

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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PRESS CONFERENCE  
ON  
THREE MILE ISLAND

Middletown, Pennsylvania  
April 10, 1979  
6:00 p.m. to 6:35 p.m.  
Pages 1 - 23

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P R O C E E D I N G S

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3 MR. ABRAHAM: I'd like to introduce to you Maggie  
4 Reilly, Chief of the Division of Environmental Radiation,  
5 Department of Environmental Resources, State of Pennsylvania  
6 Bureau of Radiation Protection, and Dr. Reg Gotchy, who is  
7 Senior Radiation Biologist with the Nuclear Regulatory  
8 Commission.

9 DR. GOTCHY: I think we've been asked a lot of  
10 questions today by a lot of different people, and so that  
11 everybody understands what we're doing here today let me  
12 explain a little bit about what we're doing and what we've  
13 found in the way of releases from the plant.

14 Last week and since the accident we have had  
15 measurements by various means of total body radiation passing  
16 overhead from radioactive emissions from the plant, and we have  
17 had measurements of radioactivity in milk, and we have  
18 detected -- the only radioactivity that we have found is in  
19 biological samples. **555297**

20 The purpose of the body scans that we're now  
21 conducting is to determine if any of the radioiodine which has  
22 been detected in the very low concentrations in milk has been  
23 transmitted to anyone in the area. We have looked for other  
24 radioactivity on the off chance that it might have been missed  
25 in the environmental samples. As of 4:30 we had completed

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examinations of 22 people, which included 7 men, 12 women and 3 children, and two of these women were pregnant.

QUESTION: How many?

DR. GOTCHY: Two of them were pregnant.

This group also included 5 adults who live in the immediate vicinity of the plant and who are dairy farmers, or their wives, and who drink the milk that is produced by the milk animals at the site. We have found no radioactivity above -- other than natural radioactivity -- on any of the people that have been scanned thus far.

555298

1 This confirms beliefs we had based on measurements  
2 of radio iodine in milk, and in the environment that had been  
3 made prior to this time.

4 I think it is important to understand that the  
5 findings with regard to the dairy farmers is very important  
6 because radio iodine is concentrated in milk by the cow; and  
7 since you people drink that milk, if there were --if there is  
8 to be any iodine-131 found in the population, we would expect  
9 it to be found in those people.

10 We want to point out again that we are not measuring  
11 here -- these measurements have nothing to do with radiation  
12 doses which people have received from the noble gasses.

13 Those doses which I have seen so far would indicate  
14 that the types, the typical exposures to people living within  
15 a few miles of the plant to this time are on the order of a  
16 few percent of the annual background radiation dose.

17 I guess that's the hand of the press? Yes?

18 QUESTION: The five people who are mentioned here,  
19 you mentioned as having drunk milk from their own dairy farm.  
20 Those are two dairy farms; both of those dairy farms involve  
21 cattle that are fed from stored feed?

22 DR. GOTCHY: Those are two separate farms.

23 QUESTION: Two separate farms?

24 DR. GOTCHY: Five.

25 QUESTION: Five people, we know that you have

## RAW TRANSCRIPT - UNCORRECTED

1 tested -- in any event, all the dairy farms I know of around  
2 here, the cattle are on stored feed.

3 What happens when they go on pasture?

4 DR. GOTCHY: Well --

5 MS. REILLY: We've done some pasture sampling  
6 within the last few days, and based on the sensitivity of the  
7 pasture analysis, when the cattle go on the pasture, it's  
8 not going to -- if indeed there's any iodine there, it's  
9 not going to be detectible.

10 We did some calculations based on the minimum  
11 sensitivity of the pasture method, and they just aren't going  
12 to see it, if, indeed, it is there. Maybe one or two  
13 picocuries, something like that, may be the influence -- if,  
14 indeed, it's there.

15 We've been doing a lot of talking in the last  
16 few days about the meaning of an analytic -- the sensitivity  
17 of an analytic method; and I think maybe I am wandering into  
18 that a little bit more.

19 But based on the sensitivity of the pasture  
20 analysis, the most that could wind up in milk is two, at the  
21 outside.

