, sir.</p> <p>4 Q. With the Department of Health?</p> <p>5 A. Yes, sir.</p> <p>6 Q. What did you do for the Department of Health</p> <p>7 in the solid waste program?</p> <p>8 A. I was a permit reviewer, geologist on a team</p> <p>9 usually with an engineer reviewing permits. I -- I</p> <p>10 appeared in public hearings, attended public hearings.</p> <p>11 Q. So when you were a permit reviewer for the</p> <p>12 State of Texas, did you consider the regulations to be</p> <p>13 suggestions?</p> <p>14 A. I think it would be unfair to characterize the</p> <p>15 entire set of regulations in that. I think there's</p> <p>16 interpretations that go into any regulation. And so,</p> <p>17 no, I wouldn't have considered things to be suggestions,</p> <p>18 but I also know that there are times when the agency</p> <p>19 looks at something that's a rule and says, Well, that</p> <p>20 doesn't make sense, so we're -- we're not going to -- I</p> <p>21 don't know if they'd say they're not going to pay</p> <p>22 attention to it, but...</p> <p>23 Q. But you would agree with me that "shall" means</p> <p>24 mandatory?</p> <p>25 A. Well, I probably wouldn't agree with you in a</p>	<p>1 A. I believe we produced these to you.</p> <p>2 Q. Good. So then you should be able to tell me</p> <p>3 what it is, then.</p> <p>4 A. In general, this packet is a packet that --</p> <p>5 where I asked Dan Keliher of Midwest Geosciences to take</p> <p>6 the same data that I had done and to perform slug test</p> <p>7 analysis independent from me and to see what his -- to</p> <p>8 see if his -- as a backup to my -- to my work to see</p> <p>9 what his analysis said compared to my own.</p> <p>10 Q. So when we flip back to the -- and there's</p> <p>11 some e-mails here between some names that you mentioned</p> <p>12 earlier, Beth Floyd, Gwen Archer and -- and you just</p> <p>13 mentioned Dan Keliher.</p> <p>14 A. Uh-huh.</p> <p>15 Q. Looked like they were transmitting some kind</p> <p>16 of information back and forth to each other. And then</p> <p>17 back here there's some slug tests that look similar to</p> <p>18 what are in the application.</p> <p>19 Were these -- who prepared these?</p> <p>20 A. Dan Keliher.</p> <p>21 Q. So these were slug tests that were prepared by</p> <p>22 Dan Keliher?</p> <p>23 A. These are the analyses that were --</p> <p>24 Q. The analyses that he did?</p> <p>25 A. Yeah.</p>

254	<p>1 Q. Okay.</p> <p>2 A. It was the analysis of the exact same data</p> <p>3 that I performed.</p> <p>4 Q. Okay. Who would input the -- the data? Would</p> <p>5 that be inputted by Dan --</p> <p>6 A. Uh-huh.</p> <p>7 Q. -- or --</p> <p>8 A. Yes.</p> <p>9 Q. One of the things that I noticed that he -- in</p> <p>10 the e-mails he had asked for boring logs. If we flip</p> <p>11 back to -- I don't have any way to identify it by page</p> <p>12 number. Well, yes, I do. 24967.</p> <p>13 A. Yes, I'm there.</p> <p>14 Q. And he says, "Do you have boring logs (sic)</p> <p>15 for each of these well locations? It usually proves</p> <p>16 important to have those too."</p> <p>17 Do you know if the borings logs were</p> <p>18 provided to him?</p> <p>19 A. I can't say with any certainty. I assume they</p> <p>20 were, but I don't know that.</p> <p>21 Q. So would he be responsible for inputting the</p> <p>22 well data for his interpretations or would that have</p> <p>23 been put in by Biggs & Mathews?</p> <p>24 A. Oh, no. None of those data sheets have</p> <p>25 anything to do with us, I don't think. I think this was</p>	256	<p>1 in which unit the site is proposed to be located,</p> <p>2 correct?</p> <p>3 A. Yes.</p> <p>4 Q. And that would be correlating with the</p> <p>5 Willis Sand, the stratigraphic unit.</p> <p>6 So the Evangeline Aquifer is beneath the</p> <p>7 site, is that correct?</p> <p>8 A. Yes.</p> <p>9 Q. Do you have any idea how deep that interface</p> <p>10 with the Evangeline Aquifer is beneath the site?</p> <p>11 A. You know, off the top of my head, I don't.</p> <p>12 Q. Did you do any investigation at the site to</p> <p>13 determine that?</p> <p>14 A. No. But there are two pieces of information</p> <p>15 that might tell us that. I just don't remember what</p> <p>16 they told me, which is No.1, the regional cross-section</p> <p>17 would give us some idea about how deep the Evangeline</p> <p>18 was. And the second one is when you look at water wells</p> <p>19 in the area, you can -- you can get some sense of</p> <p>20 shallower wells and deeper wells where the Evangeline</p> <p>21 might be. And I just off the top of my head don't</p> <p>22 remember what those -- what those told.</p> <p>23 Q. Do you agree that the Chicot and the</p> <p>24 Evangeline Aquifer are interconnected?</p> <p>25 A. I agree that in the broad range of the</p>
