

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

Title: INTERVIEW OF SHU YING HUANG

Docket Number: ---

Location: CAMBRIDGE, MASSACHUSETTS

Date: OCTOBER 20, 1995

Work Order No.: NRC- 370

Pages 31

NEAL R. GROSS AND CO., INC.
Court Reporters and Transcribers
1323 Rhode Island Avenue, N.W.
Washington, D.C. 20005
(202) 234-4433

ADDENDUM

Page	Line	Correction and Reason for Correction
4	22	"articles" should be "oligos"
4	24	"articles" " " "oligos"
	25	"articles" " " "oligos"
5 4	14	I didn't find should be "They didn't find"
5	22	"and <u>she</u> had told me" should be "and Jie had told me"
6	14	"articles" should be "oligos"
7	1	"tritium" should be "tridium" H^3
7	2	"tritium" " " "tridium"
8	12	"is there" should be "is clear"
9	2	"wires" should be "vials"
9	10	"component" should be "tips"
9	10	"into the --" should be "into the P^{32} waste bucket"
10	4	"this is anything should be or not" → "to see there is any contamination"
10	21	"even if I touch" → "even if I touch" "or not"
11	10	"even if I touch" → even if I did not touch"
11	10	"cover it" ↔ "cooperate"
11	22	"article" → "oligo"
11	23	"article" → "oligo"
12	9	article → "oligo"
13	22	"what" → "who"
15	13	^{addition:} I did remember some now: The radiation officer collected everybody's urine sample for test
16	7	addition: I'm authorized to allow people when people need it → "I'm authorized to allow people when people need it" after incident happen
Page 1	Date 10/5	Signature <u>Shu Y. Zhang</u>

ADDENDUM

Page Line Correction and Reason for Correction

16	5	'I'm the one person' → I'm the one of people
17	5	not related to the -- → not related to the isotope
18	4 3	complain for → complain about
	4	they could → they could not
18	24	by myself → by myself in the second book
22	9	introduced that → introduced plastic shield
22	13	well not always → deleted
25	19	bench → desk
25	19	It's my chow too, because it's a lot of material
25	20	I let him to use it → should be
		"Dr Li has a lot of file, reading material, I let him
		use a one of my drawer in my desk."
26	22	main line → medline
27	12	"we have a habit to sit there for 5 minutes" should be
		I may only have to sit by my desk
		5 minute ^{or less} a day because it is far from my bench
27	19	put that key away to → put that key to

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 + + + + +

4 INCIDENT INVESTIGATION TEAM

5 + + + + +

6 INTERVIEW

7 OF

8 SHU YING HUANG

9 + + + + +

10 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

11 + + + + +

12 FRIDAY,

13 OCTOBER 20, 1995

14 3:35 p.m.

15 + + + + +

16 INTERVIEWERS:

17 BETSY ULLRICH

18 ALAN L. MADISON

19 GREGGORY P. GONECONTO

1

I N D E X

2

E X H I B I T S

3

EXHIBIT NO.DESCRIPTIONIDENT

4

1

Written map of laboratory

26

P-R-O-C-E-E-D-I-N-G-S

(3:35 p.m.)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

INTERVIEWER ULLRICH: It is 3:35 p.m. This is the interview with Shu Ying Huang. And my name is Betsy Ullrich. I'm with the Nuclear Regulatory Commission, and I'm a health physicist. Let's do introductions, and then I'll get into some of it.

INTERVIEWER MADISON: I'm Alan Madison. I'm with the NRC, and I'm out of headquarters in Washington.

INTERVIEWER GONECONTO: And I'm Gregg Goneconto. I'm an investigator with the NRC Inspector General's office. And I'm sitting in as an observer.

INTERVIEWER ULLRICH: You know that we're here as part of the incident investigation looking into contamination, ingestion incident. Part of our purpose here is to try to establish what happened. Another part is to try to identify why it happened, what the cause of the ingestion might have been. And the third part is to try to provide feedback to the research community and to the regulatory agency as to what could be done in the future to prevent something like this from happening again.

We're conducting interviews with people who were in the laboratory who may have facts so that we can gather those facts. And we're transcribing the interviews so that we have a written record we can go back and look at

1 and we don't have to worry about taking notes while we're
2 talking to you.

3 MS. HUANG: Okay.

4 INTERVIEWER ULLRICH: The written record will
5 be available tomorrow for you to review if you would like
6 to review it. And at the end of our investigation we will
7 write a report. And at that time all the written records
8 will become part of the Public Document room records.
9 Okay?

10 At the end of the interview we'll also give you
11 a paper that tells you how to get a copy of the written
12 record to review sometime tomorrow or after tomorrow.
13 Okay?

14 Would you tell us your name and your position
15 in the laboratory and describe a little bit of what your
16 job is over there?

17 MS. HUANG: Okay. My name is Shu Ying Huang.
18 And I'm a technical associate at Tonegawa's lab. And I
19 work there only 80 percent. Part of my work is research.
20 I'm working with David Gerber.

21 And part of my duties are I synthesize all the
22 articles for members in the lab.

23 INTERVIEWER ULLRICH: You synthesize the
24 article?

25 MS. HUANG: Articles.

1 INTERVIEWER ULLRICH: Right. Okay.

2 MS. HUANG: You know, the DNA.

3 INTERVIEWER ULLRICH: Yes.

4 MS. HUANG: And I in charge the computers, too,
5 in the lab.

6 INTERVIEWER ULLRICH: Okay.

7 MS. HUANG: That's all my duty.

8 INTERVIEWER ULLRICH: Okay. The incident that
9 we are here to investigate happened back in August. Could
10 you think back to that time and tell us when you first
11 became aware that something had happened and tell us how
12 you found out about it?