22 QUESTION: Two picocuries? 555300

23 MS. REILLY: Two picocuries per liter.

24 QUESTION: Do you know if any of the people you  
25 referred to in this handout, do you know if they were farmers

## RAW TRANSCRIPT - UNCORRECTED

1  
2 whose cattle were on stored grain or on pasture-grazing?

3 DR. GOTCHY: Yuh, I think most of these would  
4 probably be on stored grain.

5 We had asked -- there was one family that is  
6 right next to the so-called "trailer city" out at the site,  
7 which has milk goats.

8 And we had asked that they come; but I am not sure  
9 if we got them or not today.

10 Goats, of course, do graze all year round, even  
11 though you may feed them supplemental feed; and they also  
12 concentrate the iodine to a higher level than cows will.

13 Yes?

14 QUESTION: They do to a higher level than cows?

15 DR. GOTCHY: Yes.

16 MS. REILLY: I don't know quite why some people  
17 postulate this as because when they graze, they graze every-  
18 thing down to the ground; I don't know if that's the reason  
19 or not. But they are much better at it than cows.

20 QUESTION: Did I understand you to say, standing  
21 where your efforts are now, they are aimed solely at detecting  
22 iodine levels and nothing else? 555301

23 DR. GOTCHY: No. We are looking hardest at  
24 iodine because if there's anything out there -- well, for one  
25 thing, the only thing we've identified in the environment

## RAW TRANSCRIPT - UNCORRECTED

1  
2 besides the noble gasses is iodine-131. We found iodine-131  
3 in the milk samples from these farms. And those people are  
4 drinking the milk. So we wanted to look at them first, and  
5 they were the first group that came in today.

6 QUESTION: Will this process also pick up any  
7 absorption from xenons and kryptons?

8 DR. GOTCHY: No.

9 The kind of doses that we've been seeing typically  
10 within a few miles of the site have been on the order of a  
11 few millirem per year -- right?

12 MS. REILLY: The thing to bear in mind here is  
13 the tests that are being done on people is to establish  
14 what the identity and quantities of radioactive materials  
15 they may have accumulated in their bodies.

16 And with the noble gasses you don't accumulate.  
17 And that's as much an external exposure as getting, say, a  
18 chest X-ray or a GI job or something like that.

19 This test that is being done here could no more  
20 establish what your xenon exposure was as it can your medical  
21 exposure history. This is purely, what have you got in you  
22 that you are carrying around?

555302

23 QUESTION: In other words, I guess this gets back  
24 to the question experts cannot agree on? What are the long-  
25 term effects of radiation? You cannot really measure that

1 with this kind of device?

2 MS. REILLY: This is intended to measure dose  
3 commitment as a result of what you are carrying around with  
4 you. It measures dose; it doesn't necessarily measure  
5 consequences. But then the dose consequence, that's where  
6 the fight is.

7 We can estimate the dose, but the consequence is  
8 still undetermined.

9 QUESTION: The only isotope you are dealing with  
10 in this instance that is stored is iodine-131?

11 MS. REILLY: Right.

12 But this, the technique that's being used for the  
13 people, for the whole body counting, it will tell you about  
14 other gamma emitters, also. And almost all fission products  
15 are gamma emitters.

16 So any fission product that could -- almost any  
17 fission product that could bioaccumulate in people could be  
18 detected from this method.

19 I might say, too, the method that is being used  
20 to scan people here is the method that is also used, say, in  
21 doing milk analysis. It's the same kind of detector and  
22 almost the same kind of data manipulation. **555303**

23 But it's not a terribly, awfully new type of  
24 technique; something that's been around for quite a while.

25 QUESTION: There's a unit here testing and there's



## RAW TRANSCRIPT - UNCORRECTED

1  
2 another unit, and what are the results?

3 DR. GOTCHY: We haven't seen any results from that.  
4 I don't know if they are operating yet. They were having  
5 trouble getting a telephone line installed there yesterday.

6 The one at the site is primarily for scanning  
7 occupational workers.

8 There is another one in the "trailer city" being  
9 operated by another company; I think that's been operating  
10 for several days.

