UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	*
	*
NATURAL GAS DISTRIBUTION PIPELINE	*
LEAK AND MULTISTORY STRUCTURE	* Docket No.: DCA-14-MP-002
EXPLOSION IN HARLEM, NEW YORK	*
MARCH 12, 2014	*
	*

Interview of: JOSEPH MADIA

Con Edison
4 Irving Place
New York, New York

Tuesday,
August 5, 2014

The above-captioned matter convened, pursuant to notice.

BEFORE: RAVI CHHATRE
Investigator-in-Charge

APPEARANCES:

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National Transportation Safety Board
Washington, D.C.

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National Transportation Safety Board

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I N T E R V I E W

MR. CHHATRE: Good afternoon. Today is Tuesday, August 5, 2014. We are currently in Con Edison's facility located at 4 Irving Place, New York, and we are meeting regarding the investigation of natural gas distribution pipeline leak and multi-story structure explosion that occurred on March 12, 2014, in Harlem, New York.

My name is Ravi Chhatre. I'm with National Transportation Safety Board, located in Washington, D.C., and I'm Investigator-in-Charge of this accident. The NTSB investigation number for this accident is DCA-14-MP-002.

I'd like to start by notifying everyone present in this room that we are recording this interview, and we will transcribe it at a later date. Transcripts will be provided directly to the interviewee for review and identifying any typographical errors. The transcripts may be posted in NTSB public docket.

Also, I'd like to, I'd like to inform Mr. Madia that you are permitted to have one other person present with you during this interview. This is a person of your choice: your supervisor, friend, family member, or no one at all.

Please state for the record your full name, spelling of your name, organization you work for, your title, business contact information, like mailing address, and whom you have chosen to be present with you during your interview.

MR. MADIA: My name is Joseph Madia, M-a-d-i-a. I work

for Con Edison. My title is section manager, and my address is [redacted]. Business phone number [redacted] And I have brought with me Doug McKay.

MR. CHHATRE: Okay. Now, I'd like to go around the room and have each person introduce themselves to you for the record. State your name, spelling of your name, title and organization that you represent, and your business contact information. Starting from my right.

MR. NICHOLSON: Matthew Nicholson, NTSB investigator; spelled M-a-t-t-h-e-w, N-i-c-h-o-l-s-o-n. E-mail [redacted]

MR. EMEABA: Kalu Kelly Emeaba; K-a-l-u, K-e-l-l-y, E-m-e-a-b-a, NTSB investigator. My e-mail address is [redacted]

MR. McCARTON: Good morning. My name is Frank McCarton. I'm Deputy Commissioner for Operations in the Office of Emergency Management here in the city. I'm a party member for New York City's -- I'm New York City's member on the investigation, party member. And my e-mail address is [redacted]

MR. GEORGELIS: My name is Anastasios Georgelis, A-n-a-s-t-a-s-i-o-s, G-e-o-r-g-e-l-i-s. I'm here with Frank. I work for the New York City Department of Environmental Protection. My title is Director of Field Operations, and my e-mail address is [redacted]

MR. CHHATRE: Okay, Doug.

MR. McKAY: My name is Doug McKay. E-mail is [redacted] I'm an attorney with Con Edison.

MR. SINGH: Leonard Singh, L-e-o-n-a-r-d, S-i-n-g-h. Chief Engineer, Gas Distribution Services; NTSB party rep representing Con Edison on this team. [redacted]

MR. STOLICKY: Chris Stolicky, S-t-o-l-i-c-k-y. I am the New York party rep. I'm Utility Supervisor with the New York State Department of Public Service. E-mail address is [redacted]

MR. CHHATRE: Thank you.

INTERVIEW OF JOSEPH MADIA

BY MR. CHHATRE:

Q. Mr. Madia, for the record, can you give us some educational background, formal/informal, your experience with Con Edison, and your description as to what you do at your position?