13 MS. HUANG: Yeah. I was in -- this happened on
14 Monday, but I didn't -- I mean, I didn't find until
15 Saturday.

16 INTERVIEWER ULLRICH: Right.

17 MS. HUANG: Monday I take a day off, I mean,
18 the following week. Then Tuesday I went back. And I just
19 kind of asked people around, say, "Is anything new happen
20 in the lab?" or something like that.

21 And she had told me, said, "Oh, do you know
22 that Yuding, I mean, got a contaminant with a huge amount
23 of that?"

24 I was so shocked. I said, "How can that
25 happen, especially the high dose?" So I just learned it

1 from somebody, somebody else, yes.

2 INTERVIEWER ULLRICH: And are you normally in
3 the laboratory every day?

4 MS. HUANG: Yes. Normally I'm in the lab, yes,
5 every day, yes.

6 INTERVIEWER MADISON: Monday through Friday,
7 but not --

8 MS. HUANG: Yes, Monday through Friday, 9:00,
9 something like 9:30 to 3:30 or 4:00, 4:00 o'clock.

10 INTERVIEWER MADISON: Are you there on the
11 weekends?

12 MS. HUANG: Yes. Usually I come on Saturday,
13 yes, Saturday morning, just for the short time because
14 sometimes the article need to take out. And if there's a
15 long waiting list, I come to make another two or something.
16 Yes.

17 INTERVIEWER ULLRICH: Do you handle radioactive
18 material yourself?

19 MS. HUANG: Yes, I do, but the past -- I should
20 say past year, half a year, I do not touch any P-32.

21 INTERVIEWER ULLRICH: Okay.

22 MS. HUANG: Yes, we use some thymidine.

23 INTERVIEWER ULLRICH: Is that S-35 labeled
24 thymidine?

25 MS. HUANG: No, it's not that. No. Thymidine

1 is -- tritium. I'm sorry.

2 INTERVIEWER ULLRICH: Tritium labeled
3 thymidine. Okay.

4 MS. HUANG: Yes.

5 INTERVIEWER ULLRICH: And is that in Tonegawa's
6 lab or --

7 MS. HUANG: In Tonegawa's lab.

8 INTERVIEWER ULLRICH: Okay. In terms of how
9 long you've been in the laboratory, has it been longer than
10 -- you said you haven't used radioactive material in the
11 past year. How long were you --

12 MS. HUANG: I've been there four years.

13 INTERVIEWER ULLRICH: Four years now?

14 MS. HUANG: Yes.

15 INTERVIEWER ULLRICH: Okay. And what are the
16 typical radiation protection practices?

17 MS. HUANG: Do I use, that I --

18 INTERVIEWER ULLRICH: Yes, if you use
19 radioactive --

20 MS. HUANG: Usually I'm very careful. I always
21 wear the lab coat all the time, not everybody in the lab,
22 but I always do, with the badge, always. And even I don't
23 do the isotope work, I still wear it because you don't know
24 where. And I wear the -- usually I wear the double gloves
25 and with the shield.

1 INTERVIEWER ULLRICH: Sure.

2 MS. HUANG: I mean, just carry everything very,
3 very carefully because I -- myself I'm so nervous dealing
4 with isotopes.

5 INTERVIEWER ULLRICH: Okay. Do most people use
6 the shields?

7 MS. HUANG: Yes, most people. We have a lot of
8 -- we have a -- I forgot how many, but most people use the
9 shield.

10 INTERVIEWER ULLRICH: Okay.

11 MS. HUANG: And usually I check on my hand
12 everything to make sure everything is there.

13 INTERVIEWER ULLRICH: And most people in the
14 laboratory seem to do that as well?

15 MS. HUANG: I believe. I mean, I don't kind
16 of, I mean, check everybody.

17 INTERVIEWER ULLRICH: Sure.

18 MS. HUANG: You just do what you had to do, I
19 mean.

20 INTERVIEWER ULLRICH: Okay. Do you ever have
21 opportunity to pipette material?

22 MS. HUANG: What kind of material? Isotope?

23 INTERVIEWER ULLRICH: Isotope material, yes.

24 MS. HUANG: You mean for P-32? Usually, yes,
25 you have to pipette. Otherwise how do you do the work?

1 INTERVIEWER ULLRICH: Okay.

2 MS. HUANG: You have to pipette from the wires,
3 right. Then you have to -- yes.

4 INTERVIEWER ULLRICH: Okay. Is that a
5 difficult procedure?

6 MS. HUANG: To pipette?

7 INTERVIEWER ULLRICH: Yes.

8 MS. HUANG: No. I mean, it takes you a -- you
9 could -- at the tip usually I have a beaker, you know, to
10 put all the isotope component in that case into the --
11 whatever what is --

12 INTERVIEWER ULLRICH: Okay. And then you --

13 MS. HUANG: Yes. I clean, I mean, the beaker.
14 Sometimes I set the beaker for the next time to use it, for
15 the label, you know, the isotope label, the vial label, and
16 put on the shelf high up with a shield so next time I can
17 use the same thing.

18 INTERVIEWER ULLRICH: The same beaker? Okay.
19 Do you think it would -- that when you pipette, is that a
20 likely way for contamination to occur?