255	<p>1 all produced by him in his analysis, and then he sent us</p> <p>2 these sheets.</p> <p>3 Q. Okay. Let's go to Exhibit 10.</p> <p>4 A. Okay.</p> <p>5 Q. Now, I believe you testified earlier that</p> <p>6 you're considering Stratum I that was identified in the</p> <p>7 cross-sections as the uppermost aquifer?</p> <p>8 A. Yes, sir.</p> <p>9 Q. Now, that uppermost aquifer is -- is part of a</p> <p>10 large -- larger aquifer system, right?</p> <p>11 A. Yes.</p> <p>12 Q. Called the Chicot Aquifer?</p> <p>13 A. Yes.</p> <p>14 Q. And within the Chicot aquifer the</p> <p>15 stratigraphic unit is the Willis Sand that this site is</p> <p>16 proposed to be constructed on?</p> <p>17 A. I believe that's correct.</p> <p>18 Q. Is that correct?</p> <p>19 Let's flip over to Table E-1, which is on</p> <p>20 Page E-3.</p> <p>21 A. Okay.</p> <p>22 Q. And you show -- I think this -- you've got</p> <p>23 this table from various sources, but you -- it looks</p> <p>24 like to me you've -- you've written in there the site.</p> <p>25 And that's -- that's to indicate where in the -- this --</p>	257	<p>1 Gulf Coast aquifer over a wide area they are connected</p> <p>2 in a term that they call -- that the -- that the experts</p> <p>3 have called a leaky aquifer. Sometimes that connection</p> <p>4 is things leaking upwards and sometimes it's things</p> <p>5 leaking downwards.</p> <p>6 Q. Do you know what that connection would be like</p> <p>7 beneath the proposed landfill site?</p> <p>8 A. I believe there is none.</p> <p>9 Q. You believe there is no interconnection?</p> <p>10 A. Huh-uh.</p> <p>11 Q. And why do you say that?</p> <p>12 A. Well, as I -- as I stated earlier today, I</p> <p>13 believe that there is a significant thickness of a</p> <p>14 significantly impermeable clay or low permeability clay</p> <p>15 that separates our upper unit, our Stratum I, from</p> <p>16 anything beneath it, so that within the boundaries of</p> <p>17 our site, which is the regulatory standard, we're -- we</p> <p>18 are not connected to anything deeper.</p> <p>19 Q. So you're -- you're -- you're saying</p> <p>20 Stratum I. But what about the Chicot Aquifer? You</p> <p>21 believe there is no interface between the Chicot Aquifer</p> <p>22 and the Evangeline beneath the site?</p> <p>23 A. I don't know.</p> <p>24 Q. So you don't -- you don't know whether it's</p> <p>25 leaky upwards or leaky downwards beneath the site?</p>

258	<p>1 A. I don't -- I don't believe there is any</p> <p>2 connection between our Stratum I and any sand beneath</p> <p>3 our site, whatever --</p> <p>4 Q. Let's set --</p> <p>5 A. -- whatever unit you want to call it.</p> <p>6 Q. Well, let's set aside Stratum I. I'm -- I</p> <p>7 want to think more from a regional perspective in</p> <p>8 thinking about the Chicot Aquifer. You said there's</p> <p>9 a -- there's a sand.</p> <p>10 Do you believe there's a sand beneath</p> <p>11 Stratum II?</p> <p>12 A. Yeah, I -- yes, sir, I would think so.</p> <p>13 Q. You -- you believe there is?</p> <p>14 A. Yes.</p> <p>15 Q. We don't know because you didn't sample</p> <p>16 beneath Stratum II, right?</p> <p>17 A. That's correct.</p> <p>18 Q. But do you think that the sand beneath</p> <p>19 Stratum II is the Chicot or the Evangeline?</p> <p>20 A. I don't know.</p> <p>21 Q. It could be either?</p> <p>22 A. I would guess it's some more Chicot, if I had</p> <p>23 to guess. I mean, given the regional work in the area</p> <p>24 that suggests how thick it is in the area, I would guess</p> <p>25 there is more Chicot, possibly more Willis Sand even</p>	260	<p>1 that's true. We didn't do any other -- other than what</p> <p>2 we've represented here, we didn't do any other drilling.</p> <p>3 Q. Okay. So there was no assessment or drilling</p> <p>4 on the east side of the property on the other side of</p> <p>5 the creek?</p> <p>6 A. There was not. To my knowledge, there was</p> <p>7 not.</p> <p>8 Q. Biggs & Mathews didn't do any?</p> <p>9 A. No.</p> <p>10 Q. No analysis of availability of clay from that</p> <p>11 side of the property?</p> <p>12 A. No drilling anyway.</p> <p>13 Q. Was there some other analysis you're aware of?</p> <p>14 A. Well, I mean, I know that they've considered</p> <p>15 taking clays from over there. I don't know that</p> <p>16 they've -- I mean, as far as I know, there was never any</p> <p>17 investigation, either test pits or drilling.</p> <p>18 Q. So we -- we don't know if there are any</p> <p>19 significant clay lenses on that side of the property?</p> <p>20 A. I would say that we don't know what's on the</p> <p>21 other side of the property.</p> <p>22 Q. Okay. Back in Exhibit 21 -- and I've lost</p> <p>23 it -- there's a -- no, that's the wrong one. I'm sorry.</p> <p>24 I want to go back to Exhibit 10, the geology report.</p> <p>25 THE WITNESS: Thank you.</p>
