

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN JOSE DIVISION

JAYNE PALMISANO, et al.,

5:03-cv-01607-RMW

Plaintiff,

-vs-

OLIN CORPORATION, et al.,

**CERTIFIED COPY**

Defendants.

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DIGITAL VIDEO DEPOSITION OF ERIC M. NICHOLS, PE

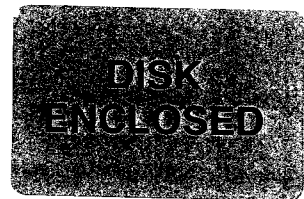
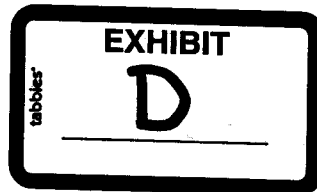
Pages 1 to 201

DATE: March 2, 2005

TIME: 9:20 a.m.

LOCATION: LAW OFFICES OF DUANE MORRIS  
One Market Street  
Spear Tower  
Suite 2000  
San Francisco, California

REPORTED BY: Alicia M. C. Kemp  
Certified Shorthand Reporter  
License Number C-6718



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Offices located in:  
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(408) 280-1252  
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(831) 459-6668

1 Q. -- contamination in groundwater? 09:43a

2 MR. PEARCE: Objection. Lack of foundation, 09:43a  
3 calls for speculation, overly broad. 09:43a

4 You can answer. 09:43a

5 THE WITNESS: Blasting agents have been known 09:43a  
6 to contain perchlorate, and therefore could potentially 09:43a  
7 act as a source to groundwater contaminants. 09:44a

8 BY MR. MILLER: 09:44a

9 Q. I take it that at that particular site the 09:44a  
10 source of perchlorate may be a source other than 09:44a  
11 blasting operations; is that correct? 09:44a

12 A. It's possible, yes. 09:44a

13 Q. Okay. What other potential sources are being 09:44a  
14 evaluated at that particular site? 09:44a

15 A. My involvement in that site is peripheral 09:44a  
16 enough that I do not have that specific information. 09:44a

17 Q. Okay. You have identified in your expert 09:44a  
18 witness report and rebuttal report various potential 09:44a  
19 sources of perchlorate in groundwater; is that correct? 09:44a

20 A. I did identify a few potential sources, yes. 09:44a

21 Q. Okay. Um, can you identify for us here on the 09:44a  
22 record what those potential sources might be? 09:44a

23 MR. PEARCE: Let me object. That's vague and 09:44a  
24 ambiguous. Are you referring to in general or this 09:44a  
25 specific site that -- that is the subject of this 09:45a

1 litigation?

2 MR. MILLER: In general.

3 THE WITNESS: So agents that contain  
4 perchlorate? Is that what you're asking me?

5 BY MR. MILLER:

6 Q. Yes, that could be a source of groundwater  
7 contamination.

8 A. If I could refer to my expert report --

9 Q. Certainly.

10 A. -- for the complete list?

11 Q. Sure. We've identified your expert report of  
12 Eric M. Nichols, dated January 24, 2005, as Exhibit  
13 Number 3, Mr. Nichols, and the expert rebuttal report of  
14 Eric M. Nichols, as Exhibit Number 2.

15 A. As it states in my expert report, other sources  
16 of perchlorate could include highway safety flares, some  
17 agricultural fertilizers, fireworks, matches, dyes,  
18 lubricating oils, air bag inflators, paints,  
19 electroplating and medical specialty tests. And I would  
20 add blasting agents to that list following on the  
21 discussion we just had.

22 Q. What page of your expert witness report is that  
23 contained on, Mr. Nichols?

24 A. In this particular hard copy, it's page 13.

25 Q. All right. Do you know the extent to which any

1 BY MR. MILLER:

2 Q. Um, Mr. Nichols, have you looked specifically  
3 at perchlorate sampling done on any of the supply wells  
4 serving the properties of the four plaintiffs whose  
5 cases we're here today to discuss?

6 A. I'm not sure what wells you're referring to.

7 Q. Um, the well owned by Mr. Wess, the Dallas, the  
8 Pereiras or the Smiths? Have you looked specifically at  
9 the sampling conducted on those wells?

10 A. The sampling or the results?

11 Q. The results. I'm sorry.

12 A. I've reviewed reported concentrations at the  
13 Dalla and Wess wells in conjunction with my rebuttal of  
14 Larson's opinion.