21 MS. HUANG: To myself? I feel it's quite
22 unlikely, I mean, especially with the shield. I mean, here
23 I just speak for myself.

24 INTERVIEWER ULLRICH: Sure.

25 MS. HUANG: It's just a spot, even a tiny bit,

1 a five microliter, one microliter, for when I do that work
2 if something, I mean, spray on my face or anyplace, the
3 first thing I'd probably just wipe it and wash it and check
4 with a Geiger counter, this is anything should be or not.

5 This is myself. I don't know if anybody else
6 is doing that or not.

7 INTERVIEWER ULLRICH: But is that something
8 that is likely to happen or --

9 MS. HUANG: I mean, everything is possible.

10 INTERVIEWER ULLRICH: Sure.

11 MS. HUANG: I guess I say that. But, I mean,
12 with a shield, I mean, you work behind a shield.

13 INTERVIEWER ULLRICH: Okay. Have you ever had
14 an incident where your hands were contaminated?

15 MS. HUANG: I have a hand contaminant,
16 something like -- I mean, that is after you label it. You
17 label the probe.

18 INTERVIEWER ULLRICH: Yes.

19 MS. HUANG: And if you transfer the probe to
20 the bag for hybridization, sometimes you might touch. You
21 know, even if I touch, I check. I mean, I always have a
22 Geiger counter beside me to kind of check to see.

23 INTERVIEWER ULLRICH: But in the past four
24 years that's only happened to you maybe once?

25 MS. HUANG: Yes, maybe, maybe. Yes, maybe

1 once, yes.

2 INTERVIEWER ULLRICH: Okay. So that just gives
3 an idea of how often something like that might happen?

4 MS. HUANG: But, I mean, you say it's not
5 necessarily you touch it, but you have gloves. I mean, you
6 do have gloves, I mean, take it away also.

7 INTERVIEWER ULLRICH: Okay. Typically in your
8 procedures how much did you use when you were using P-32?

9 MS. HUANG: In this lab I used very little
10 because I kind of cover it with David Gerber, right. And
11 usually he labels it. And I do the other.

12 INTERVIEWER ULLRICH: The other portion of the
13 procedure?

14 MS. HUANG: Yes. I don't like to deal with it.

15 INTERVIEWER ULLRICH: Okay.

16 MS. HUANG: Yes. So usually I -- and after he
17 label it, I use the probe, I mean, to do the hybridization.
18 We kind of cooperate. So --

19 INTERVIEWER ULLRICH: Now, you were talking
20 earlier. You said that your job in the lab now is to make
21 the --

22 MS. HUANG: Article?

23 INTERVIEWER ULLRICH: -- the articles, right.

24 MS. HUANG: Yes.

25 INTERVIEWER ULLRICH: Do you do that for

1 everybody in the laboratory?

2 MS. HUANG: Yes, for everybody.

3 INTERVIEWER ULLRICH: About how many people are
4 there in the laboratory that you do this for?

5 MS. HUANG: Well, right now 30 or something.
6 You probably have better idea of how many. Probably about
7 30, I mean.

8 INTERVIEWER ULLRICH: And they all need the
9 articles?

10 MS. HUANG: Not everybody, not everybody need
11 it. And it's varied amount of people. Some need a lot.
12 Some -- it would depend on what stage of your research.

13 INTERVIEWER ULLRICH: Okay, okay.

14 MS. HUANG: They use that as a primer.

15 INTERVIEWER ULLRICH: Okay. About how many of
16 those do you do?

17 MS. HUANG: Do I do maybe?

18 INTERVIEWER ULLRICH: Yes.

19 MS. HUANG: I should say average every day I
20 have to make about four, I mean, just average. Sometimes I
21 have to make six to eight and sometimes maybe two a day. I
22 average about four a day. Yes.

23 INTERVIEWER ULLRICH: And Dr. Li is using that
24 kind of material?

25 MS. HUANG: Yes, yes. He uses that.

1 INTERVIEWER ULLRICH: And that is used, then,
2 in his protocols, --

3 MS. HUANG: Yes.

4 INTERVIEWER ULLRICH: -- his other protocols?

5 MS. HUANG: Yes.

6 INTERVIEWER ULLRICH: Okay. You are in and out
7 of that laboratory quite a bit since you go in to make
8 these every day. Would you notice who belongs in the
9 laboratory and if there was somebody there who didn't?
10 Would you notice if there was a stranger in the laboratory?

11 MS. HUANG: Oh, yes. If I -- I mean, at that
12 time or what? I don't understand the question.

13 INTERVIEWER ULLRICH: At any time generally how
14 --

15 MS. HUANG: Yes. Usually if I see some people
16 not belonging to our lab, I usually ask.

17 INTERVIEWER ULLRICH: Does that happen often?

18 MS. HUANG: No, no. I don't think so. I think
19 I hardly see anyone that was in the lab. I mean, usually
20 they may be friend of some, you know, member in the lab.

21 INTERVIEWER ULLRICH: Okay.

22 MS. HUANG: Usually I ask them, I mean, "What
23 are you looking for?"; something like that.

24 INTERVIEWER ULLRICH: And they'll tell you?

25 MS. HUANG: And they will tell me who.

1 INTERVIEWER ULLRICH: In terms of where
2 radioactive material is stored, where is that located in
3 the laboratory, say P-32?