259	<p>1 below us.</p> <p>2 Q. And the Chicot could be recharging the</p> <p>3 Evangeline beneath the site?</p> <p>4 A. Possible, but I don't think it's recharging</p> <p>5 the Evangeline from -- from the Stratum I on our site.</p> <p>6 I think it's isolated -- hydraulically isolated.</p> <p>7 Q. Stratum I? I -- you've --</p> <p>8 A. Yes, sir.</p> <p>9 Q. Okay. Did y'all do any assessment, analysis,</p> <p>10 drilling to look for Stratum II outside of the footprint</p> <p>11 of the landfill?</p> <p>12 A. No. We didn't do any drilling outside the --</p> <p>13 the permit boundary -- our proposed permit boundary.</p> <p>14 Q. Really you didn't do any drilling outside of</p> <p>15 the footprint of the landfill, did you?</p> <p>16 A. Well, I'd have to look at a map to see that.</p> <p>17 I'm not sure.</p> <p>18 Q. Well, which one would best show that? Is that</p> <p>19 the Exhibit 5?</p> <p>20 A. Well, I'm -- I'm looking at Exhibit 5 and I'm</p> <p>21 looking at E2-2, which is the third page into Exhibit 5.</p> <p>22 Q. Right.</p> <p>23 A. And the whole line of south borings is</p> <p>24 somewhat outside the footprint, but -- and then, of</p> <p>25 course, some of the EB borings were drilled. But -- but</p>	261	<p>1 A. Okay.</p> <p>2 Q. (BY MR. WOODWARD) There's a term that's</p> <p>3 used in 3.1.1 and it's in quotation marks. And it's</p> <p>4 called "These aquifers are regionally connected in a</p> <p>5 'leaky artesian aquifer' condition."</p> <p>6 What does that mean?</p> <p>7 A. Beyond what I said earlier, few minutes ago</p> <p>8 about what that means, it means that certain parts of</p> <p>9 aquifers in a regional sense have some connectivity.</p> <p>10 Not everywhere. But they have some connectivity such</p> <p>11 that when you look at it regionally, these two things</p> <p>12 may be acting like a whole big, thick, regional aquifer.</p> <p>13 Q. You -- you cite a couple of sources in the</p> <p>14 sentences before these quotation marks.</p> <p>15 What -- what was your source for this</p> <p>16 term?</p> <p>17 A. I'd have to look. I don't remember. It's --</p> <p>18 I'm sure it's in more than one source.</p> <p>19 Q. And when you put it in quotation marks, does</p> <p>20 that mean you pulled it from a source?</p> <p>21 A. I don't remember why it was in quotation</p> <p>22 marks. It may have been in quotation marks because it</p> <p>23 was in quotation marks in the source. I just don't</p> <p>24 remember.</p> <p>25 Q. You said you had experience in the Gulf Coast</p>

<p style="text-align: right;">262</p> <p>1 aquifer.</p> <p>2 Could you describe that experience for me?</p> <p>3 A. Both during my time at the state where I</p> <p>4 worked on several projects that were being permitted in</p> <p>5 the Gulf Coast and since I've been doing this work, I</p> <p>6 participated in numerous permit applications, both</p> <p>7 greenfield sites and expansions of existing sites in the</p> <p>8 Gulf Coast.</p> <p>9 Q. What are some other greenfield sites you've</p> <p>10 permitted in the Gulf Coast?</p> <p>11 A. I participated in the La Gloria site, which</p> <p>12 was down in the Gulf Coast aquifer in Hidalgo County. I</p> <p>13 participated in the -- what was then called Delta Waste,</p> <p>14 what is now called Lone Star Waste Type IV site in</p> <p>15 Houston. I think that --</p> <p>16 Did you restrict your question to</p> <p>17 greenfield sites? I --</p> <p>18 Q. I did.</p> <p>19 A. Okay. It's those two in the Gulf Coast, I</p> <p>20 think.</p> <p>21 Q. Were you the lead geoscientist on those two?</p> <p>22 A. Yes, sir.</p> <p>23 Q. In looking at Exhibit 10, on the third page of</p> <p>24 the -- of the exhibit, there -- I think it's the first</p> <p>25 page the geology report, there are two seals on that</p>	<p style="text-align: right;">264</p> <p>1 appendix in this report.</p> <p>2 Q. Are they being sealed by you?</p> <p>3 A. Yes.</p> <p>4 Q. But Mr. Adams prepared them?</p> <p>5 A. Mr. Adams prepared the final version of them.