15 Q. Okay. In other words, you looked at the  
16 reported concentrations, but did not look at the  
17 underlying data that was collected from those particular  
18 wells; is that correct?

19 A. I did not have access to that data.

20 Q. In other words, you didn't look at the  
21 chromatograms or any of the other laboratory data that  
22 would have been the source of the calculated  
23 concentrations; is that correct?

24 A. I did not.

25 Q. You've indicated in your report that method

1 Q. It was a very poorly worded question. 12:05p

2 Do you know the extent to which the results of 12:05p  
3 the four plaintiffs' wells at issue in this particular 12:05p  
4 case varied from sampling event to event? 12:05p

5 A. I've been able to look at sampling results for 12:05p  
6 the Dalla and Wess wells for one or two sampling events 12:05p  
7 in 2004, I believe, but I am unaware of the full number 12:05p  
8 of samples and sample results that have been -- possibly 12:06p  
9 been collected at the wells that you named. 12:06p

10 Q. All right. Have you requested of counsel all 12:06p  
11 results that are available for the sampling of the wells 12:06p  
12 of the plaintiffs whose cases are at issue here today, 12:06p  
13 of Mr. Wess, the Dallas, the Pereiras and the Smiths? 12:06p

14 A. The only data that I've been able to obtain is 12:06p  
15 what is published in Olin's consultants' reports, in the 12:06p  
16 hard copies of Olin's consultants' reports. 12:06p

17 Q. Did you make any recommendations to counsel 12:07p  
18 that additional sampling be done on these particular 12:07p  
19 wells? 12:07p

20 A. No. 12:07p

21 Q. Are you satisfied with respect to the data you 12:07p  
22 have as to whether or not these wells have experienced 12:07p  
23 variability over time in terms of their perchlorate 12:07p  
24 levels? 12:07p

25 MR. PEARCE: Objection. Lacks foundation. 12:07p

1 Vague and ambiguous, also, as to satisfy. 12:07p

2 THE WITNESS: Having only seen one or two 12:07p  
3 samples from two of the four wells you mentioned, I 12:07p  
4 don't think it's possible to assess the variability at 12:07p  
5 those particular wells. 12:07p

6 BY MR. MILLER: 12:07p

7 Q. Did, um, counsel show you the results of the 12:07p  
8 sampling results obtained by the plaintiffs themselves 12:07p  
9 in this litigation? 12:07p

10 A. No. 12:08p

11 Q. Did counsel, um, share with you the results of 12:08p  
12 testing conducted by Olin's counsel in connection with 12:08p  
13 these four wells, other than the data that have been 12:08p  
14 reported in MACTEC reports? 12:08p

15 A. The only data I've seen are the data reported 12:08p  
16 in the MACTEC reports. 12:08p

17 Q. Can you rule out, Mr. Nichols, the possibility 12:09p  
18 that the four wells owned by the four plaintiffs in 12:09p  
19 these case -- these cases, or the wells serving these 12:09p  
20 plaintiffs in these cases, will not experience 12:09p  
21 variability beyond that which you've seen from the data 12:09p  
22 reported by MACTEC? 12:09p

23 MR. PEARCE: Objection. Vague and ambiguous. 12:09p  
24 Multiple double negatives. 12:09p

25 THE WITNESS: I don't understand the question. 12:09p

1 I'm sorry.

2 BY MR. MILLER:

3 Q. Okay. You indicated that -- well, strike that.

4 Am I correct that you do not have an opinion as  
5 to whether or not the four wells at issue in this  
6 particular case have been variable in terms of their  
7 perchlorate levels in the past?

8 MR. PEARCE: Objection. Vague and ambiguous.

9 THE WITNESS: I don't -- I've not been  
10 presented with enough data to assess the variability of  
11 any of those four wells.

12 BY MR. MILLER:

13 Q. In terms of perchlorate levels; correct?

14 A. In terms of anything, but perchlorate in  
15 particular.

16 Q. Okay. Um, do you have a -- an opinion to a  
17 reasonable degree of scientific certainty that these  
18 wells will experience variability in the future with  
19 respect to perchlorate specifically?

20 A. I'm having a hard time understanding the nature  
21 of that question, given that the reported levels in the  
22 MACTEC reports have been less than 4, but the specific  
23 concentrations that may be in those wells less than 4  
24 has not been reported by MACTEC.

