

# **EXHIBIT B**

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April 8, 2005

Mr. Steven W. Davis, Esq.  
Boies, Schiller & Flexner LLP  
100 Southeast 2<sup>nd</sup> Street, Suite 2800  
Miami, FL 33131-2144

Re: Sapiro v. Sunstone Hotel Investors, L.P.

Dear Mr. Davis:

After inspecting the San Marcos on March 15, 2005, and reviewing additional documents, the opinions expressed in my report of February 11, 2005 have not changed. I wish to add, however, that I still have found no evidence of water sources outside the San Marcos to which Mr. Sapiro could likely have been exposed for the duration or with the intensity that he was to the water sources at the San Marcos.

The only places that the Sapiro's reported visiting during their stay in Phoenix, other than the San Marcos Resort, were their son's house, the Little Caesar's Restaurant that their son was preparing to open, and two restaurants in Scottsdale—Buca Di Beppo, at 3828 N. Scottsdale Road, and Don and Charlie's American Rib and Chop House, at 7501 E. Camelback Road.

When Mr. Sapiro visited Phoenix in 2003, his son lived at 3104 East Capricorn. I drove by the house on March 15, 2005, but did not inspect the interior because Mr. Sapiro's son no longer lives there. Based on studies of home water systems, it would be very unlikely to find *Legionella* bacteria in this house at the levels that were detected at the San Marcos.

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According to the Sapiro's, their son's Little Caesars restaurant at 911 South Lindsay Road, in Gilbert, was not open when they visited in 2003, and no water was in the plumbing system. When I drove by the restaurant on March 15, 2005, I looked for cooling towers or other potential sources of *Legionella* contamination in the vicinity but did not see any.

On March 14, 2005, I visited Buca Di Beppo restaurant and Don and Charlie's American Rib and Chop House and collected a water sample from the men's restroom in each. No *Legionella* was found in either sample (see attached sample log and laboratory report). I also drove the area and did not see a source of *Legionella* contamination (e.g., cooling towers or misters) in the vicinity of either restaurant.

I have reviewed the following documents since February 11, 2005:

- 8/28/03 letter of from Marlin Services to Sheraton San Marcos
- 9/2/03 invoice from G & G Pool Specialists to the San Marcos
- 10/3/03 Sunstone purchase order
- 10/3/03 Sunstone purchase order to ANG Pool Specialists of Glendale, Arizona
- "Draft procedures for spa and pool treatment"
- 9/3/03 Proposal from Advanced Water Systems to Sheraton San Marcos
- 9/10/03 Inspection Continuation sheet by Maricopa County Environmental Services Department
- 8/29/03 letter from the Chandler Municipal Utilities Department to Gary Stougaard of Sunstone Hotel Investors
- Cross-connection Inspection Report: notice of compliance or non-compliance, City of Chandler Water Quality Division
- Undated work order by Air Conditioned Mechanical Services with store stamp 231838
- City of Chandler permit no. CMP03-0029 dated 9/2/03
- Maricopa County inspection report dated 9/10/03, and signed by Matt Sytsma
- 9/02/03 e-mail from Robert Maars to Gary Stougaard and others, which was subsequently forwarded by Guy Lindsey to additional persons

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- 8/29/03 e-mail from Gordon Adams to Gary Stougaard
- 8/29/03 e-mail from Robert Maars to Gary Stougaard
- 8/28/03 e-mail from Robert Maars to Jeff Hammermeister and Gary Stougaard
- 8/30/03 e-mail from Robert Maars to Gary Stougaard, Jeff Hammermeister, and Guy Lindsey
- 8/31/03 e-mail from Robert Maars to Gary Stougaard, Guy Lindsey, and Jeff Hammermeister
- Sunstone Hotel Investors Engineering Manual, Engineering SOP's, Preventive Maintenance
- Plumbing and mechanical plans provided for the main building (plans for the other buildings were not provided)

I may wish to supplement this report if I receive additional information.

I have provided expert testimony twice since February 11, 2005:

- Trial testimony in Liberty Mutual Insurance Co. v. American National Fire Insurance Co., et al; Superior Court of the State of New Jersey, Burlington County, February 17, 2005
- Deposition in Cherry et al v. 3075 Wilshire Blvd LLC et al, Superior Court of the State of California, for the County of Los Angeles, Central District, March 11, 2005

Sincerely,



Matthew R. Freije

attachments





An Affiliate of Saveni Trent Laboratories, Inc.