</p> <p>6 They were a collaboration from both of us. Either one</p> <p>7 of us could have signed and sealed them. He did -- he</p> <p>8 did what he did on those logs under my direction.</p> <p>9 Q. Okay. But it's your -- your license is on the</p> <p>10 line for those logs?</p> <p>11 A. Yes, sir.</p> <p>12 Q. When we were looking at the log on A-5 -- and</p> <p>13 I guess we should just go to Exhibit 5.</p> <p>14 A. Okay.</p> <p>15 Q. You said that you knew that he finished it in</p> <p>16 clay, but you weren't there that day, were you?</p> <p>17 A. I was not.</p> <p>18 Q. So you're saying you know he finished it in</p> <p>19 clay because that's y'all's rule (indicating)?</p> <p>20 A. And because he then drilled a piezometer,</p> <p>21 which confirmed the clay was there.</p> <p>22 Q. Was that the same with C-5 and F-4?</p> <p>23 A. Yes.</p> <p>24 Q. What's a Slickenside?</p> <p>25 A. Slickenside?</p>
<p style="text-align: right;">263</p> <p>1 report, one from Mr. Adams and one from -- from you.</p> <p>2 What -- tell me what that represents.</p> <p>3 What does that mean, two seals?</p> <p>4 A. Well, Gregg sealed and -- and restricted his</p> <p>5 seal to the -- to the sections that he called out there,</p> <p>6 which -- without looking, I'd say those are some</p> <p>7 geotechnical sections that he took responsibility for.</p> <p>8 Q. Okay.</p> <p>9 A. The rest of the report was from my</p> <p>10 responsibility.</p> <p>11 Q. And so when we turn the page and it gives a</p> <p>12 list of table, we have the -- the contents -- table of</p> <p>13 contents. Again, the two seals, it -- it's pretty much</p> <p>14 you're responsible for everything but Sections 5.1 to</p> <p>15 5.2?</p> <p>16 A. Yes. And I'm not responsible for the</p> <p>17 laboratory tests in Appendix E=5 which Gregg doesn't</p> <p>18 seal because those are test results from an outside</p> <p>19 party.</p> <p>20 Q. Okay. The -- I noticed the boring logs</p> <p>21 weren't sealed that are in the application.</p> <p>22 Is there --</p> <p>23 A. Boring logs -- boring logs are sealed as part</p> <p>24 of the application. They're not individually sealed,</p> <p>25 but they're sealed as part of the -- part of this</p>	<p style="text-align: right;">265</p> <p>1 Q. Uh-huh.</p> <p>2 A. Slickenside is a -- a secondary feature that</p> <p>3 sometimes forms in a clay based on repeated shrink/swell</p> <p>4 of that -- of that material.</p> <p>5 Q. I've had it told to me that it's a fairly</p> <p>6 common feature in the clays in the Gulf Coast.</p> <p>7 A. It's not unusual.</p> <p>8 Q. I've heard it's unusual to not find any.</p> <p>9 A. I don't think that's true. I -- we find a lot</p> <p>10 of places where there was no Slickensides depending on</p> <p>11 how deep you were and where you found your clay.</p> <p>12 Q. Where would be some other places you haven't</p> <p>13 found them?</p> <p>14 A. I'd have to go back to my records and look at</p> <p>15 those. But there have been -- there have been many</p> <p>16 times where we haven't found Slickensides in clay.</p> <p>17 Q. There were none reported at this site, right?</p> <p>18 A. I can't tell you whether there was or there</p> <p>19 wasn't.</p> <p>20 Q. How much time have you spent in the field</p> <p>21 logging samples for shallow exploration?</p> <p>22 A. By that you mean other than oil and gas type</p> <p>23 thing?</p> <p>24 Q. Yes.</p> <p>25 A. When I first went to work for Baker-Shiflett,</p>

<p style="text-align: right;">266</p> <p>1 I spent a good bit of time doing that on several 2 projects that were lengthy, long-term projects where I 3 was out there day after day logging materials. Since 4 then, I've logged a lot of materials, not in the field, 5 but in the office when we get the samples back. 6 Q. So when you were in the field logging the 7 samples, would you note moisture content? 8 A. The -- we -- we would -- in sometimes note 9 moist, note dry, something like that. 10 Q. Would you also attempt to use the Unified Soil 11 Classification System to describe your samples in the 12 field? 13 A. Some people will do that in the field. I'm 14 reluctant to use it in the field because I really think 15 the Unified Soil Classification System happens best when 16 you've applied the -- the laboratory testing that gives 17 some of those criteria. So I -- I don't like doing it 18 just by eyesight. 19 Q. Why does the TCEQ in the regulations recommend 20 the use of a hollow stem auger when drilling these 21 borings? 