4 MS. HUANG: In one refrigerator. How do I
5 describe the room, just --

6 INTERVIEWER ULLRICH: I don't need you to.
7 Just "It's in the refrigerator." That's fine.

8 MS. HUANG: The refrigerator.

9 INTERVIEWER ULLRICH: Is that refrigerator
10 accessible to everybody in the laboratory?

11 MS. HUANG: Yes, yes, yes.

12 INTERVIEWER ULLRICH: Would it be accessible to
13 people who were not from the laboratory?

14 MS. HUANG: If they know where it is.

15 INTERVIEWER ULLRICH: Okay. If they know where
16 it is, they could?

17 MS. HUANG: Yes, because it's there and it's
18 like a -- I don't know what.

19 INTERVIEWER ULLRICH: After that Tuesday when
20 you came back from your day off and you found out about
21 this incident, did you see Radiation Protection at all?
22 Did you see any of their activities in the laboratory?

23 MS. HUANG: What does that mean?

24 INTERVIEWER ULLRICH: The Radiation Protection
25 staff. Did you meet with them or see them do any

1 activities in the laboratory the week after --

2 MS. HUANG: Yes. They give us a meeting and
3 tell us, you know, how to, you know -- something like bring
4 this issue in the -- tell us how to -- I mean, not how to
5 handle, I mean, just how to handle the isotope.

6 INTERVIEWER ULLRICH: Okay. So they gave you a
7 little bit refresher training in handling the isotope
8 again?

9 MS. HUANG: Yes, yes.

10 INTERVIEWER ULLRICH: Okay. What else did they
11 do in the laboratory that you were able to observe? Did
12 they do any additional surveys while you were there?

13 MS. HUANG: I don't remember. I don't
14 remember.

15 INTERVIEWER ULLRICH: Okay.

16 MS. HUANG: They might -- how do you say it?
17 They might check the lab and make sure every waste
18 container, what is in the -- but I forgot.

19 INTERVIEWER ULLRICH: Okay. That's fine.
20 After that meeting that you had where they went over
21 handling material again, they had a period of restriction?

22 MS. HUANG: Yes.

23 INTERVIEWER ULLRICH: Did that affect you at
24 all, the work that you were doing?

25 MS. HUANG: I don't use.

1 INTERVIEWER ULLRICH: You don't use the P-32?

2 MS. HUANG: I don't use the P-32, but, I mean

3 --

4 INTERVIEWER ULLRICH: Were you able to use --

5 MS. HUANG: I'm the one -- yes. I'm the one

6 person who has the key, just, I mean, to -- I mean, I'm

7 authorized to allow people when people need it.

8 INTERVIEWER ULLRICH: That was something that

9 you had done before that?

10 MS. HUANG: No. You mean to -- you mean with

11 aliquot?

12 INTERVIEWER ULLRICH: Yes.

13 MS. HUANG: I mean, so far we lock all the

14 radioactive material.

15 INTERVIEWER ULLRICH: Since that incident?

16 MS. HUANG: Yes, since that incident.

17 INTERVIEWER ULLRICH: Okay.

18 MS. HUANG: And only a couple of people have a

19 key, are allowed to open it to give away. We make the

20 order directly.

21 INTERVIEWER ULLRICH: Were you able to use your

22 tritiated thymidine while the rest of the laboratory was

23 not allowed to use P-32?

24 MS. HUANG: At that time? To tell you the

25 truth, just in this three or four month, I do not use any,

1 any isotope at all.

2 INTERVIEWER ULLRICH: It happened to be in the
3 last period?

4 MS. HUANG: Yes. I was just doing something
5 else not related to the --

6 INTERVIEWER ULLRICH: Okay.

7 MS. HUANG: Yes. So I never use any, I mean.

8 INTERVIEWER ULLRICH: So any restrictions that
9 they place on isotope use didn't both --

10 MS. HUANG: No, it didn't bother me at all.

11 INTERVIEWER ULLRICH: Okay. They reopened the
12 lab how much later? Do you recall? A week or two weeks or
13 a month?

14 MS. HUANG: Yes. I don't recall.

15 INTERVIEWER ULLRICH: Okay.

16 MS. HUANG: Yes. About -- you mean the survey,
17 how did they do it? Yes. They restrict everybody to not
18 use the isotope other than a few times. I forgot because
19 it does not affect my research. So I didn't pay much
20 attention how long.

21 INTERVIEWER ULLRICH: Okay. But now you are a
22 key holder?

23 MS. HUANG: Yes, I'm the key holder.

24 INTERVIEWER ULLRICH: Do you recall when they
25 gave you the key for the lock box?

1 MS. HUANG: Well, I don't remember. I'm not
2 the first one to get a key. I think I got a copy because
3 later on people complain for manager, Dennis, not around so
4 they could do the research. Then how are they going to do
5 it? It's kind of inconvenient for the member in the lab.

6 So Dennis decides maybe I can have key -- I
7 mean, have a copy and then kind of watch, I mean.

8 INTERVIEWER ULLRICH: Okay. Does that mean
9 that you're doing dispensing now of P-32?

10 MS. HUANG: What do you mean "dispensing"?

11 INTERVIEWER ULLRICH: Do you unlock the box and
12 give them the vial?

13 MS. HUANG: Yes, yes, yes.

14 INTERVIEWER ULLRICH: Okay. You do not have to
15 dispense the material yourself and give them an aliquot
16 from the bottle?