A. Yes. My educational background is I went to Columbia University School of Engineering, applied science. Graduated with a bachelor's of science in 1982 and a master's of science in 1983. I am a licensed P.E. engineer in the state of New York.

I joined Con Edison as a management intern in 1983, had various different capacities in the engineering department for the first 15 to 17 years. And then from there I moved on to a senior planning analyst position in energy management of Con Edison, predicting, forecasting electric load. And from there I joined the Con Edison gas department in the year 2005 as a planning

analyst and then engineer, and then managing the gas development lab, my present position.

Q. Okay. And as a manager of the lab, what do you do? Or what does your group do?

A. Yes. Okay, as a section manager of the gas development lab, the gas development lab is tasked with various different activities: principally, test and acceptance of new product for the gas delivery system, pipes, fittings and valves; failure evaluation of various components on the gas delivery system; prefabrication of specialty piping components, particularly the polyethylene piping systems; and then, of course, live tapping of the gas mains in the gas delivery system.

Q. Okay. So can you tell us how many gas service tee failures your lab have investigated?

A. On the average, we get about, maybe one or -- once a month we get one. So approximately 12 on the, on that for a year.

Q. And what does a typical component looks like when it come to you in your lab?

A. Yeah, the actual -- sometimes we get the actual tee. Sometimes we get the tee with the main. And it looks like the -- we basically see the failure of services between the tee and that which is on the main, and we make a visual observation and we may conduct tests as needed.

Q. Okay. Who does that work?

A. Our gas development lab team itself.

Q. Okay. And how big is your lab?

A. The lab team is approximately six weekly employees, plus my operating supervisor and myself at this time.

Q. Are these weekly employees qualified to do analysis, or are they degreed?

A. Yeah, they're all operator, they're all -- some are not degreed; some are. They're all operator qualified, however.

Q. Okay. In doing what?

A. In performing fusion.

Q. Okay.

A. Plastic fusion.

Q. And what is the typical procedure for analyzing the service tee failures?

A. Service tee failures, if we get -- if that is the failure, it will come to our lab from the operating area. And the question will be is, what happened? And we will -- basically we have a particular person who does the failures, our senior engineering technician. He will catalog it, log it in, take photographs, examine the failure surfaces, principally visual, and make a rendering as to what could have happened to -- on the surfaces, based on the many other experiences that we have.

After he's made a rendering and my operating supervisor examines it as well -- he's also operated qualified -- and makes a rendering as well, and then the engineer, in this case, who I, in my case, I will make the final call as to what actually happened

to the tee.

Q. Okay. And then what happens? After all you guys have done your analysis, what is the final end product?

A. It is a simple e-mail report --

Q. Okay.

A. -- to a fellow in gas distribution engineering who handles the piping failure database, plus interested parties in the operating area that was impacted by it.

Q. Okay. Do they get the e-mail with photos or no photos?

A. They'll get an e-mail with photos, depending on how we want to explain it to -- for clarity.

Q. And how you document -- do you keep a record of --

A. Yes, we do.

Q. -- what each --

A. Yes, we do. We keep a record. It's called a GT file number, in our gas development lab files, both in our lab server drive and in our paper file.

Q. Okay. And who makes these requests to you?

A. The operating area.

Q. I mean, who in operating area? Is there a protocol for that, or anybody can send you samples?

A. Yeah, there's a procedure protocol for that. It's in the GIS web.

Q. Okay.

A. When operating forces respond, there's a protocol in the

GIS web to send the product to the lab for examination.

Q. What is the title of the person who sends you the sample?

A. It could be as simple as a mechanic.

Q. Okay.

A. It could be an operating supervisor.

Q. Okay. And how does the sample comes to you?

A. It -- usually delivered by either a supervisor mechanic. It's --

Q. So hand delivered?

A. Hand delivered, yeah. There's not interoffice mail.

Q. And is there a protocol issued by your lab as to how to handle the evidence? Or you just look at it, whatever -- whichever way it comes to you?