HC Information Resources, Inc.  
PO Box 2109  
Fallbrook, CA 92088  
Attn: Matt Frejlo

Lab Number: 915-503-2137  
Date Received: 3/15/2005  
Date Reported: 3/28/2005  
AIHA EMLAP No.: 102297

### Legionella Analysis - Viable

Aerotech Test Code W005

#### Method Summary

[ISO method 11731 is employed for the culture technique. It only detects viable Legionella.]

#### Results

Lab No.	Sample Identification	Conventional Culture Method	
		Legionella Genus (CFU/mL)	Legionella pneumophila
1	D & C's, 7501 E Camelback, Mens Pro HW/Mix	Legionella Species (non-pneumophila)	Serogroup 1
2	Buch, 3828 N. Scottsdale Rd, M-HW Pre	<1	Serogroup 2-14

Date Prepared: 03/16/05

Date Analyzed: 03/28/05

Laboratory Manager:

Project Manager:

# **EXHIBIT C**

1 UNITED STATES DISTRICT COURT  
2 FOR THE STATE OF ARIZONA

3 MARVIN SAPIRO and GLORIA \*  
4 SAPIRO, his wife, \*  
5 \*  
6 Plaintiffs, \*  
7 \*

ORIGINAL

8 v. \* CASE NO. CIV 03-1555 PHX SRB  
9 \*

10 SUNSTONE HOTELS \*  
11 INVESTORS LLC, SUNSTONE \*  
12 HOTEL INVESTORS L.P., \*  
13 \*  
14 Defendants. \*  
15 \*

16 DEPOSITION OF MATTHEW R. FREIJE  
17 TAKEN AT SAN DIEGO, CALIFORNIA  
18 FRIDAY, APRIL 29, 2005

19  
20  
21 ATKINSON-BAKER, INC.  
22 COURT REPORTERS  
23 610 West Ash Street, Suite 901  
24 San Diego, California 92101  
25 (800) 288-3376  
Reported by: Angela Schultz-Messenger, CSR No. 11742  
FILE NO.: 9F02E1C



1 Q. Have they shared that with you?

2 A. They have not said that.

3 Q. You recognize that there may very well be people  
4 out there that are consulting as you do but consulting  
5 more with the hotel and hospitality industry that don't  
6 agree with what you suggest is reasonable for a hotel to  
7 achieve in satisfying its duty of care to its hotel  
8 guests managing the risk presented by Legionella. True?

9 A. I don't know.

10 Q. Okay. You've not tried to conduct any inquiry  
11 in that regard, have you?

12 A. No. That was a long question. But the  
13 Legionella experts who do work in buildings of this type,  
14 I don't know of any who would disagree with the need for  
15 preventive measures in a hotel. I'm sure that they  
16 wouldn't agree with everything I recommend just as none  
17 of the experts agree with everything of --

18 Q. And you're making -- I'm sorry.

19 MR. DAVIS: Let him finish.

20 THE WITNESS: Of the others, is the last three  
21 words.

22 BY MR. KLEIFIELD:

23 Q. Your making recommendations in this case based  
24 upon your perspective without any confirmation that that  
25 is a perspective that is endorsed or adopted within the

1 hotel or hospitality industry, no?

2 A. True. That's -- well, you know, what you're  
3 implying in that question, or what I'm hearing, is that  
4 what you think I recommend should be based on what the  
5 hotel industry thinks. That's not who knows Legionella.  
6 My recommendations are based on scientific information  
7 provided about Legionella control in buildings, not on  
8 what the hotel or hospitality industry thinks is best for  
9 the hotels. They don't know; that's not their expertise.

10 Q. But what you're suggesting is that they're  
11 devoid of expertise in that respect. And, in fact, what  
12 you suggest is the standard which they should apply to,  
13 or in failing to apply to it, they are failing to satisfy  
14 their duty of care to the hotel guests. True?

15 MR. DAVIS: Object to the form. There's three  
16 questions in that question. If you can understand it,  
17 you can answer. It's a compound question.

18 THE WITNESS: I think that it's reasonable to  
19 make recommendations that they take measures that are at  
20 a very reasonable cost to protect their health -- to  
21 protect their hotel guests from disease.

