

**HIGHWAY CONSTRUCTION FACTORS GROUP  
ATTACHMENT 1  
INTERVIEW TRANSCRIPT OF MNDOT BRIDGE INSPECTOR  
HARVEY UNRUH  
BRIDGE 9340 COLLAPSE  
MINNEAPOLIS, MN. ;8/1/07  
HWY-07-MH024**

UNITED STATES OF AMERICA  
NATIONAL TRANSPORTATION SAFETY BOARD  
OFFICE OF ADMINISTRATIVE LAW JUDGES

\* \* \* \* \*  
Investigation of: \*  
\*  
MAJOR HIGHWAY INVESTIGATION \*  
\*  
COLLAPSE OF I-35 WEST BRIDGE \* Docket No.: HWY-07-MH-024  
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Interview of: HARVEY UNRUH

Minnesota Dept. of Transportation  
Command Post  
Minneapolis, Minnesota

Monday,  
August 20, 2007

The above-captioned matter convened pursuant to Notice.

BEFORE: HENRY F. HUGHES

APPEARANCES:

HENRY F. HUGHES  
Senior Accident Investigator  
National Transportation Safety Board

PAUL KIVISTO  
Metro Region Bridge Engineer  
Minnesota Department of Transportation

ELIZABETH BENJAMIN  
Resident Construction Engineer  
Minnesota Department of Transportation

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I N T E R V I E W

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2 MR. HUGHES: This interview is being conducted in  
3 support of the National Transportation Safety Board's  
4 investigation of the collapse of the I-35W Bridge, Number 9340,  
5 over the Mississippi River, Minneapolis, Minnesota, August 2007.  
6 The National Transportation Safety Board Accident Number is  
7 HWY-07-MH-024. Present at the interview are Henry F. Hughes,  
8 Senior Accident Investigator, National Transportation Safety  
9 Board, Liz Benjamin, Professional Engineer, MNDOT, and Paul  
10 Kivisto, Professional Engineer, MNDOT.

## INTERVIEW OF HARVEY UNRUH

11  
12 BY MR. HUGHES:

13 Q. Sir, would you please state your full name and spell  
14 your last name?

15 A. Harvey Unruh, U-n-r-u-h.

16 Q. Okay. Would you provide me with a business telephone  
17 number, address and telephone number?

18 A. 406-4831, and the business address is 2229 Pilot Knob  
19 Road, Mendota Heights, Minnesota.

20 Q. And the zip code, sir?

21 A. 55120.

22 Q. Thank you very much.

23 MR. KIVISTO: What area code on that phone number?

24 MR. UNRUH: 651 is the area code.

25 BY MR. HUGHES:

1 Q. Okay. Thank you. How long have you been employed by  
2 MNDOT?

3 A. Twenty-four years, I believe.

4 Q. Okay. And during that period of time, how long have you  
5 been signed as an inspector, bridge inspector?

6 A. I worked on bridges for probably 20 of that.

7 Q. Okay. Is your job specifically to work on -- in bridge  
8 inspections, or do you do other types of inspection?

9 A. I've worked on bituminous jobs. I've worked on grading,  
10 curb and gutter, walls, paving. That's what I've worked on.

11 Q. Okay. During the course of the past 20 years as an  
12 inspector at MNDOT, have you had occasion to receive any  
13 specialized training?

14 A. I have received training for MNDOT.

15 Q. And can you give us a summary of basically what that  
16 was?

17 A. Bridge construction, concrete one and two, bituminous  
18 one and two, erosion control.

19 Q. Do you have any annual recurrent training or other  
20 periodic training on bridge inspection, any updates, that sort of  
21 thing?

22 A. Yes. I believe there was a course, an update course  
23 that I took.

24 Q. Do you recall when that might have been?

25 A. I don't.

1 Q. Okay. When were you assigned to the project on the  
2 I-35W Bridge?

3 A. I would think it was May or June.

4 Q. Okay. Some time in the early summer or late spring --

5 A. Right.

6 Q. And how many days a week did you work in that project?

7 A. On this particular project?

8 Q. Yes.

9 A. Six days a week, some seven days a week.

10 Q. Okay. What specifically were you tasked to do in terms  
11 of inspection?

12 A. I might need a little (indiscernible) I guess we're  
13 tasked with the testing of the concrete placements, checking the  
14 reinforcement, a lot of sounding for DLAM (ph.) on the river span,  
15 the river bridge, a lot of sounding out and marking out for  
16 repairs types one, type threes.