17 MS. HUANG: No, no. I think Dennis, I mean, do
18 all the aliquot and put -- each tube is 10 microliter.

19 INTERVIEWER ULLRICH: Okay.

20 MS. HUANG: Yes. So mine is just kind of help
21 him. I mean, when he's not around, then I have a key to
22 help him to open and make sure I'm in -- I mean, I give
23 them the tube. I mean, I open the tube. Then I write down
24 by myself, not by them.

25 INTERVIEWER ULLRICH: Okay.

1 MS. HUANG: Yes.

2 INTERVIEWER ULLRICH: Do you know if that is a
3 requirement just in Tonegawa's laboratory or whether that
4 --

5 MS. HUANG: I think probably only in ours.

6 INTERVIEWER ULLRICH: Only in Tonegawa's?

7 MS. HUANG: Yes.

8 INTERVIEWER ULLRICH: Okay. Now, you said you
9 work 80 percent of the time there? Where is your other 20
10 percent?

11 MS. HUANG: Well, I have a family.

12 INTERVIEWER ULLRICH: Oh, okay. I thought you
13 were talking that you worked 80 percent in his lab and 20
14 percent in someone else's lab?

15 MS. HUANG: I'm sorry. No, no. I just -- I
16 mean, I have kids to take care of.

17 INTERVIEWER ULLRICH: Okay.

18 MS. HUANG: Sorry.

19 INTERVIEWER ULLRICH: Not a problem. I was
20 just looking to see if you have another laboratory to
21 compare the activities to.

22 How would you describe the security of the
23 building?

24 MS. HUANG: The security of the building, I
25 think it's supposed to be good, I mean, because, I mean,

1 usually I don't come during the night. So I don't know how
2 secure, you know, in the building.

3 But this building I come -- I mean, this
4 building usually is locked during the weekend. And during
5 the night it's probably locked, too, the outside door.

6 INTERVIEWER ULLRICH: The outside doors are
7 locked?

8 MS. HUANG: And they have a door to the E-23 or
9 25, but that door was locked, too.

10 INTERVIEWER ULLRICH: Okay.

11 MS. HUANG: Yes.

12 INTERVIEWER ULLRICH: When you come on the
13 weekends, how do you get in?

14 MS. HUANG: Oh, I know, I mean, because I'm
15 working there. So I know the combination number to get
16 into the building.

17 INTERVIEWER ULLRICH: Okay.

18 MS. HUANG: Yes.

19 INTERVIEWER ULLRICH: Let's see. You began
20 working in Dr. Tonegawa's lab four years ago?

21 MS. HUANG: Yes.

22 INTERVIEWER ULLRICH: Is that when you came to
23 work at MIT?

24 MS. HUANG: No. I work in Biology Department
25 before.

1 INTERVIEWER ULLRICH: Okay.

2 MS. HUANG: Yes.

3 INTERVIEWER ULLRICH: When you were working in
4 biology, were you also working with isotope?

5 MS. HUANG: Yes.

6 INTERVIEWER ULLRICH: How long had you been
7 working there?

8 MS. HUANG: A long time.

9 INTERVIEWER ULLRICH: Okay.

10 MS. HUANG: Over 10 years.

11 INTERVIEWER ULLRICH: All right. Then let me
12 ask a slightly different question than I planned. What
13 kind of radiation safety training is provided by MIT for
14 you?

15 MS. HUANG: Oh, usually they -- when you
16 started work, you had to come to the training class to get,
17 you know, permission. So they put you on a list that you
18 are allowed to use the P-32 or whenever and something. If
19 you had to use a gamma irradiator, you had to come to the
20 training, you know, one to one. Then you allowed to use,
21 yes, usually.

22 And once in a while they have some -- I
23 remember they used to, I mean, during the winter sometimes
24 they have a -- how do I say that? It's kind of informal
25 meeting or what, invite people over if you like to know

1 more about how to protect yourself from the radiation.
2 Usually -- I think I went several times.

3 They introduce to you different vial to hold
4 all the material and which way to work so it's good for
5 you, you don't get sprayed or something.

6 INTERVIEWER ULLRICH: Okay.

7 MS. HUANG: And so I remember because the
8 shield they just introduced 10 or 15 years ago. I used to
9 use a lead, I mean. So they introduced that, too. I think
10 it's quite good on that point.

11 INTERVIEWER ULLRICH: Okay. Do you see
12 Radiation Protection staff very often in the laboratories?

13 MS. HUANG: Yes. They always -- well, not
14 always. I don't know how often. I didn't pay attention.
15 But always with a Geiger counter to check everybody's -- I
16 mean, to check everybody's bench or to see if any
17 combination or, you know --

18 INTERVIEWER ULLRICH: And how -- do you get to
19 know the people from Radiation Protection?

20 MS. HUANG: Oh, yes, yes, yes. Because half of
21 them come here. You know who from the -- especially seeing
22 them with a Geiger counter, you know.

23 INTERVIEWER ULLRICH: Sure. Okay. Now, I
24 understand that Dr. Tonegawa's lab was on probation a
25 couple of years ago. Were you working in the laboratory

1 then?

2 MS. HUANG: Probation?

3 INTERVIEWER ULLRICH: Yes.

4 MS. HUANG: A couple of years ago? About what
5 time?

6 INTERVIEWER ULLRICH: They were under scrutiny
7 by the Radiation Protection Committee. Were you aware of
8 that?

9 MS. HUANG: I don't recall about that. This is
10 the first accident I knew since I come to the -- you said
11 it's a couple of years ago or no?