A. Yeah, we -- there's no particular protocol. It comes to our senior engineer technician. He looks at it and renders -- takes a series of photographs and renders a data sheet with the analysis.

Q. And what is the typical findings? If there is a typical finding.

A. For the most part, in my experience, installation error is a typical finding.

Q. Can you elaborate any more?

A. Installation error could be that the fitting or pipe fitting valve was not put properly together. For example, if a

tubing has to be stabbed in a certain depth to engage the O-ring, the tubing was not stabbed in all the way and hence there was a leak path.

Q. Okay.

A. Stuff like that. Or, you know, if there was excessive bending, we can see distress on the fitting and we can determine that the fitting was subject to extensive distress or stressing.

Q. What about the fusion?

A. Fusion, we look at the -- we'll look at a fusion joint and see how -- see where in the fusion joint the crack developed or failed across, and then make a determination based on whether it was adequate enough or was it -- was there enough heat applied. If insufficient heating, we would call that installation -- an installation error.

Q. Okay. So improper fusion is installation error?

A. Yes. It will be categorized as that, installation error.

Q. And does the fusion joint -- I guess, with service tee, comes with the main or it just comes as a separate?

A. Most of the time -- it depends, because if the main needs to be preserved for the sake of continuity of main service, then our team is also qualified to do in-situ repair of that main. So the hole that's finally left when the tee is removed, we have special practices -- operator qualified, of course -- that allows us to repair that main in situ. So the best we'll have at that

point is photographs. Our mechanics will take photographs and bring that with the tee, that physical tee that's in our lab.

Q. Okay. And what is the prevalent failure mode for the those fusion service -- fusion tees?

A. Installation error.

Q. Okay. Meaning cold fusion or --

A. Insufficient fusion, yeah.

Q. Okay, insufficient fusion. And how many of those you look at weekly, monthly?

A. They don't happen that frequently, but -- I don't have an exact precise number to tell you -- I -- to tell you that.

Q. Okay. Does it happen frequently, infrequently?

A. It's tends to be infrequent.

Q. Infrequent?

A. Tends to be infrequent.

Q. Okay. And those reports are available also?

A. Yes. We do have the e-mail reports on those.

Q. Do you recall in last few years -- like, let's just say go back to 2011, onwards, how many you have generated?

A. How many reports we generated?

Q. Fusion service tees.

A. We generated maybe a half a dozen or so.

Q. Okay.

A. Yeah.

MR. CHHATRE: Can we get a copy of those reports?

MR. SINGH: Um-hum. You just want the -- any service tee failure --

MR. CHHATRE: Service tee failure.

MR. SINGH: -- reports from that time?

MR. MADIA: Any service tee?

MR. CHHATRE: At this point. At this point.

MR. MADIA: Okay.

MR. SINGH: Joe, will you send those to me, please?

MR. MADIA: Send those to you? Okay.

MR. SINGH: Just go back from 2011 to date.

MR. MADIA: All right.

MR. SINGH: Service tee failure reports.

MR. MADIA: All right.

MR. CHHATRE: And we're interested in getting photographs and findings and the whole, whole report.

MR. SINGH: I'll give you the actual report. The actual report.

MR. CHHATRE: No, I guess, what I understand is sometimes only your e-mail might go --

MR. MADIA: Yeah.

MR. CHHATRE: -- but you can still have the photographs, right?

MR. MADIA: Right.

MR. CHHATRE: So what I'm saying is in case there is no documentation being delivered by the lab, I would like to get the

photographs.

MR. MADIA: Okay.

BY MR. CHHATRE:

Q. And do you use -- does the lab select or identify the qualified vendor for the plastic pipe or service tee or any of that things?

A. Yes. That's part of our test and acceptance.

Q. And how do you do that?

A. We do it through a series of tests and review of their literature, examination of their product, make sure it's usable in the field. And then we make a -- we render our conclusion.