11 MS. REILLY: Yuh, that's been here since at least  
12 the first weekend.

13 QUESTION: I live close to the reactor and I have  
14 three children under seven, so this means a lot to me.

15 Should I continue to buy milk from the dairies  
16 or should I go to another dairy?

17 DR. GOTCHY: Well, they are buying milk everyday  
18 from dairies and counting it. These particular milk animals  
19 were identified in the first, well, within the first few days  
20 after the accident.

21 And the iodine-131 that we are talking about has  
22 a radioactive halflife of about eight days; and within a period  
23 of about a month or so, it's essentially gone.

24 QUESTION: In eight days the radiation is clean  
25 anyway?

## RAW TRANSCRIPT - UNCORRECTED

1  
2 DR. GOTCHY: Yuh, they will continue to look at  
3 it. They were looking at it before the accident; and they  
4 will continue to look at it after the accident. That's part  
5 of their environmental monitoring program that was set up as  
6 a condition of operating the plant.

7 Now, they have added additional sampling programs  
8 as a result of the accident -- that's what? FDA and EPA?

9 MS. REILLY: EPA, FDA and us.

10 DR. GOTCHY: Yuh.

11 Well, the State is doing additional sampling,  
12 Environmental Protection Agency has added additional sampling  
13 in the area; and the Food and Drug Administration has added  
14 additional sampling in the area, too.

15 QUESTION: Have the dairy farms that we have been  
16 talking about in the area been marketing their milk to dairies  
17 throughout the area?

18 DR. GOTCHY: They have been able to sell the milk.  
19 We are not sure whether the milk is being used for drinking  
20 or whether it's going into powdered milk, or what.

21 MS. REILLY: It's a mixed bag routine.

22 DR. GOTCHY: Yuh, it's a mix. 555305

23 A lot of the stuff that is produced in this area  
24 ends up in Hershey bars, and that takes -- I think they  
25 estimated about six weeks from the time they collect the milk

## RAW TRANSCRIPT - UNCORRECTED

1  
2 and the stuff is distributed.

3 QUESTION: If it has a halflife of eight days,  
4 does that mean that if they had milk that was dried, the  
5 radioactivity in that would be finished; or what?

6 DR. GOTCHY: The radioactivity has nothing to do  
7 with the form it's in. It just means that -- a halflife  
8 means that half of what was there the first time you counted  
9 it, would be gone in eight days, --

10 QUESTION: Well, if you dried the milk --

11 DR. GOTCHY: -- and then three-fourths would be  
12 gone in 16 days, and so on.

13 QUESTION: What I am asking, I guess, is does any  
14 of that danger disappear in dried milk over time?

15 MS. REILLY: Yes. Yes, the radioactive atom, I  
16 guess, never quite understood the fact that it was radioactive  
17 they just -- there's nothing you can do to a radioactive  
18 atom to change its halflife; any kind of processing will not  
19 influence this.

20 Similarly, the atom maintains its chemistry and  
21 it follows metabolic pathways that its stable counterpart  
22 would follow and all that.

555306

23 QUESTION: The maximum dose you have found so  
24 far is what?

25 MS. REILLY: Okay -- but rather than use the word

## RAW TRANSCRIPT - UNCORRECTED

1  
2 "dose", I think a more appropriate term would be  
3 "concentration", which in our little, oblique ways we can  
4 relate eventually to dose commitment.

5 But the kinds of concentrations that were observed  
6 for I-131 was about 30 picocuries per liter, plus or minus  
7 10.

8 This compares to hundreds found during fallout  
9 episodes in the last few years.

10 The current FDA data -- recommendations, regarding  
11 contamination of food and animal feeds suggests that peak  
12 concentration of 12,000.

13 I think this is pretty far away from being into  
14 the 12,000 range.

15 I am not sure I would buy, you know, go for  
16 selecting 12,000 as the magic number; I am still one of these  
17 people -- I have yet to see 1,000 picocurie per liter milk,  
18 having seen a lot of milk samples go past; and 12,000 still  
19 sounds like a lot.