22 BY MR. KLEIFIELD:

23 Q. And you believe that the recommendations you're  
24 making as part of this litigation are recommendations --  
25 I'm sorry -- are things that they should have done before

1 the Sapiros stayed there. True?

2 A. Which recommendations are you referring to?

3 Q. Any of them. You're suggesting there were  
4 certain things --

5 A. You're saying --

6 (Reporter interruption)

7 (A brief recess was taken)

8 BY MR. KLEIFIELD:

9 Q. As I recall, that question prompted a response  
10 which was a question. You asked me what recommendations.  
11 What I'm talking about is those things that you've said  
12 in your report that you feel that the hotel should have  
13 done but failed to do as of the date that the Sapiros  
14 stayed there. You're suggesting that their failure in  
15 that respect fails to satisfy the duty of care or, at  
16 least, to the failure of them satisfying the duty of care  
17 that they owed to their guests. True?

18 A. Well, as far as the report, the recommendations  
19 that they do preventive maintenance to control Legionella  
20 and test water, to see if those preventive measures were  
21 working, yes, I think that's something they should have  
22 done prior to that.

23 Q. Okay. So perhaps we can define it like this.  
24 So number one, you felt that they should have done  
25 preventive maintenance to manage the risk presented by

1 Legionella. True?

2 A. Yes.

3 Q. Number two, you felt they should have performed  
4 testing to manage the risk presented by Legionella to  
5 determine whether their preventive maintenance was being  
6 effective. True?

7 A. Yes. And then to take appropriate steps to  
8 remediate the problem if those are based on the tests  
9 results.

10 Q. First of all, you're not aware of any law, code,  
11 regulation or standard within the United States that --  
12 I'm using this important word -- that requires a hotel or  
13 anyone in the position of a hotel with a similar  
14 structure to test for the presence of Legionella in their  
15 water in the absence of a reported case of Legionella on  
16 the property. True?

17 A. Not specifically about testing. That's true.  
18 There's no law to mandate it.

19 Q. Okay. Second of all, you're not aware of any  
20 standard adopted by any industry-based group that advises  
21 that testing is a reasonable action which should be  
22 performed by a hotel to satisfy its duty of care to its  
23 hotel guests? Not aware of any such adoption of that  
24 policy, are you?

25 A. Yes, I am aware.

1 Q. Okay. Which hotel-based organization adopted  
2 that policy?

3 A. Now, your question, though -- maybe you did say  
4 hotel-based organization. But, again, you're going back  
5 to the --

6 Q. Whether you like the wording or not, that's  
7 where I'm going.

8 MR. DAVIS: Well, the first question I don't  
9 believe I said hotel-based. The second question did.

10 MR. KLEIFIELD: I thought it did. I'm sorry if  
11 it didn't.

12 BY MR. KLEIFIELD:

13 Q. Okay. Let's go about it this way. We'll go  
14 about it this way. What organizations do you believe  
15 have adopted a requirement that testing be performed to  
16 determine the presence of Legionella in a structure  
17 similar to that of the San Marcos as part of their duty  
18 of care which they owed to guests on their property?

19 A. Well, going back to that EPA document, it does  
20 suggest, anyway, that testing be done. The OSHA document  
21 certainly advocates it or implies that it's a way to know  
22 whether or not the Legionella is under control at a  
23 property. The association of water technologists and  
24 their guideline -- outlines a guideline for testing.  
25 ASHRAE, A-S-H-R-A-E, does not recommend specifically

1           A. I didn't bring the entire document.

2           Q. Okay. All right. Let's look at what's here,  
3 and we can deal with that at this point in time. If you  
4 can refer me now to what you suggest this document sets  
5 forth as something that the San Marcos should have done  
6 in satisfaction of its duty of care to its guests.

7           A. Do you want me to cite specific sentences or  
8 talk in general?

9           Q. Yeah. No. Specific sentences. I want you to  
10 point me to particular parts of this document that we can  
11 then talk about.

12          A. Well, first of all, to set forth the context in  
13 the first page, it mentions that the focus of the  
14 document is on the control and prevention of contaminated  
15 water sources, not on case identification. And so it's  
16 based on prevention; not necessarily on just  
17 investigating after the fact. On page 2 under C,  
18 "monitoring," and part 2 under that, subtitled "water,"  
19 it reads, "Analysis of water samples from a source  
20 suspected of being contaminated with *L. pneumophila*" --  
21 that's L., then, p-n-e-u-m-o-p-h-i-l-a -- "is a valuable  
22 means of identifying potential sources of the disease."  
23 Then it goes on and says how to do that. It talks about  
24 laboratory procedures for analyzing samples.