Q. Okay.

A. We also run our own tests in the lab as well, which --

Q. Okay, to qualify the product?

A. -- extended testing. To qualify the product. We have a -- we can do burst testing, sustained tank. We do tensile pulls. Whatever we need to do as an extended test to the industry tests that were done, to convince ourselves that the product is safe --

Q. Is safe.

A. -- and has integrity on our system.

Q. And does the lab also develop the procedure to do the fusion welding, or you just take the procedure from the manufacturer?

A. We take the procedure from the manufacturer, yes.

Q. And does the lab verify it to make sure it's correct, or

nobody verifies it?

A. We actually conduct the joint -- we actually put the joint together per the manufacturer to make sure it works, and then we go ahead and test it.

Q. And how do you test that?

A. We can do it through a -- with pressurization.

Q. Okay.

A. So you have the burst test. We try to burst it to failure.

Q. Okay.

A. We'll put it in our sustained tank, to see how long it lasts. It's an accelerated aging test, if you like.

Q. Okay.

A. And then if necessary we do a pull test. If it's a coupling, we try to pull it apart and see if it comes apart at the coupling or along the pipe.

Q. Okay. What about the -- again, the service tee, do you try to pull it to see how much force you need to pull it apart?

A. No, we don't do any pull tests on the service tees.

Q. And do you do any drop test or, you know, like --

A. We do an impact test.

Q. Impact test, okay.

A. Impact test, to assess when a tee is knocked off what happens to the joint itself. Does it -- is it intact? Does it go across the joint? We assess that.

Q. And that is all done before the product is qualified to put in service?

A. Right.

Q. Okay. Now, the incident on Park Avenue, I'm sure you didn't receive the part because we took it.

A. Uh-huh.

Q. But was there any discussion with the lab as to what happened or do you know what --

A. No, we couldn't discuss it. We didn't have the evidence.

Q. Okay, so no --

A. It would all be conjecture.

Q. So you had no discussion with anybody --

A. No.

Q. -- from Con Edison as to we at least know that it was service tee issue?

A. It was a -- all we know is it was service tee, right.

Q. Okay. Do you know which pipe was involved in the incident?

A. Right. Per the M&S plate, it was an 8-inch PE pipe that was installed in 2011.

Q. And the service tee?

A. The service tee? It was a service tee that was installed to a new building at 1642 Park Avenue.

Q. Okay. But do you know the manufacturer of the service

tee also?

A. The service tees manufacturer is Central Plastics, yes.

Q. And both products were qualified by the lab?

A. Right.

Q. Do you recall when they were qualified?

A. No. I'll write down a note to find that out.

Q. With the service tee failure analysis you have performed, you said roughly about six in the last 2-year, 3-year period, do you recall any of those involved the pipe involved in Park Avenue and the service tee involved in Park Avenue?

A. No.

Q. So if you do not -- I mean, none were involved or you don't recall?

A. None were involved in -- for the service tee at Park Avenue.

Q. Okay.

A. These are other service tees.

Q. Okay.

A. That's how I'm answering you there.

Q. And typically, how long it takes to do an analysis?

A. A couple of days.

Q. A couple of days?

A. A couple of days, yeah. It depends on our workload.

Q. Sure. And do you aid in the training department in developing the procedures, OQ procedures?

A. I aid in the sense of commenting. If I'm asked to comment on it, then of course we'll render comments, but I don't author any.

Q. Okay. But they don't have to come to you, ask for your comments?

A. No. They do not.

Q. Do they?

A. At times they do. If there's certain opinions about how to fuse certain items, want to make sure that we're doing it right, so the training department will check in with us.

Q. Okay.

A. It's up to them.

Q. And do you recall if the service tee procedure came to you for comments?

A. No, I don't recall that. No.

Q. Okay.

MR. CHHATRE: And that's all I had. Thank you so much.