12 INTERVIEWER MADISON: I believe it's within the
13 last year.

14 INTERVIEWER ULLRICH: Within the last year or
15 the last two years.

16 MS. HUANG: Well, then I probably didn't know.

17 INTERVIEWER ULLRICH: Okay. Well, if it was
18 within the last year and you weren't using isotope, you,
19 again, may not have noticed perhaps. They were not
20 restricted from using materials, but they were being -- I
21 understood they were being reviewed differently.

22 MS. HUANG: Oh, I think it's probably the
23 waste.

24 INTERVIEWER ULLRICH: Okay.

25 MS. HUANG: Probably the waste that we use

1 would probably -- I mean, think probably we didn't treat it
2 properly or something with the waste.

3 INTERVIEWER ULLRICH: Okay. You don't remember
4 more details about that at this time?

5 MS. HUANG: No, I don't remember. I think it's
6 something about the waste they have.

7 INTERVIEWER ULLRICH: Okay.

8 MS. HUANG: It's not a big contamination, just
9 some probably they dump the different things in a different
10 waste container or something.

11 INTERVIEWER ULLRICH: Sure.

12 MS. HUANG: And they probably refused to pick
13 it up and say we have to clean the kind of separate. I
14 think something like that, but I'm not 100 percent certain.

15 INTERVIEWER ULLRICH: How are the food
16 practices in the laboratory?

17 MS. HUANG: Food practicing?

18 INTERVIEWER ULLRICH: Do people eat food in the
19 laboratories?

20 MS. HUANG: Not in the lab. We have a
21 conference room. So most people have lunch there or we go
22 to some other place. We have a refrigerator. So if you
23 bring your own lunch, you can keep in the refrigerator
24 until you are ready to eat. And by that there's a
25 microwave oven so you can heat up your lunch.

1 INTERVIEWER ULLRICH: Is this in an area that
2 everybody can see? Is it very accessible?

3 MS. HUANG: Yes, yes. It's next to the office,
4 the secretary office.

5 INTERVIEWER ULLRICH: Okay. Let me see if Alan
6 has any questions he can think of.

7 INTERVIEWER MADISON: Could you maybe make a
8 sketch to show me where in relation to Dr. Li that you
9 worked?

10 MS. HUANG: Of the place, the workplace? Our
11 room is very, very -- this is the back building. It's a
12 cold room.

13 INTERVIEWER ULLRICH: Okay.

14 MS. HUANG: We have a cold room, right. Then
15 come here. This -- I think Yuqing's bench is here. His
16 desk is here. There's another desk. I use this desk, but
17 I don't use much because I'm very busy. I really don't
18 have time to really sit down. But this officially is my
19 bench. It's my throw, too, because it's a lot of material.
20 I let him to use it.

21 So this is one room; right? Then there's a
22 door, I think. And open this door, there's another room
23 here. This is a hallway. There is another door to this
24 room; right? And then my bench is here.

25 INTERVIEWER MADISON: Okay.

1 INTERVIEWER ULLRICH: Okay.

2 MS. HUANG: There were two people here.
3 There's another woman there, I think.

4 INTERVIEWER MADISON: All right. For the
5 transcript, we'll call this Exhibit 1.

6 (Whereupon, the aforementioned
7 document was marked for
8 identification as Exhibit Number 1.)

9 INTERVIEWER ULLRICH: Now, you also said you're
10 in charge of the computers?

11 MS. HUANG: Yes.

12 INTERVIEWER ULLRICH: Could you indicate where
13 the computers are or is that --

14 MS. HUANG: It's far away.

15 INTERVIEWER ULLRICH: What? Far away?

16 MS. HUANG: Yes.

17 INTERVIEWER ULLRICH: What computers are they?

18 MS. HUANG: Mackintosh and a PC.

19 INTERVIEWER ULLRICH: What are they used for?

20 MS. HUANG: Most time we use to search the
21 protocol -- not protocol, the paper material; right? You
22 have a main line you can get in. I know we use for to type
23 in a paper and to make a graphic.

24 INTERVIEWER ULLRICH: So they were word
25 processing?

1 MS. HUANG: Yes, word processing. Yes, more
2 than -- yes.

3 INTERVIEWER ULLRICH: Are you also involved
4 with the computers that are used with the imaging files?

5 MS. HUANG: No, no, I don't involve that.

6 INTERVIEWER ULLRICH: Okay. Okay. And Alan is
7 just indicating let's make sure we get your desk and --

8 MS. HUANG: Yes, yes. That's --

9 INTERVIEWER MADISON: The exterior of your desk
10 and the bench is why.

11 INTERVIEWER ULLRICH: Okay.

12 MS. HUANG: I mean, we have a habit to sit
13 there for five minutes.

14 INTERVIEWER MADISON: The key for the
15 radioactive material, do you have that with you now?

16 MS. HUANG: No. I usually -- I mean, I
17 usually, I mean, lock in a cabinet, yes, at a -- because I
18 don't want to put that key -- that key's very small. I
19 don't want to put that key away to my key chain and may --
20 who knows?