22 A. You know, that is a remnant, I think, of some 23 older regulations where when they first started doing 24 environ- -- environmental work, it was a -- it was a 25 vestige of doing it in the hazardous waste business</p>	<p style="text-align: right;">268</p> <p>1 Q. I'm having an ongoing debate with some people 2 and maybe you can help me clear it up. 3 Can you tell me what the difference 4 between a seep and a spring is? 5 A. I'm sorry. I didn't mean to laugh. It's not 6 funny. 7 Q. That's all right. 8 A. I laughed because there is a lot of discussion 9 about what a seep and spring is and whether seeps that 10 occur intermittently after rainfalls are actually 11 springs, which some people call them. So to me a 12 spring -- a real spring is a spring that has water under 13 pressure that's coming to the surface in a -- in a -- in 14 an area where you can see that. 15 Q. And what would a seep be? 16 A. Well, a seep, for instance, I drive along some 17 of these roads in Austin and many other places around 18 the state after you've had a heavy rainfall and where 19 there's a road cut like out on Capital of Texas Highway 20 and you drive along there for two or three days after it 21 rains and there you will see water seeping out of a 22 contact between two geologic formations. I consider 23 those to be seeps. They are a process of infiltration 24 of rainwater, not a -- not a spring situation. 25 Q. So I think I heard you testify earlier you --</p>
<p style="text-align: right;">267</p> <p>1 where they commonly used hollow stem augers and used 2 those to sample. Hollow stem augers work some places. 3 They don't work in other places and they don't work 4 necessarily very deep, or at least there aren't very 5 many rigs that are powerful enough to -- to drill with 6 them everywhere. So we've -- we've -- we use hollow 7 stem augers sometimes, but more often than not we use 8 wet rotary, and then the sampling method that we can, 9 coring if we can or split spoons and Shelby tubes. 10 I don't think there is a reason that 11 that's still in the rules where they recommend it. 12 It's -- it's a vestige. It's -- frankly, I don't know 13 that many of the people that work at the agency know the 14 difference between a hollow stem auger and a -- and a 15 dry auger or wet rotary, so... 16 Q. I think that's a situation where I might agree 17 with you that that's a suggestion since it does say 18 "recommended." 19 Are you aware of any reported earthquakes 20 in the Hempstead area? 21 A. I'm -- as I sit here today, I'm not. I'm not 22 sure that I -- I hear about earthquakes every day in a 23 lot of places. So I'm not sure that I have heard one in 24 the Hempstead area. But I don't know that I haven't 25 either, so...</p>	<p style="text-align: right;">269</p> <p>1 you had nothing to do with the alternate liner design or 2 analysis or modeling? 3 A. Yeah. I wouldn't have been involved in that. 4 Q. So you weren't involved in the multi med? 5 A. Huh-uh. 6 Q. Do you recall what, if any, issue was being 7 raised by EPA in September of 2012? 8 A. I had some conversations with Eric Adidas at 9 EPA Region 6 in Dallas who called me because some people 10 had raised issues down in the Hempstead area. And he 11 and I worked together at the agency, and he knows me 12 well. And he said, Are you working on that? And I said 13 yes. And so he asked me lots of questions about the 14 site, how it was being designed, what it was, et cetera. 15 I don't remember specifically, but it wouldn't surprise 16 me if he asked me to send a hundred pieces of it or send 17 him a link to things on the Internet for it, but I -- I 18 may have done that. He -- he asked me those kinds of 19 things a lot. And -- and so we asked about that, I 20 know, and communicated to some of the folks in -- in 21 HHNT and subsequently, I guess, Green Group that -- that 22 there was some initial observations or -- I don't want 23 to say it was charges, but things about environmental 24 justice issues. And -- and so I knew that they were -- 25 that that's why he was looking into it or at least</p>