20 But what we have now is nothing compared to that,  
21 and nothing compared to a fallout episode.

22 DR. GOTCHY: "Fallout" is like in the Chinese  
23 tests.

555307

24 MS. REILLY: Yuh.

25 QUESTION: The highest now is 30?

## RAW TRANSCRIPT - UNCORRECTED

1 MS. REILLY: Something like that, 30 plus or minus  
2 10.

3 I mean, you can run one of these samples 15 times  
4 and get 15 different answers based on statistics.

5 QUESTION: What is the cumulative effect in the  
6 human thyroid once the thyroid absorbs a certain level of  
7 iodine; does it stay there? Does it eventually pass from the  
8 system? For what period of time does the thyroid maintain  
9 that concentration?

10 DR. GOTCHY: Well, you've got to remember --

11 MS. REILLY: Okay, there are two things, two  
12 phenomena working in the matter of, say, thyroid burden of  
13 I-131.

14 You have that old physical halflife of I-131,  
15 which is eight days -- not matter where the iodine is, the  
16 halflife is eight days.

17 Then you have a biological halflife which has to  
18 do with the body's turnover time for this particular kind of  
19 material, be it radioactive or otherwise in a particular  
20 organ. And for iodine in the thyroid, it is to the order of,  
21 say, 138 days. **555308**

22 So we have a way of grinding the eight days and  
23 the 138 together, and you come out with an effective halflife  
24 of 7.6 days, roughly.

25 So this means in 7.6 days, the burden, the total

## RAW TRANSCRIPT - UNCORRECTED

1  
2 quantity of iodine-131 in the thyroid is reduced by half.

3 QUESTION: 7.6 days?

4 MS. REILLY: Yes.

5 Probably among individuals there is some variation.  
6 But it can't be any longer than the physical halflife; it  
7 couldn't be any longer than 8, but it could be less than 7,  
8 or 7.6, for various reasons.

9 QUESTION: Is it likely any of these people had  
10 iodine-131 in their system, and no longer do? -- not enough  
11 time has passed?

12 DR. GOTCHY: Well, it's only been a week since  
13 the accident, essentially; and at the most, it would be done  
14 about a factor of two.

15 MS. REILLY: But it's sensitive enough that if  
16 anyone had enough to be really interested in, you would still  
17 have enough there to see it, and could correct that to what it  
18 was in the beginning.

19 QUESTION: These are the first tests conducted?

20 MS. REILLY: These are the first among the public,  
21 anyway; you know, the non-occupational people involved in the  
22 episode.

23 Probably there's work been done on some of the  
24 workers, people who have been at the site.

25 QUESTION: What else have they tested?

## RAW TRANSCRIPT - UNCORRECTED

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2 MS. REILLY: There's a whole body counter at the  
3 site for site people. Is there one for "trailer city" that's  
4 dedicated to them? Yuh.

5 QUESTION: Is there any other one?

6 MS. REILLY: No.

7 DR. GOTCHY: This is the only one that's operating  
8 now, for the public.

9 QUESTION: How long will it take?

10 DR. GOTCHY: Well, we are not sure yet. I think  
11 it depends on the demand. I think the last I heard, we  
12 have people calling in for appointments up through this  
13 Sunday now.

14 QUESTION: Was this station established as much  
15 as a calming measure as anything else? In other words, if  
16 you have some preliminary indications that what you are going  
17 to see here was not going to be causative-- and you established  
18 it just as much to reassure the populace as anything else?

19 DR. GOTCHY: Yes, we had calculated based on the  
20 concentrations that had been observed, the kinds of  
21 concentrations we might expect to find in people; and with the  
22 system, with the technology today, it's -- we didn't think we  
23 could detect that activity. 555310

24 And, you know, this is what the results are showing,  
25 that if there is anything there, it's less than we can

RAW MANUSCRIPT - UNCORRECTED

1  
2 detect.

3 And that level is on the order of two billionths  
4 of a curie of iodine-131.

5 QUESTION: You had pretty much surmised that  
6 before you opened the door?

7 DR. GOTCHY: Yes.

8 QUESTION: The release DER put out last night  
9 hinted it might be some time until people who were scanned  
10 got results, because it had to be run through the company's  
11 computer. I spoke with people who came out of that trailer  
12 today, who had been assured on the spot?

13 MS. REILLY: Yes, things have changed since last  
14 night. We just started sort of rolling into this fairly  
15 late yesterday, so there were a lot of raw edges on it as the  
16 sun rose this morning.