25          Q. Okay. Let's stop there, since you're talking

1 would have rendered -- would have been rendered  
2 ineffective in managing the risk presented by  
3 legionella?

4 A Well, first of all, I never said that,  
5 period --

6 Q Okay.

7 A -- that the tanks were so old that the cleaning  
8 would have been ineffective. I said that the cleaning  
9 would have not guaranteed legionella control.

10 Q Where do you say in this report anywhere that  
11 it's your opinion or conclusion that cleaning would not  
12 have been sufficient to achieve legionella control?

13 MR. SCHMIDT: Objection. Mischaracterizes  
14 former testimony.

15 BY MR. KLEIFIELD:

16 Q I think just point to the page and line number.

17 A I don't really refer to it directly. I believe  
18 I refer to it indirectly by pointing out that on page 3,  
19 second paragraph, that it's important to not only take  
20 the preventive measures, but to test the water to make  
21 sure the preventive measures are working, which  
22 indicates that the preventive measures will not always  
23 in themselves keep the bacteria under control.

24 I don't mention the age of the tanks. In  
25 particular, in part, I didn't know at that point what

1 legal conclusion.

2 THE WITNESS: In the report, I state that it's  
3 important for hotel operators to incorporate reasonable  
4 legionella preventive measures in design, installation,  
5 operation and maintenance of domestic water systems.  
6 That would include draining, cleaning and disinfecting  
7 hot water tanks periodically.

8 I didn't site every preventive measure;  
9 otherwise the report probably would have been 60 pages  
10 long or so because that's just one of many preventive  
11 measures.

12 I did, however, refer to Sunstone's own  
13 engineering manual on page 4 which says to drain down  
14 all storage tanks on a regular basis.

15 BY MR. KLEIFIELD:

16 Q So you agree with me that your opinion includes  
17 a conclusion that in order to reasonably maintain the  
18 premises to manage the risk represented by legionella  
19 that you believe that the San Marcos should have  
20 drained, cleaned and disinfected its hot water storage  
21 tanks periodically; correct?

22 A That's one of many measures I think should have  
23 been taken, yes.

24 Q What's the basis for your opinion with respect  
25 to that particular task?



1           A    Hot water tanks are conducive to legionella  
2   contamination, especially vertical tanks, but horizontal  
3   tanks can be as well. One reason for that is that most  
4   tanks maintain water temperature at the set point in  
5   only about 65 percent of the tank, so at the bottom part  
6   of the tank, it tends to be cooler than in the top part  
7   of the tank. So at the bottom where it's not as hot and  
8   where is also the place that sediment and other debris  
9   accumulates, that's where legionella tend to flourish.

10                So it's important to periodically drain out  
11   that sediment and blow it out, so to speak, to clean out  
12   the tank periodically.

13           Q    And you contend that every business entity in  
14   the hospitality industry with hot water storage tanks is  
15   required to do that in order to manage the risk  
16   presented by legionella in their domestic water system;  
17   true?

18                MR. SCHMIDT:  Objection.  Form;  
19   mischaracterizes former testimony.

20                THE WITNESS:  I believe it's recommended  
21   practice.  It's proper practice for any domestic hot  
22   water system of this sort.

23   BY MR. KLEIFIELD:

24           Q    Okay.  Who suggests that it's recommended  
25   practice for any domestic hot water system of this sort,

1 three of the first four from the bottom deal with the  
2 health care risk management or health facilities  
3 management for hospital infection control; true?

4 A Yes.

5 Q Now, you said that your reports, Nos. 302 and  
6 303, were available for purchase; correct?

7 A Yes.

8 Q And you advertised their availability for  
9 purchase on your web site; correct?

10 A Yes.

11 Q Any other sources where -- strike that.

12 Any other methods where you advertised these  
13 reports for purchase?

14 MR. SCHMIDT: Objection. Form.

15 THE WITNESS: Yes, I believe there were. I  
16 just can't remember them now, but I know that there were  
17 other forms of advertising.