17 Q. Okay.

18 A. There was -- we had five other bridges on, yeah, five  
19 other bridges that we were working on at the same time, some pier  
20 protection work. Actually, six other bridges, and two more  
21 bridges where we were doing overlays, type one, type three patch  
22 repair, and expansion joint replacements.

23 Q. What would you -- how would you characterize your  
24 general observation of the bridge where the collapse -- did you  
25 note any anomalies or any problems?

1           A.    No, I didn't. I think my observation was that I thought  
2 it was in pretty good condition, as far as I didn't see a lot of  
3 rust or scale or anything like that. Any of the areas we opened  
4 up for joint replacement, didn't see section loss, rusting really,  
5 or anything like that.

6           Q.    Okay. Did you ever note any movement of the bridge, any  
7 strange noises or smells?

8           A.    No, I didn't.

9           Q.    At the time of the collapse, where were you?

10          A.    I was probably three miles north at -- in the McDonald's  
11 parking lot.

12                   MR. HUGHES: Liz?

13                   BY MS. BENJAMIN:

14          Q.    This is Liz Benjamin. I'm the resident construction  
15 engineer for MNDOT. My last name is B-E-N-J-A-M-I-N. Harvey, if  
16 you could, please, tell us over your experience, what -- how many  
17 of these rehabs have you done?

18          A.    When I was -- some of the years that I worked for MNDOT,  
19 I was a laborer on a survey crew, so for the first five years, I  
20 was a surveyor. I worked on a survey crew. After that, I was  
21 just put as a concrete tester on whatever projects there were.  
22 One of those projects, I'm thinking 15 years ago, was a rehab  
23 project that we did on Lafayette, and we did -- I worked as a Tech  
24 1 on that project. We probably did I would say ten bridges, or  
25 something like that.

1 Q. Where you did rehab work?

2 A. Where we did the replace joints. We did scarification  
3 and overlays on those. So before that, or since then, I did two  
4 on Crosstown probably six years ago, short bridges, same thing,  
5 sounding the deck, joint replacements, and overlays. And since  
6 then, it would have been 494 that we started on by the airport,  
7 River Bridge by the airport. We did that starting last fall, and  
8 then we finished up this spring. And then this project here.

9 Q. Did you -- during the course of the work, did you ever  
10 see anything different as far as the way contractor  
11 (indiscernible) the work, where he placed his materials, where he  
12 placed his equipment, how he approached the overlay? Anything  
13 different than what you've seen in the past?

14 A. No.

15 Q. Had you ever worked with PCI before on any other bridge  
16 overlay and rehab projects?

17 A. The river project we did last fall and this spring on  
18 494 was the last time I've worked with them. I'm trying to  
19 remember 15 years ago, and it's hard to remember because the guys  
20 switched companies, so I remember faces, but I don't remember if  
21 they were working for Lunda (ph.) or PCI at the time.

22 Q. Okay.

23 A. I'm thinking that was PCI 15 years ago when we did that,  
24 that work through --

25 Q. Okay.

1 A. -- Highway 3 I guess it is.

2 Q. When they were working underneath the deck replacing  
3 joints or any other work that was close to the members, steel  
4 members, did you see anything unusual, anything different than  
5 what you would have expected for this type of work?

6 A. As far as the in-place members and --

7 Q. Right. When they were replacing the expansion joints,  
8 did they follow the normal procedure of that replacement using the  
9 typical equipment, typical process of removing those and replacing  
10 them?

11 A. Yes.

12 Q. Okay. Those are all the questions I have.

13 MR. HUGHES: Paul?

14 MR. KIVISTO: This is Paul Kivisto, K-i-v-i-s-t-o,  
15 Minnesota DOT Bridge Office. I'm a Metro Region bridge engineer,  
16 and I've worked with Harvey over the years on various projects. I  
17 was out on this deck, even, with Harvey discussing some of the  
18 items during construction.

19 BY MR. KIVISTO:

20 Q. But a couple of my questions, Harvey, as far as the  
21 overlay, I know the planned overlay to be milled out was two  
22 inches, and if you could, talk about how much was actually milled  
23 off compared to that two inches and then how much was put back on  
24 per your recollection?