21 INTERVIEWER ULLRICH: Okay.

22 MS. HUANG: But I lock. I have a --

23 INTERVIEWER MADISON: It's a locked cabinet?

24 MS. HUANG: Yes, yes.

25 INTERVIEWER MADISON: Where is the cabinet?

1 MS. HUANG: Where is the cabinet? I have a
2 cabinet in -- do you know we -- I have a cabinet to lock my
3 purse.

4 INTERVIEWER ULLRICH: Like a locker?

5 MS. HUANG: Yes, the locker. Yes, yes.

6 INTERVIEWER MADISON: Where is that?

7 MS. HUANG: Where is that?

8 INTERVIEWER MADISON: Is that in the laboratory
9 there?

10 MS. HUANG: It's not inside the lab. It's
11 outside the lab.

12 INTERVIEWER MADISON: All right.

13 INTERVIEWER ULLRICH: Okay.

14 INTERVIEWER MADISON: I understand.

15 MS. HUANG: Because I put in all my personal
16 stuff, I mean. When I come to work, I put my purse,
17 everything there, my coat, a jacket, and everything.

18 INTERVIEWER ULLRICH: In your experience in
19 handling radioactive materials, can you think of any other
20 ways that people could get contaminated other than a splash
21 or spill? Have you --

22 MS. HUANG: I really don't know, I mean. Yes.
23 I just know myself.

24 INTERVIEWER ULLRICH: You're careful? You
25 don't want to deal with it?

1 MS. HUANG: Yes. I don't want to deal with it.
2 I have kids. I don't -- I really don't want to bring
3 anything from the lab to them. I mean, it's a career, but
4 you don't want to bring all the dirty things.

5 INTERVIEWER ULLRICH: Sure, sure. Is there
6 anything else that you can think of that we need to know
7 about the contamination incident that we haven't discussed?

8 MS. HUANG: No, no because I'm still wondering:
9 Why can this happen? I was shocked. I mean, how can that
10 happen to him? It's quite terrible.

11 INTERVIEWER ULLRICH: Is there anyone that you
12 think of that we should talk to, anyone else?

13 MS. HUANG: No.

14 INTERVIEWER ULLRICH: Okay.

15 INTERVIEWER MADISON: If you do think of
16 something you'd like to share with us later or somebody
17 else wants to talk to us, we'll give you a phone number
18 that you can contact us.

19 MS. HUANG: Sure.

20 INTERVIEWER ULLRICH: The paper that I'm
21 writing the phone number on also has the instructions on
22 the availability of the transcripts. You can review them.
23 You would call this number, Cherie Siegel, and make
24 arrangements to come over and review the transcript
25 sometimes after tomorrow.

1 MS. HUANG: When I talk today?

2 INTERVIEWER ULLRICH: Yes, to make any
3 corrections that might need to be made. And they would
4 have a form for you to make that correction on. Okay?

5 MS. HUANG: Is this necessary to come back to
6 --

7 INTERVIEWER MADISON: Not if you don't want to.

8 INTERVIEWER ULLRICH: Only if you want to.

9 MS. HUANG: Only if I want to? Okay.

10 INTERVIEWER ULLRICH: Yes.

11 INTERVIEWER MADISON: And if you wish, at the
12 end of the investigation, as we said, the transcript and
13 the report will go in a public document room. And at that
14 time you can even get a copy.

15 MS. HUANG: Oh, okay.

16 INTERVIEWER ULLRICH: Okay?

17 MS. HUANG: Yes.

18 INTERVIEWER ULLRICH: I think unless either of
19 you have any other questions, we'll end the interview,
20 then.

21 INTERVIEWER MADISON: Thank you.

22 INTERVIEWER ULLRICH: We can go off the record.

23 (Whereupon, the foregoing matter was concluded
24 at 4:03 p.m.)

C E R T I F I C A T E

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: INTERVIEW WITH SHU YING HUANG

Docket Number: --

Place of Proceeding: Cambridge, Massachusetts

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

C. Pyott
Official Reporter
Neal R. Gross and Co., Inc.

Exhibit 1

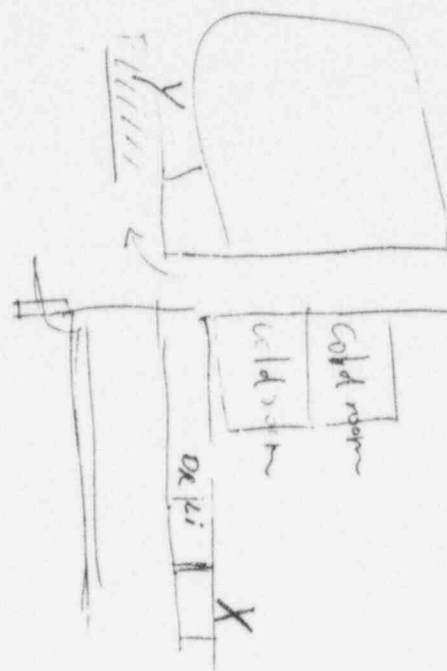


exhibit 1
Shu Ying Huang

10/20/95

October 20, 1995

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNO-IIT-95-02

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the IIT on this date.

Facility

Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, Massachusetts 02139

Licensee Emergency Classification

Notification of Unusual Event
Alert
Site Area Emergency
General Emergency
X Not Applicable

Docket No.: 030-00763

License No.: 20-01537-02

SUBJECT: STATUS REPORT FROM NRC INCIDENT INVESTIGATION TEAM

The Incident Investigation Team (IIT) remains onsite gathering data, conducting interviews, inspecting equipment and facilities, meeting with the licensee, concurring in licensee action plans, and analyzing facts. As of noon on October 20, 1995, the IIT Charter was modified to remove from the scope the evaluation with respect to potential wrongdoing at the MIT Cancer Center. A parallel OI investigation will followup on potential wrongdoing. A preliminary sequence of events has been developed by the IIT and is attached. A set of preliminary hypotheses explaining the significant events has been developed by the IIT and are being investigated.