18 BY MR. KLEIFIELD:

19 Q Any other reference materials that support your  
20 proposition that hotels should drain, clean and sanitize  
21 their hot water storage tanks periodically in order to  
22 reasonably manage the risk presented by legionella?

23 A None that are with me. I limited what I  
24 brought here today to either government or industry  
25 association guidelines that were published prior to 2003

1 in the United States.

2 There are a number of industry articles in  
3 magazines that have mentioned that and guidelines  
4 published outside the United States where legionella  
5 awareness is higher and preventive measures have been  
6 more widely published, and I didn't bring those.

7 Q You're not aware of any governmental law that  
8 requires a facility such as the San Marcos to drain,  
9 clean and sanitize its hot water storage tanks  
10 periodically to manage the risk presented by legionella,  
11 are you?

12 MR. SCHMIDT: Objection. Form; calls for a  
13 legal conclusion.

14 THE WITNESS: I know of no law that requires  
15 those measures.

16 BY MR. KLEIFIELD:

17 Q And separate and aside from the extent to which  
18 you choose to interpret OSHA technical manual Chapter 7,  
19 you're not aware of any governmental code or regulation  
20 that requires that, are you?

21 MR. SCHMIDT: Same objection.

22 THE WITNESS: There might be some in certain  
23 localities. I don't know of any national or any federal  
24 document that would be considered law that would require  
25 it.

1 Q How many times have you been retained by a  
2 hotel to sample their domestic water systems and found  
3 the presence of legionella in sufficient concentrations  
4 as to pose a health risk to guests staying at the hotel?

5 A I don't know, but it would be -- it would be  
6 very low. As I mentioned, most of the risk assessment  
7 work I've done sampling has been in hospitals.

8 Q Okay. Try to recall one for me where you've  
9 been hired by a hotel to perform sampling of domestic  
10 water systems and the results of those samples  
11 demonstrated legionella present in sufficient  
12 concentrations to be a health risk to guests staying in  
13 the hotel.

14 A I can't think of one.

15 Q Tell me how many times you've been hired by a  
16 hotel to perform sampling of its domestic water system  
17 to determine the extent and concentrations of legionella  
18 present in that water system.

19 A Well, I can't think of any offhand.

20 Q The sampling you performed was May of 2003;  
21 correct?

22 A Yes.

23 Q Have you performed any scientific study or  
24 analysis regarding the promulgation rate of legionella  
25 bacteria of any particular sera group of any particular

1 environment?

2 A Could you define promulgation rate.

3 Q Sure. How quickly it multiplies.

4 A There's not a consensus among microbiologists  
5 as to what that is. It's -- what I generally go by is  
6 every twelve hours.

7 Q Have you performed any type of regression  
8 analysis based upon the samples that you performed in  
9 this case?

10 MR. SCHMIDT: Objection to form.

11 THE WITNESS: To take the samples that were  
12 collected from the San Marcos and do an analysis as to  
13 how fast they were replicating?

14 BY MR. KLEIFIELD:

15 Q How fast they were replicating and over what  
16 time they replicated to achieve the concentrations that  
17 you sampled.

18 A No. I don't know of anyone who has ever done  
19 that analysis ever.

20 Q You agree with me that the samples were taken  
21 at the property in August of 2003; correct?

22 A I don't remember exactly when it was. I must  
23 have the report somewhere, but I recall that it was  
24 around that time.

25 Q And do you remember that the results of those

1 samples demonstrated the presence of legionella in much  
2 higher concentrations than the samples that you obtained  
3 in May of 2003?

4 A Generally, yes.

5 Q As a general statement, the results of the  
6 second samples demonstrated that there was greater  
7 proliferation of legionella than when you were on the  
8 property and sampled?

9 MR. SCHMIDT: Objection. Mischaracterizes  
10 testimony and lacks foundation.

11 THE WITNESS: I would have to do a comparison  
12 of sample sites themselves to see where at the property  
13 they sampled, but in general, just the general results  
14 were that they found higher concentrations. It was a  
15 different laboratory, and that could have had some part  
16 in it.

17 BY MR. KLEIFIELD:

18 Q You're not aware of the extent to which the  
19 difference in the laboratories accounts for the  
20 difference in the concentrations of legionella with  
21 respect to the samples?

22 A Some laboratories are more proficient in  
23 finding it than others. I can't say exactly the  
24 difference between these two, if there is any.