25 Q. Let me ask it this way.

1 Do you have an opinion to a reasonable degree  
2 of scientific certainty, Mr. Nichols, that Mr. Wess'  
3 well will ever exceed 4 parts per billion of  
4 perchlorate?

5 MR. PEARCE: Objection. Lack of foundation.

6 THE WITNESS: I don't think it's possible to  
7 assess at this point whether or not that well will rise  
8 above 4 or remain below 4.

9 BY MR. MILLER:

10 Q. Okay. So asking it a different way, would you  
11 agree with me you do not have an opinion to a reasonable  
12 degree of scientific certainty that Mr. Wess' well will  
13 ever exceed 4 parts per billion of perchlorate?

14 MR. PEARCE: Objection. Lacks foundation. I  
15 also object to the extent that it mischaracterizes  
16 Mr. Nichols' expert opinion reports, which are stated in  
17 reports which we provided to you, which documents speak  
18 for themselves.

19 BY MR. MILLER:

20 Q. You can answer the question.

21 A. As I said before, I don't think enough data has  
22 been collected of those wells to assess the future  
23 variability. And as my expert rebuttal report  
24 discusses, I don't think that, given the data we have  
25 and the knowledge of the perchlorate extent in the



1 Llagas Subbasin, that future impacts above any level can 12:12p  
2 be ruled out and current impacts below the current 12:12p  
3 reporting level of 4 cannot be ruled out. 12:13p

4 Q. I understand that. Can you say with a 12:13p  
5 reasonable degree of certainty, Mr. Nichols, that 12:13p  
6 Mr. Wess' well will ever have more than 4 parts per 12:13p  
7 billion of perchlorate in it? 12:13p

8 MR. PEARCE: Objection. Calls for 12:13p  
9 speculation. Asked and answered. Lacks foundation. 12:13p

10 THE WITNESS: Can you ask the question again, 12:13p  
11 please. 12:13p

12 MR. MILLER: Sure. Why don't we have the court 12:13p  
13 reporter read it back. 12:13p

14 THE REPORTER: One moment. 12:13p

15 (Record read as requested.) 12:13p

16 THE WITNESS: I don't think, with the data we 12:14p  
17 have at hand, that any prediction can be made with any 12:14p  
18 degree of certainty, whatever the level. 12:14p

19 BY MR. MILLER: 12:14p

20 Q. Okay. So you can't make a prediction with any 12:14p  
21 degree of certainty that his well will be tested with 12:14p  
22 more than 4 parts per billion of perchlorate in it? 12:14p

23 A. I'm sorry. I don't quite understand the 12:15p  
24 distinction between that question and the question 12:15p  
25 before it. 12:15p

1 THE VIDEOGRAPHER: We're back on the record. 01:36p

2 The time is 1:34. 01:36p

3 Please proceed. 01:36p

4 BY MR. MILLER: 01:36p

5 Q. Mr. Nichols, did you review any data or other 01:36p  
6 information over the course of the lunch hour? 01:36p

7 A. No, I did not. 01:36p

8 Q. Okay. Have you ever seen a positive detection 01:36p  
9 for the presence of perchlorate in the Wess and Dalla 01:36p  
10 wells? 01:36p

11 A. I have not. Just a reporting of less than 4 01:36p  
12 micrograms per liter. 01:36p

13 Q. Okay. Are the data for the Wess and Dalla 01:36p  
14 wells insufficient to opine on the probability that 01:36p  
15 these wells have ever been at 2 micrograms per liter -- 01:36p

16 MR. PEARCE: Objection. Lacks foundation. 01:36p

17 BY MR. MILLER: 01:36p

18 Q. -- perchlorate? 01:36p

19 MR. PEARCE: Vague and ambiguous. 01:36p

20 THE WITNESS: I think that the data at those 01:36p  
21 wells needs to also be put in the context of the data 01:37p  
22 around those wells to make that determination. 01:37p

23 BY MR. MILLER: 01:37p

24 Q. Okay. Can you tell me what the probability is, 01:37p  
25 Mr. Nichols, that the Wess and Dalla wells have ever had 01:37p

1 MR. PEARCE: I object to the extent the 02:17p  
2 question lacks foundation. 02:17p

3 You can answer it. 02:17p

4 THE WITNESS: There may be reasons for that, 02:17p  
5 but I would be -- I would have to speculate as to what 02:17p  
6 they are. 02:17p