<p style="text-align: right;">270</p> <p>1 that's what he led me to believe, that he was looking 2 into it on behalf of some of his bosses.</p> <p>3 Q. Do you have anything to do with the analysis 4 of social justice or environmental injustice issues?</p> <p>5 A. No, sir.</p> <p>6 Q. Were you in any way involved in hiring the 7 firm COX McLain to do an analysis?</p> <p>8 A. I've never heard of that company.</p> <p>9 Q. Okay. There were some water quality analysis 10 done also. I believe I saw a transmittal of data from 11 some water quality analysis done.</p> <p>12 What was the purpose of that?</p> <p>13 A. My client in discussions thought it would be a 14 good idea to take water quality tests both as some 15 background for the site. And also, we -- we -- we 16 included it in the permit application, if I recall 17 correctly. There's a part of the application where you 18 detail the water quality of the site usually for 19 monitoring wells in a monitoring system that -- on an 20 active site. Since we don't have that here, we included 21 what we had as specific groundwater chemistry for the 22 site. I -- I think we did. I --</p> <p>23 Q. Do you know from what well the water was 24 obtained?</p> <p>25 A. Not off the top of my head. Huh-uh.</p>	<p style="text-align: right;">272</p> <p>1 A. You know, I -- I forget the depth. I'm going 2 to suggest they were probably drilled -- would have been 3 drilled to 2- or 300 feet, something similar to what the 4 existing well is and similar to other -- other wells -- 5 producing wells in the area. I don't even know what 6 stratum it would be in.</p> <p>7 Q. You don't know if that would be a Chicot or an 8 Evangeline?</p> <p>9 A. I mean, I -- I'm still guessing it would be 10 Chicot, but I don't know that for a fact.</p> <p>11 Q. So make sure that I'm clear, the boring logs 12 that are in the application are based upon the field 13 logs, but they're modified based upon the work that 14 Biggs & Mathews has done back in the -- in the office or 15 in the laboratory?</p> <p>16 A. Yes.</p> <p>17 Q. So the Unified Soil Classification symbols 18 that are in the -- in the logs, those come from 19 Biggs & Mathews?</p> <p>20 A. I think they do. I haven't looked at Stefan's 21 to know. I don't think Stefan assigns Unified Soil 22 Classification System, but I know that Gregg does.</p> <p>23 Q. Now, that Gregg would have done that work?</p> <p>24 A. Yes.</p> <p>25 Q. Not you?</p>
<p style="text-align: right;">271</p> <p>1 Q. So you don't know if it's from Stratum I or if 2 it's from the well that's there to serve the ranch house 3 or --</p> <p>4 A. No. It was from the piezometer. It was from 5 one of our piezometers.</p> <p>6 Q. Okay. There was also an application made to 7 the Bluebonnet Groundwater Conservation District to I 8 think drill some new wells?</p> <p>9 A. Yes.</p> <p>10 Q. What was the purpose of -- of that?</p> <p>11 A. We had a -- we permitted one of the existing 12 wells on site when we first got involved with Bluebonnet 13 or with -- with Pintail. We permitted it with 14 Bluebonnet when we first got involved with -- with 15 Pintail. And as the project proceeded, we -- we -- and 16 we set up the site sequencing, it became clear that that 17 well was going to be either in or very near the first 18 cell that we ended up with. And so HHNT and I presume 19 Green Group said, We think it would be a good idea to go 20 ahead and permit replacement wells so that we have wells 21 permitted for the purposes of use on the site.</p> <p>22 Q. Have those wells been drilled?</p> <p>23 A. They have not.</p> <p>24 Q. What stratum would those wells be drilled 25 into?</p>	<p style="text-align: right;">273</p> <p>1 A. Yeah. Well, I -- yes, Gregg would have done 2 that work. I might have looked over his shoulder at 3 times about that more just for informational purposes 4 than determinative purposes.</p> <p>5 Q. I had a question about the -- the slug tests 6 that are in the application.</p> <p>7 MR. WOODWARD: Can somebody help me which 8 exhibit that is? Exhibit 16, I think.</p> <p>9 MS. JACOBS: Yes.</p> <p>10 Q. (BY MR. WOODWARD) The -- on the computation 11 sheet, E6-14.</p> <p>12 A. Okay.</p> <p>13 Q. So you have a K value for the east and south 14 perimeter and the southwest perimeter. And over in the 15 parentheses it says, "Arithme-" -- "Arithme-" -- 16 "Arithmetic" -- I can't say that word -- "mean of 17 Stratum I values."</p> <p>18 What -- what does that mean? How did you 19 get that number?</p> <p>20 A. Arithmetic means it was simply an average. I 21 would -- I would prefer and think it's more appropriate 22 to use a geometric mean. But people at the agency think 23 that because a geometric mean ends up with a slightly 24 lower number, that it's -- they believe that that's not 25 conservative. I believe it's not as accurate or as</p>

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1 **useful over a wide area. But it's an ar- -- it's just**
 2 **an average.**
 3 Q. And the Table E-13 that we're talking about,
 4 that would be in the Exhibit 10, I believe?