25 A. The initial milling they brought -- they had a different

1 mill come in on -- I'm not sure if it came in on the northbound or  
2 (indiscernible). On the southbound right lanes, they brought in a  
3 new mill. It was some kind of a laser setup. And we shot all the  
4 elevations on the in-place expansion joints and came back with a  
5 straight-edge and laid it on the deck for when we replaced the  
6 expansion joints when we were putting them in, and it was at two  
7 inches.

8 Q. So for both of the mills you had --

9 A. The second mill, he was at about two inches, but he had  
10 areas where he got a little deep and he hit some reinforcement in  
11 the process.

12 Q. And was that over a big area do you think or was that  
13 just kind of localized?

14 A. The main area was on the northbound end right in the  
15 ramp area that goes to University Avenue. So it would be beyond  
16 Pier 11, north of Pier 11.

17 Q. So in the truss span area, was that probably pretty  
18 close to the two inches do you think?

19 A. Yes.

20 Q. Okay.

21 A. We did have some -- he did come up light a little bit on  
22 it after we replaced the expansion, put the new expansion devices  
23 in, and there were some areas where they had to do some additional  
24 removal they did with jackhammers to take, like, a half an inch  
25 off of I would say, like, a ten-foot square area.

1 Q. But pretty isolated?

2 A. Right.

3 Q. Okay. And then this -- another question would be the  
4 depth of overlay that we put back on. So do you have a sense or  
5 any numbers that you calculated or measured that would show what  
6 the average depth of the overlay was?

7 A. We do have some calculations that we put together, as  
8 far as our square footage numbers. We take our square footage  
9 numbers on our low slump reports and we just calculate out the  
10 best we can what an average depth would be. And all of them were  
11 over two inches from our calculations. I would say we were  
12 running probably two and a quarter, two and a half, two and  
13 three-eighths.

14 Q. Okay. How about --

15 A. (indiscernible) called for a minimum of two inches.

16 Q. Right.

17 A. Right.

18 Q. Right. Yeah, that's our typical spec, to be a minimum  
19 two inches. Okay. How about as far as the Type 3 repairs, which  
20 are full-depth repairs? How many of those actually went through  
21 the deck and how many were what we -- we'll pay them as a Type 3  
22 or a full-depth, but there are still some solid concrete  
23 remaining. Do you have a sense for, like, of the numbers that you  
24 calculated for Type 3 repairs how much might actually be all the  
25 way through?

1           A.    I have -- I mean, we have our documentation that shows  
2 exactly what that number would be. We separated -- we called one  
3 a Type 3 partial, and then we called another one a Type 3  
4 full-depth.

5           Q.    Okay. So --

6           A.    I'm thinking those numbers -- I don't even want to say  
7 right now because I don't --

8           Q.    But, again, the documentation shows that?

9           A.    Right.

10          Q.    And I know that's stuff that we've share with NTSB?

11          A.    Right.

12          Q.    I guess that's all the questions I have.

13               MR. HUGHES: Liz, did you have any other questions?

14               MS. BENJAMIN: I don't have any other questions.

15               BY MR. HUGHES:

16          Q.    Okay. Based on your experience working on this bridge  
17 and your professional experience of over 20 years, do you have any  
18 thoughts on safety improvement, ideas about improving the  
19 inspection process, or anything else you'd like add would be  
20 really good.

21          A.    I guess for me personally on a project, I would have  
22 liked -- I think everybody would like more people looking over  
23 their shoulder while they're doing their job.

24          Q.    Sure.

25          A.    I guess. I, you know, maybe more supervision, whatever

1 that would be. I don't know what that would be, spot checks or --

2 Q. Do you feel you had sufficient information with regard  
3 to the condition of the bridge before you started?

4 A. No, I didn't.

5 Q. Okay. What information do you think might have been  
6 helpful to you and your colleagues?

7 A. You know, there's -- that's another thing where I really  
8 don't know. I'm not a structural engineer. I have a high school  
9 education. You know, I'm not sure how much the information -- you  
10 know, what would have made a difference. I don't know.

11 Q. Anything else you'd like to add?

12 A. No.

13 MR. HUGHES: Okay. We'll end the interview at 10:07.

14 (Off the record.)

15 (On the record.)