17 But I wasn't aware, you know, that they would be  
18 at liberty to say that; so we, you know.

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22 555311  
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1 RAW TRANSCRIPT - UNCORRECTED

2 QUESTION: So you can safely tell people after they  
3 get out of what I am told is like a casket area that they are  
4 in fact safe, and that there are negative readings or non-  
5 detectable -- you can do that right on the spot?

6 MS. REILLY: I would imagine. They've done a lot  
7 of this.

8 QUESTION: Were Chris Becker and (unintelligible),  
9 two of the farmers that drank their own milk -- they were first  
10 and second, I think, in line, did they --

11 MS. REILLY: I've heard their names bandied around  
12 when I first arrived this morning, but --

13 DR. GOTCHY: We're not releasing the names of the  
14 farmers. If you talked to them out there, that's fine.

15 QUESTION: I did. I just was wondering, to make  
16 sure. I didn't ask them whether they drank their own milk.

17 QUESTION: Could you repeat again what negative  
18 means in this case?

19 DR. GOTCHY: Negative means that the Iodine-131 in  
20 the body is less than one-two billionth of a curie.

21 QUESTION: What was that figure again?

22 DR. GOTCHY: Two billionth of a curie.

23 QUESTION: Which is what, .02 . . . 555312

24 DR. GOTCHY: Two nanocuries, or 2000 picocuries.

25 QUESTION: 0002 picocuries?

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## RAW TRANSCRIPT - UNCORRECTED

1  
2 DR. GOTCHY: No, it's 2000 picocuries. A picocurie  
3 is  $10^{-12}$ . It's one million millionths.

4 MS. REILLY: Micro-micro.

5 QUESTION: So below 2000 picocuries per liter --

6 DR. GOTCHY: No, per person, to total thyroid  
7 tissue.

8 QUESTION: What would a positive reaction be then?  
9 If you had a positive, would that just be over that one  
10 two-billionths?

11 DR. GOTCHY: Yes, it would mean that, for example,  
12 for a child I estimate something in the order of about 10 to  
13 15 millirem to the thyroid. If it were just over that  
14 detectable level it would mean something over 10 to 15  
15 millirem for a child's thyroid.

16 QUESTION: Was anybody close to that? Close to  
17 positive?

18 DR. GOTCHY: No. Within the statistics of the  
19 counting apparatus all we can say is that they were all  
20 background.

**555313**

21 MR. ABRAHAM: We have a question over here.

22 QUESTION: You said, you know, the limit for a  
23 child -- how do you draw the line on what a child is, for, say  
24 like 6 and under? I mean the age limit? I know it's partly  
25 due to evacuation, partly due to milk. I'm saying what age

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limits -- you know, you say a child -- where here they've drawn a definite line from 6 and under . . .

MS. REILLY: I think your question has to do with the matter of how are we defining a child? Is that . . .

QUESTION: Can you make a definite line between 6, 7, 8, 9 and --

MS. REILLY: It comes down to whose definition are you using. I really don't have a good feeling on how the Governor's description of a child was selected, but I think probably when you start considering a child's thyroid as being adult, it's . . . well --

DR. GOTCHY: Well, between the ages of 1 and teen age we call a child.

QUESTION: Well, I have just come back to town, so I haven't been able to ask anyone else the question, and I was wondering about the 6 and under for definitely having to evacuate your children. I mean do you think that he could draw the line from 6 and under, and, you know, just cast off 7, 8?

555314

DR. GOTCHY: Evacuation of children was not based on consideration of what had been released, but what might be released. In anticipation that there might be some very serious releases, that's why they were evacuated.

QUESTION: I know, but I'm saying, all right, for

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the people to be reimbursed or to be helped in any way they drew the line at 6 and under. I'm upset because I have a child 7 who is not as big as most kids who are 6, you know, and I was just asking -- I know it has nothing to do with milk, but there hasn't been anyone I've been able to ask, and--

MS. REILLY: I really -- as I said before, I don't really have a good feel for why certain ages were selected for the evacuation, but there's one thing to bear in mind, in general radiation consequences the risk to an individual as the result of some given exposure has a lot to do with the individual's age. The younger an individual is, the more sensitive they are considered to be because their cells are more rapidly dividing, for several other reasons. But throughout the radiation protection business we frequently get into little disputes as to, well, what are you calling a child? Well, I'm calling a child anything less than 20 years old. What are you calling a child? Well, I'm calling a child anything up through 10.