 5 **A. Yes, I think that's right.**
 6 Q. So the 1.75 times 10 to the minus 2 is just an
 7 average of the numbers that you have there in that
 8 table?
 9 **A. Yes, sir.**
 10 Q. Okay. So you added those all up and then
 11 divided by the number of numbers?
 12 **A. Yes. And those numbers in and of themselves**
 13 **are averages. Each one of those is an average of the**
 14 **four tests.**
 15 Q. I was going to ask you about that.
 16 So each one of these numbers is a simple
 17 average of the four slug tests?
 18 **A. Yes, sir.**
 19 Q. So we've got an average of an average?
 20 **A. Yes.**
 21 Q. Sounds rather average.
 22 MR. WOODWARD: Go off the record for just
 23 a minute.
 24 THE VIDEOGRAPHER: We're going off the
 25 record at 5:05 p.m. This concludes the Video File

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1 No. 5.
 2 (Recess from 5:05 p.m. to 5:08 p.m.)
 3 THE VIDEOGRAPHER: We're back on the
 4 record at 5:08. This begins Video File No. 6.
 5 Q. (BY MR. WOODWARD) Mr. Snyder, I just have one
 6 more question. I want to make sure I understand.
 7 The slug test analysis that are in the
 8 application were done personally by you?
 9 **A. Yes.**
 10 Q. And the slug test analysis that were
 11 provided in discovery were done by the gentleman at
 12 Midwest Geosciences?
 13 **A. Yes, sir.**
 14 Q. Okay.
 15 MR. WOODWARD: I don't have any further
 16 questions.
 17 MR. RYAN: You guys have anything else?
 18 MS. JACOBS: It's your turn. I think
 19 it's your turn.
 20 MR. RYAN: Go ahead.
 21 MS. NICHOLS: You don't have any --
 22 you're not asking questions?
 23 MR. RYAN: I may not.
 24 MS. NICHOLS: Anything else for him?
 25 MS. JACOBS: I may have some additional

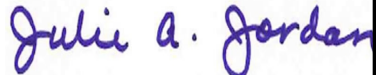
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1 questions if Brent does. We could --
 2 MR. RYAN: No, I don't --
 3 MS. JACOBS: -- go like this all day.
 4 MR. RYAN: I don't have any questions.
 5 THE VIDEOGRAPHER: We're going off the
 6 record at 5:09.
 7 (Deposition concluded at 5:09 p.m.)