25 Q You can't say there was any difference between

1 BY MR. KLEIFIELD:

2 Q I'm not asking you to assume the routing. I'm  
3 simply dealing with the ambient temperature range in all  
4 lines.

5 If you've got a line that is proven to go  
6 underground and is proven to have an ambient water  
7 temperature in the promulgation range in May but not in  
8 February, the potential for promulgation is greater in  
9 May than in February based upon that factor; true?

10 MR. SCHMIDT: Same objection. Form.

11 THE WITNESS: The water in the cold water  
12 piping could be more conducive in May than in February.  
13 I don't believe it would affect the hot water piping in  
14 either case, no.

15 BY MR. KLEIFIELD:

16 Q You didn't sample in February; true?

17 A No, I did not.

18 Q You performed no scientific analysis to  
19 ascertain the likely concentrations of legionella at any  
20 location on the property in February as compared to May;  
21 true?

22 A I didn't test in February.

23 Q And of the tests that you did in May, you've  
24 not done any scientific analysis of those results to  
25 ascertain what the likely concentrations were in

1 February based upon the test samples that you had  
2 evaluated by a lab; true?

3 A No such tests exist.

4 Q Likewise, you didn't take what you sampled, the  
5 results of those samples that you performed in May, to  
6 ascertain the extent to which there were pathogenic  
7 concentrations of legionella in November of 2002; true?

8 A No such tests exist.

9 Q The second numbered paragraph of your February  
10 11th, 2005, report conveys the statement that, quote,  
11 "Martin Sapiro would not have been exposed to high  
12 levels of legionella bacteria during his stay at the San  
13 Marcos if the property owner or manager or other party  
14 responsible for the hotel, presumably Sunstone Hotel  
15 Investors, LP, or Sunstone Hotel Management, Inc.,  
16 hereinafter referred to as Sunstone, had routinely  
17 tested that hotel water system for legionella and taken  
18 appropriate steps in response to the results." Have I  
19 read that correctly?

20 A I believe so, yes. I didn't -- I wasn't sure  
21 exactly where you were reading, but I think you read it  
22 correctly.

23 Q Do you believe that any sample that reveals any  
24 level of pathogenic or nonpathogenic legionella in a  
25 domestic water system in a hotel setting requires



1 want to maintain the system to prevent legionella  
2 contamination and they're testing to find out if their  
3 preventive measures are working, then it doesn't lead to  
4 a false sense of security.

5 BY MR. KLEIFIELD:

6 Q Do you agree that legionella amplifiers can  
7 cause legionella to become heavily colonized very  
8 quickly?

9 MR. SCHMIDT: Objection. Form.

10 THE WITNESS: I would have to have more of an  
11 explanation of that.

12 BY MR. KLEIFIELD:

13 Q We talked about this briefly earlier, and that  
14 is the rate at which legionella can promulgate. Do you  
15 have an opinion regarding the extent to which legionella  
16 can promulgate to pathogenic levels in a welcome  
17 environment, in a conducive environment?

18 MR. SCHMIDT: Objection. Form; incomplete  
19 hypothetical.

20 BY MR. KLEIFIELD:

21 Q How quickly it can go from a nonpathogenic to a  
22 pathogenic level.

23 MR. SCHMIDT: Same objection.

24 THE WITNESS: Well, legionella can --  
25 legionella counts can go from nondetectable to fairly

1 high counts in a short period of time.

2 In some instances, for example, if there's  
3 water pressure shock -- perhaps the city is working on a  
4 water main and it shakes loose piping and biofilm comes  
5 loose -- there have been outbreaks associated with those  
6 events because of the rapid increase in legionella  
7 levels in the water.

8 BY MR. KLEIFIELD:

9 Q What do you mean by short time? In your  
10 understanding of the documents in that respect, what's  
11 that quantification? What's a short time?

12 A It could even be minutes.

13 Q Okay.

14 A But absent those types of events, it's not  
15 likely to change substantially over time from being safe  
16 to unsafe, for example, without some kind of  
17 intervention, without some kind of disinfection  
18 procedure or, in the other scenario, some type of  
19 introduction of organic contaminants in the water that  
20 would be nutrients for legionella.

21 So a system that's just basically left to  
22 operate as usual, it would follow these same  
23 laboratory-defined replication rates which are not  
24 entirely agreed upon by microbiologists, but would be  
25 roughly every twelve hours.