555315

Some of these things are not well defined, and I think there may have been a sociological ramification in the Governor's selection, because generally these children are less able to take care of themselves, and it's probably a sociological overtone.

QUESTION: So, if they endorsed people who had

RAW TRANSCRIPT - UNCORRECTED

1 child a year younger than mine, whereas I had the responsibil-  
 2 ity -- the responsibility was with me as to whether or not  
 3 to take my son.

4 MS. REILLY: Well, I don't know -- I'm having a  
 5 hard time trying to figure out what your question really is.

6 Could you run that one past me again?

7 QUESTION: All right. They drew the line for  
 8 reimbursement for traveling expenses or for any kind of  
 9 inconvenience you were caused for children from 6 and under,  
 10 and I'm saying I have a child 7, you know, who is not as big  
 11 as a lot of 6 year olds, or 5 year olds.

12 You know, I'm saying you're saying you can't draw  
 13 the line, you know, but there is a line drawn, and I'm saying,  
 14 you know, does that guarantee that because my son is 7 I should  
 15 not have evacuated him, because I'm not going to be reimbursed  
 16 in any way?

17 MS. REILLY: I don't think I'd let reimbursement  
 18 run the show.

19 QUESTION: Well, no, I'm just saying I don't know  
 20 how they can draw the line.

21 MS. REILLY: There are a lot of things I don't  
 22 quite understand in this yet, either. 555316

23 DR. GOTCHY: As I said, the reason that evacuation  
 24 did occur was in case something serious did happen, and it just  
 25 turned out luckily that there were no serious releases, and

## RAW TRANSCRIPT - UNCORRECTED

1  
2 they seem to be under control now.

3 QUESTION: What are these other radionuclides that  
4 you didn't find that you could have found? In other words,  
5 you found no evidence of noble gases. What are these radio-  
6 nuclides? Strontium?

7 DR. GOTCHY: Well, there's a number of them.  
8 Primarily what we would expect to see would be nuclides which  
9 are -- which represent the decay products of noble gases,  
10 and those radionuclides which are quite volatile, like the  
11 halogens, the iodines -- you can get several isotopes of  
12 iodine. We did not detect, for example, Iodine-135 and  
13 Iodine-133.

14 QUESTION: What else besides iodine?

15 DR. GOTCHY: These are very short-lived.

16 QUESTION: What are the daughter products of  
17 Xenon and Krypton, for example?

18 MS. REILLY: Okay. The Xenon decays to Cesium,  
19 which decays to Barium, which decays to Lanthanum, and pretty  
20 soon you get over to Cerium. 555317

21 I ran through that this morning, making up all the  
22 family trees. Krypton decays to Rubidium, which decays to  
23 Strontium, which decays to Yttrium, and so on across. I  
24 wish I had brought that along. But, in general, what governs  
25 the escape of radionuclides is what kind of physical form do

## RAW TRANSCRIPT - UNCORRECTED

1  
2 they tend to be in in a thermally hot environment? Gases will  
3 certainly be very available. Materials which ordinarily have  
4 low melting points, or which are volatile will be evident.  
5 Volatile things like Iodine will get out easily.

6 As I said before, a radioactive atom has no idea  
7 that it's radioactive, and it behaves chemically and  
8 physically like it would if it weren't radioactive.

9 So if it happens to be Iodine, Iodine evaporates  
10 very easily. In fact, Iodine can creep out of fairly tight  
11 spaces and be on its way, and noble gases, by the fact that  
12 they are gas, they will behave like gases, and they will come  
13 out like gases.

14 MR. ABRAHAM: I wonder if we could stop the formal  
15 part of this, and I'm sure that Maggie Reilly and Dr. Gotchy  
16 would be happy to answer these numerical and definition type  
17 of clarifying questions from the news media. But perhaps we  
18 could -- if there are no other general questions, maybe  
19 we'll just stop that here.

20 Thank you very much.

21 (Whereupon, at 6:35 p.m., the press conference  
22 was concluded.)

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