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1 CHANGES AND SIGNATURE
 2 WITNESS NAME: JOHN MICHAEL SNYDER, P.G.
 3 DATE OF DEPOSITION: JULY 9, 2015
 4 PAGE/LINE CHANGE REASON
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JOHN MICHAEL SNYDER. P.G. - VOLUME 1 - July 09, 2015

278	<p>1 I, JOHN MICHAEL SNYDER, P.G., have read the</p> <p>2 foregoing deposition and hereby affix my signature that</p> <p>3 same is true and correct, except as noted above.</p> <p>4</p> <p>5 _____</p> <p>6 JOHN MICHAEL SNYDER, P.G.</p> <p>7</p> <p>8 THE STATE OF _____)</p> <p>9 COUNTY OF _____)</p> <p>10</p> <p>11 Before me, _____, on</p> <p>12 this day personally appeared JOHN MICHAEL SNYDER, P.G.,</p> <p>13 known to me (or proved to me under oath or through</p> <p>14 _____) (description of identity card or</p> <p>15 other document)) to be the person whose name is</p> <p>16 subscribed to the foregoing instrument and acknowledged</p> <p>17 to me that they executed the same for the purposes and</p> <p>18 consideration therein expressed.</p> <p>19 Given under my hand and seal of office this</p> <p>20 _____ day of _____, _____.</p> <p>21</p> <p>22 _____</p> <p>23 NOTARY PUBLIC IN AND FOR</p> <p>24 THE STATE OF _____</p> <p>25 COMMISSION EXPIRES: _____</p>	280	<p>1 MICHAEL L. WOODWARD.....57 MINUTE(S)</p> <p>2 WESLEY P. MCGUFFEY - NONE</p> <p>3</p> <p>4</p> <p>5 That pursuant to information given to the</p> <p>6 deposition officer at the time said testimony was taken,</p> <p>7 the following includes counsel for all parties of</p> <p>8 record:</p> <p>9 Ms. Monica M. Jacobs and Ms. Diana L. Nichols,</p> <p>10 attorneys for The City of Hempstead</p> <p>11 Mr. Brent W. Ryan, attorney for Pintail Landfill, LLC</p> <p>12 Mr. Michael L. Woodward and Mr. Wesley P. McGuffey,</p> <p>13 attorneys for the Citizens Against the Landfill in</p> <p>14 Hempstead</p> <p>15 Mr. Ron M. Olson (Not Present), attorney for TCEQ</p> <p>16 Executive Director</p> <p>17 Mr. Garrett Arthur (Not Present), attorney for TCEQ</p> <p>18 Public Interest Counsel</p> <p>19 Ms. Marisa Perales (Not Present) and Stacy Williams</p> <p>20 (Not Present), attorneys for Organization for the</p> <p>21 Environmental Health of Hempstead</p> <p>22 Baptist Hill Cultural and Environmental Society c/o</p> <p>23 Janet Fisher (Not Present)</p> <p>24 Ms. Lucille Garner (Not Present)</p> <p>25</p> <p>17</p> <p>18 I further certify that I am neither counsel for,</p> <p>19 related to, nor employed by any of the parties or</p> <p>20 attorneys in the action in which this proceeding was</p> <p>21 taken, and further that I am not financially or</p> <p>22 otherwise interested in the outcome of the action.</p> <p>23</p> <p>24</p> <p>25</p>
279	<p>1 SOAH DOCKET NO. 582-14-3597</p> <p>2 TCEQ DOCKET NO. 2012-0302-MSW</p> <p>3</p> <p>4 APPLICATION BY PINTAIL) BEFORE THE STATE OFFICE</p> <p>5 LANDFILL, LLC FOR NEW) OF</p> <p>6 MUNICIPAL SOLID WASTE)</p> <p>7 PERMIT NO. 2377) ADMINISTRATIVE HEARINGS</p> <p>8</p> <p>9</p> <p>10 REPORTER'S CERTIFICATION</p> <p>11 ORAL AND VIDEOTAPED DEPOSITION OF</p> <p>12 JOHN MICHAEL SNYDER, P.G.</p> <p>13 July 9, 2015</p> <p>14 Volume 1</p> <p>15</p> <p>16 I, Julie A. Jordan, Certified Shorthand Reporter in</p> <p>17 and for the State of Texas, hereby certify to the</p> <p>18 following:</p> <p>19 That the witness, JOHN MICHAEL SNYDER, P.G., was</p> <p>20 duly sworn by the officer and that the transcript of the</p> <p>21 oral deposition is a true record of the testimony given</p> <p>22 by the witness;</p> <p>23 That the deposition transcript was submitted on</p> <p>24 _____ to Mr. Brent W. Ryan, attorney for</p> <p>25 Pintail Landfill, LLC, for examination, signature and</p> <p>return to me by _____;</p> <p>That the amount of time used by each party at the</p> <p>deposition is as follows:</p> <p>MONICA M. JACOBS.....04 HOUR(S):49 MINUTE(S)</p> <p>DIANA L. NICHOLS.....NONE</p> <p>BRENT W. RYAN.....NONE</p>	281	<p>1 Certified to by me this 15th day of July, 2015.</p> <p>2</p> <p>3</p> <p>4 </p> <p>5 _____</p> <p>6 Julie A. Jordan</p> <p>7 Texas CSR No. 3203</p> <p>8 Expiration Date: 12/31/15</p> <p>9 Firm Registration No. 280</p> <p>10 JULIE A. JORDAN & COMPANY</p> <p>11 7800 North MoPac Expressway</p> <p>12 Suite 120</p> <p>13 Austin, Texas 78759</p> <p>14 (512) 451-8243</p> <p>15 (512) 451-7583 (Fax)</p> <p>16 E-MAIL: info@jordanreporting.com</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>