All interviews should be completed on October 24, 1995. All licensee action plans for further sample analysis and uncovering remaining event-related information should be finalized by October 25, 1995. Assuming the combination of information possessed by the IIT and the licensee action plans to uncover additional facts appear adequate to project closure of significant open issues, the IIT intends to depart the site by October 25, 1995 and reassemble in Rockville, Maryland.

A final status report will be issued prior to the IIT's departure from the site.

Attachment: Preliminary Sequence of Events

CONTACT: John Glenn, IIT Leader
617-253-5360

9510250229

- 2 -

DISTRIBUTION:

OWEN
Chairman Jackson
Comm. Rogers
OCAA
OIP
OCA
OGC
OPA
EDO
OE
OSP
NRR
SECY

TWEN
AEOD
IRM
ACRS
NMSS
OIG
RES

LST
PDR

INPO**
NSAC**

Mail: DCD
DOT:Trans only**

NRC Ops Ctr

Regional Offices

Licensee

**General list for sending PNs by FAX

PRELIMINARY SEQUENCE OF EVENTS

All times are Eastern Daylight Savings Time

08/14/95 Monday: The exposed individual uses 50, 50, 50 and 50 microcuries of P-32 in four probe labellings; no unusual radiation levels detected during his routine surveys. This day is later determined by MIT to be the day of intake of P-32 by the exposed individual.

08/19/95 Saturday: The day that the exposed individual identified himself as contaminated.

10:00 a.m. The exposed individual begins first part of procedure, using 50 microcuries of P-32; he left the laboratory for several hours midday.

3:30 p.m. The exposed individual resumed the procedure. When performing a survey at the end of his work period, he noticed unusually high background radiation levels which he determined to come from himself. The exposed individual verified by analysis of a urine sample that radioactive material was in his body.

5:10 p.m. Campus police receive call from researcher and begin response actions including: calls to EMS and radiation protection on-call personnel; and sending an officer to the laboratory.

6:00 p.m. The responding campus police officer interviewed the contaminated individual and escorted him to the MIT medical department.

7:00 p.m. Two representatives from the MIT Radiation Protection Office arrived onsite and met the exposed individual at the MIT medical department. The radiation protection respondents returned with the exposed individual to this laboratory, and performed surveys with a pancake GM of the entire laboratory, adjacent laboratories, and non-laboratory areas. They did not detect any unusual radiation levels.

The exposed individual accompanied the radiation protection staff to the radiation protection office for complete GM survey, and for analysis of urine sample and whole body count. The whole body count confirmed the contamination was P-32.

- 2 -

9:00 p.m. The exposed individual was accompanied by a radiation protection representative to his apartment. Radiation surveys did not detect any above background radiation levels in the apartment or on the exposed individual's outer clothing from previous work days. The exposed individual was supplied with collection containers and requested to retain urine samples for each void.

08/21/95 Monday

Morning

A careful survey of the exposed individual's clothing from the previous 9 days identified contamination in underwear beginning with Monday, August 14, 1995. Because the exposed individual worked with no radioactive material between August 14 and August 19, and he did not identify any above background contamination or radiation levels during his surveys on August 14, the radiation protection staff believe that the initial day of ingestion is confirmed.

Additional surveys were done by the MIT radiation protection staff of laboratories and of non-laboratory areas. Laboratory personnel were requested urine samples from 24 other workers in the laboratory. Note: Urinalyses results confirm that no other individuals were exposed to P-32.

Afternoon

The MIT Radiation Safety Officer met with the laboratory personnel to review the Radiation Protection staff findings from Saturday through Monday.

08/22/95

Morning

The Radiation Safety Officer suspended all authorization to use radioactive material in the laboratory, and removed all stock radioactive material from the laboratory.

Afternoon

Radiation protection office representatives met with laboratory staff, who were required to account for all radioactive material used during the past two weeks. Note: The inventory assessment is approximate, and indicates that about 500 microcuries of P-32 is not accounted for.

- 3 -

08/24/95

Urinalyses results of daily samples were not consistent with the daily whole body counting results, therefore the radiation protection staff required 24-hour complete urine collections from the exposed individual.

The exposed individual and the radiation protection staff agree that the minimum amount initially ingested is 355 microcuries.

The exposed individual contacted campus police to request an investigation because of his suspicion that the intake as deliberate act against him.

08/25/95

A meeting between the exposed individual, laboratory management, and radiation protection staff results in the laboratory management selecting a third-party referee to review the radiation protection analysis of the amount of material initially ingested.

08/31/95

After a meeting of the radiation protection staff and the laboratory personnel to announce the conditions under which the laboratory could be re-opened, authorization to use radioactive materials was resumed.

09/12/95

The MIT Radiation Protection Committee (RPC) discussed the contamination incident; the ingested amount was reported to be 500 microcuries, and the dose estimate was reported to be 4000 millirem to the individual. The Radiation Protection Committee decided to send a letter to researcher expressing regret and concern; and to send a letter to campus policy urging assistance in finding out if the ingestion was a deliberate act by an individual and, if so, how to prevent recurrence.

10/12/95

The radiation protection office issues report of dose assessment to the exposed individual.

10/13/95

MIT staff learn that Nature plans to publish an article about the contamination incident in the Thursday, October 19, 1995 issue.

10/16/95

The MIT RSO notifies NRC of the ingestion contamination event.