7 BY MR. MILLER: 02:17p

8 Q. Okay. Um, um, is it conceivable, Mr. Nichols, 02:17p  
9 that there are migration pathways that exist on the 02:17p  
10 eastern boundary of the plume that bypass the Wess and 02:17p  
11 Dalla wells? 02:18p

12 MR. PEARCE: I object to the extent it calls 02:18p  
13 for speculation, vague and ambiguous, lacks foundation. 02:18p

14 THE WITNESS: Where specifically along the 02:18p  
15 eastern boundary are you referring to? 02:18p

16 BY MR. MILLER: 02:18p

17 Q. In the vicinity of the Wess and Dalla wells. 02:18p

18 A. As I explained in my first expert report about 02:18p  
19 groundwater movement through heterogeneous alluvial and 02:18p  
20 fluvial environments, there can be preferential 02:18p  
21 pathways. So if you're asking me to say is it possible 02:18p  
22 for preferential pathways to exist, certainly it is. 02:19p

23 Q. How would we confirm the existence or absence 02:19p  
24 of preferential pathways that bypass the Wess and Dallas 02:19p  
25 wells? 02:19p

1 MR. PEARCE: I object to the extent it 02:19p  
2 misstates his testimony, lacks foundation. 02:19p

3 THE WITNESS: Well, first of all, I think a 02:19p  
4 preferential pathway could lead to the Wess and Dalla 02:19p  
5 wells as likely as to bypass the Wess and Dalla wells. 02:19p

6 BY MR. MILLER: 02:19p

7 Q. How can we be sure whether they lead to or 02:19p  
8 bypass the Wess and Dalla wells? 02:19p

9 A. More detailed site characterization, as we 02:19p  
10 mentioned before, and as the regional board and the 02:19p  
11 Santa Clara Valley District has required of Olin, which 02:19p  
12 Olin has not done yet, is to put in a more detailed, 02:19p  
13 depth-discrete monitoring well network that better 02:19p  
14 characterizes the flow conditions and the occurrence of 02:19p  
15 perchlorate and the existence or absence of any 02:19p  
16 preferential pathways. 02:20p

17 Q. So is it the case that the plume is 02:20p  
18 insufficiently characterized for you to determine the 02:20p  
19 existence or absence of preferential pathways that would 02:20p  
20 lead to or bypass the Wess and Dalla wells? 02:20p

21 A. Can you repeat the question? 02:20p

22 THE REPORTER: One moment. 02:20p

23 (Record read as requested.) 02:20p

24 THE WITNESS: I think it is the fact that the 02:20p  
25 plume is so poorly characterized, that is the nature of 02:21p

1 Q. All right. Mr. Nichols, I'm not going to put  
2 you on the spot here and ask you to draw a diagram of  
3 the convex holes, because, apparently, it would be  
4 speculation on your part to do so; is that correct?

5 A. Yes.

6 Q. All right. Um, Mr. Nichols, in your expert  
7 witness report, you have indicated that you have  
8 attempted to identify alternative sources of perchlorate  
9 in the plume?

10 A. I'm sorry? Could you repeat the question?

11 Q. Let me ask you this. Did you make any attempt  
12 to identify any alternative sources of perchlorate that  
13 exist in the Llagas Basin?

14 A. I did not. And to my knowledge, no one else  
15 has either.

16 Q. Okay. Um, why did you not assess the presence  
17 of alternative sources of perchlorate in the basin?

18 A. I simply had no access to that kind of  
19 information.

20 Q. Um, the document that we've marked as Exhibit  
21 Number 4 has the tail end here of a reservoir. Do you  
22 see that?

23 A. Yes.

24 Q. Do you know what that reservoir is called?

25 A. Anderson Reservoir.

1 Q. The results of a study of that nature might 04:04p  
2 assist you in determining the extent to which the 04:04p  
3 existing plume originated from the site versus 04:04p  
4 perchlorate coming into the plume from alternative 04:04p  
5 sources; is that correct? 04:04p

6 A. It would help establish whether there were any 04:05p  
7 other significant sources of perchlorate in the 04:05p  
8 subbasin. 04:05p

9 Q. And absent such a study, you can't establish 04:05p  
10 whether there are significant sources of perchlorate 04:05p  
11 other than from Olin; is that correct? 04:05p

12 MR. PEARCE: Objection. Misstates prior 04:05p  
13 testimony, lacks foundation. 04:05p

14 THE WITNESS: I have not seen any data to 04:05p  
15 suggest or to indicate other significant sources of 04:05p  
16 perchlorate in the Llagas Subbasin. 04:05p