16 MR. UNRUH: Okay. It was our Pier 11. They were  
17 replacing a joint on the southbound. That would be, like, Joint  
18 Number 7, I believe, and somebody in their process, there's a  
19 diaphragm there, and the top flange comes out and faces south, and  
20 somebody had shaved off the edge of that top flange, I don't know,  
21 an inch. It could have been a half an inch, might have been an  
22 inch and a half, or something like that. Just to know, when I  
23 asked the carpenter, "What happened here," I confronted him on it,  
24 and he said, "Well, we had to get our forms in there," for his  
25 south form work. And I lit into him pretty good and told him

1 never ever cut anything. So --

2 BY MR. KIVISTO:

3 Q. And can you explain a little bit more what member? Was  
4 that a stringer up there or --

5 A. I looked in my plan this morning because --

6 Q. I might not have all the structure (indiscernible).

7 MS. BENJAMIN: Have enough information --

8 BY MR. KIVISTO:

9 Q. I guess maybe let's just clarify it as far as interview  
10 purposes. Was it a transverse member?

11 A. You'd have to identify it for me. I don't --

12 Q. It would be this one right here.

13 A. Right here.

14 Q. Okay.

15 A. And where this one ends, there's sets of them off there,  
16 and where this one ends, you know, if you're looking at the top of  
17 it like that. I don't know if they're -- if they offset a little  
18 bit or something, but there was some cutting along the top edge.  
19 And I looked at the whole thing. I could see that that's --  
20 that's all I saw there at that time.

21 Q. Okay.

22 A. And I probably should have taken a picture. You know,  
23 it's --

24 BY MR. HUGHES:

25 Q. Do you recall what that carpenter's name is or can you

1 describe what he looked like?

2 A. It would have been Mark. That's all I know is his first  
3 name.

4 Q. Okay. How old was he?

5 A. Forty-five.

6 Q. Anything distinguishing about him, as far as tall,  
7 skinny, short, fat?

8 A. Short guy, thin guy. He's one of the lead carpenters  
9 for PCI.

10 Q. Okay. Thanks.

11 BY MR. KIVISTO:

12 Q. And I think, again, just to clarify, so you said this  
13 was Pier 11? So it's not any of the truss spans?

14 A. No.

15 Q. It's on the approach span girder. So it will be -- it's  
16 one of the pier diaphragm members. And, again, this is Paul  
17 Kivisto, in the bridge office. Just trying to determine what  
18 member it was, so, again, at Pier 11. It would be a diaphragm  
19 member, as near as I can determine?

20 A. Right.

21 BY MS. BENJAMIN:

22 Q. Was that early on in the project, later on in the  
23 project? When was that?

24 A. I'm thinking that was, like, within the first day or  
25 two, first couple of days, in our first removal --

1 BY MR. HUGHES:

2 Q. Back in May or June?

3 A. When we first started removals up there.

4 Q. Would that have been back in May or June?

5 A. It would have been in June.

6 BY MS. BENJAMIN:

7 Q. So it would have been the first on southbound side  
8 probably on --

9 A. Right.

10 Q. Okay. So you caught it fairly early? Do you know if he  
11 tried something like that again?

12 A. Not that I could see. I mean, we looked at everything  
13 as it was going in, and I really don't remember if I told the  
14 other inspectors or not.

15 BY MR. HUGHES:

16 Q. I think you used the word shaved about a half-inch or  
17 cut? About how big an area are we talking about?

18 A. The flange here is probably four inches across the top,  
19 so be at the end of that top flange probably -- I don't -- in  
20 square inches, it would be, like, four inches by let's say an inch  
21 and a half, or something like that, on the end of it.

22 MS. BENJAMIN: I don't have any other questions.

23 MR. HUGHES: Okay. It's 10:13.

24 (Whereupon, at 10:13 a.m., the interview in the above-  
25 entitled matter was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:           Major Highway Investigation  
                                  Collapse of I-35 West Bridge  
                                  Minneapolis, Minnesota  
                                  Interview of Harvey Unruh

DOCKET NUMBER:           HWY-07-MH-024

PLACE:                     Minneapolis, Minnesota

DATE:                     August 20, 2007

was held according to the record, and that this is the original,  
complete, true and accurate transcript which has been compared to  
the recording accomplished at the hearing.

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Danielle VanRiper  
Transcriber