17 BY MR. MILLER: 04:05p

18 Q. I understand that. But in the absence of the 04:05p  
19 study that you were pleased to hear that the Regional 04:05p  
20 Water Quality Control Board ordered Olin to do, in the 04:05p  
21 absence of the data that might be generated by such a 04:05p  
22 study, you can't determine or eliminate the possibility 04:05p  
23 that portions of the perchlorate in the Llagas Subbasin 04:05p  
24 came from alternative sources such as Chilean 04:05p  
25 fertilizer; correct? 04:05p

1 from that site heading generally southeast, but with 04:08p  
2 significant spread around that direction, and 04:08p  
3 terminating approximately 9 and a half or 10 miles 04:09p  
4 southeast of the site, it appears to me that the 04:09p  
5 dominant source of perchlorate in the Llagas Subbasin is 04:09p  
6 the Olin site. 04:09p

7 BY MR. MILLER: 04:09p

8 Q. I appreciate that. Let me get back to the 04:09p  
9 question that I don't think you answered. 04:09p

10 Um, what data have you independently collected 04:09p  
11 and analyzed, if any, that would permit you to rule out 04:09p  
12 alternative sources of perchlorate in the Llagas 04:09p  
13 Subbasin, other than the Olin-generated perchlorate? 04:09p

14 MR. PEARCE: Objection. Asked and answered. 04:09p

15 THE WITNESS: The only data that I reviewed is 04:09p  
16 the data produced and summarized by Olin's consultants. 04:09p

17 BY MR. MILLER: 04:09p

18 Q. Does that data permit you to rule out the 04:09p  
19 potential for contribution to this plume of perchlorate 04:09p  
20 from alternative sources? 04:09p

21 A. As I stated in my expert report, those other 04:10p  
22 sources may exist in the basin, but it's my opinion that 04:10p  
23 they are not significant or that no data has come to 04:10p  
24 light to evaluate the significance of those sources. 04:10p

25 Q. Okay. And you didn't collect any data to 04:10p

1 assist you in that analysis; correct?

04:10p

2 A. I did not collect any data at this site.

04:10p

3 Q. Do you know whether there were any metal  
4 plating or etching facilities in the Llagas Subbasin or  
5 in the vicinity of the basin?

04:10p

04:10p

04:10p

6 A. I don't know of any specific metal plating or  
7 etching facilities.

04:10p

04:10p

8 Q. Um, are metal plating and etching facilities  
9 the types of facilities that historically have used  
10 perchlorate?

04:10p

04:10p

04:10p

11 A. Under certain conditions, it appears that  
12 electroplating may contribute or it may involve  
13 perchlorate.

04:11p

04:11p

14 Q. Did you make any analysis of the historical  
15 uses of properties in the vicinity of the Llagas  
16 Subbasin to determine whether there were any metal  
17 plating facilities anywhere within the subbasin area?

04:11p

04:11p

04:11p

04:11p

18 A. I did not.

04:11p

19 Q. Okay. We talked about your work that is  
20 ongoing at a gravel facility. I don't mean to  
21 mischaracterize it. You mentioned a facility in  
22 Massachusetts?

04:11p

04:11p

04:11p

04:11p

23 A. Sand and gravel and concrete batch plant.

04:11p

24 Q. Okay. And there may have been blasting  
25 operations within the vicinity that may have contributed

04:12p

04:12p



DIGITAL VIDEO DEPOSITION OF ERIC M. NICHOLS, PE

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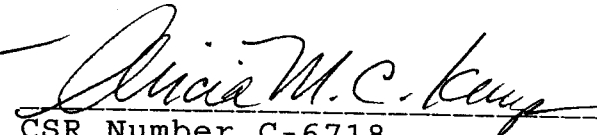
STATE OF CALIFORNIA )  
                                   )  
COUNTY OF SANTA CLARA )

ss.

I, ALICIA M. C. KEMP, a Certified Shorthand  
Reporter in and for the State of California, certify  
that the witness in the foregoing deposition,

ERIC M. NICHOLS, PE,

was by me duly sworn to tell the truth, the whole truth  
and nothing but the truth in the within-entitled cause,  
and that the foregoing is a full, true and correct  
transcript of the proceedings had at the taking of said  
deposition, reported to the best of my ability and  
transcribed under my direction.

March 8<sup>th</sup>, 2005.   
Date CSR Number C-6718.

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