MR. MADIA: Oh, okay.

MR. CHHATRE: Kelly?

BY MR. EMEABA:

Q. I don't have much, and Ravi already asked a lot. A few of them. Can your PE pipe, polyethylene pipe, after passing a pressure test later fail in the system tee?

A. You're talking about a service tee?

Q. Yes. Can your service tee PE --

A. Yes. After it -- there are instances, and if you -- those instances where if the piping is subjected to external loads, forces and moments, it can fail. You can have a failure. You know, you can pass a pressure test, but if the piping is subjected to external loads severe enough, you can fail the PE. After all, the yield stress is only 3600.

Q. 3600?

A. Yeah.

Q. Okay. So the result of the failure, will it be as a result of the external load or will it be as a result of the fusion?

A. The external load.

Q. The external load?

A. In my opinion, yeah.

Q. It will have nothing to do with the fusion --

A. No.

Q. -- joint itself?

A. It's the external load.

Q. Okay. And have you considered the pressure placed on the joint during the cut when a service tee is installed on a main and the tapping occurs when the blade go through? Prior to it cutting through, have you examined the pressure that is exacted, is put between the two piece?

A. No.

Q. Okay. That's all I want to ask you. Thank you.

MR. CHHATRE: Okay.

MR. STOLICKY: It's Chris Stolicky.

BY MR. STOLICKY:

Q. In your experience with testing different types of fuses, both in analysis in the past plus troubleshooting failures, what have you seen personally would cause a joint to fail as far as improper procedure followed or contaminants?

A. Yeah --

Q. Can you explain what would make a bad fuse?

A. Okay.

Q. Or a fuse that's not properly made the way it's design intended to be made?

A. Usually the -- the installation errors you're referring to?

Q. Yes.

A. Installation errors could come from a wide variety of sources. Contamination is one of the worst ones.

Q. What could happen with contamination?

A. If the pipe is not wiped clean, using a denatured 96 percent isopropyl alcohol, you're going to have residue remaining. Even human sweat that remains on the joint could be deleterious to long-term service life of the joint. So you may pass a pressure test initially but that eventually will get up -- catch up to it because --

Additionally the earth loading, if there's significant

earth loading, you can start imposing deleterious and large strains on the pipe and stresses that could begin imposing and approximating the yield stress of polyethylene.

Then, of course, third-party damage. That has always been a bane with --

Q. What about the fuse itself? What about --

A. The fuse?

Q. I mean, the Con Ed procedure requires 500 plus or minus 25 degrees.

A. Right.

Q. Have you experimented with temperatures and/or pressures outside of your current procedure to see what would happen in test fittings?

A. Yes, we have.

Q. And what have --

A. And there is latitude. There is no definitive -- I can't put a definitive finger on what's the optimal temperature range is. You go to PPI, there's a certain range. Con Edison has used 500 for decades. It appears that there is latitude and forgiveness in the act of plastic fusion. If you get a high strength, high integrity joint across different temperatures, provided it's done per the manufacturer's procedure.

Q. S, when you test a new fitting, do you automatically go to the manufacturer's suggestion and just test it that way, or do you test a series of fuses to see what would work best for Con

Edison?

A. We test per our operating -- per our own procedures, which is the -- there's a specification for it.

Q. So that would be any fuse fitting, you would see if it fits within your current generic fuse fittings?

A. Right. Because that's the way our operator qualified mechanics shall do it in the field so we need to test it to make sure it's proper.

Q. Okay. And in your experience, if you see like a sidewall fuse done and it has the proper beads, can it still be bad fuse? I mean, have you seen those fail?

A. I can't say I've seen those. You know, we can -- talking about with the middle bead visible, the three beads?

Q. Yeah, um-hum.

A. I haven't seen.

Q. Okay.

A. I can't say.

MR. STOLICKY: All right. That's all I have.

MR. CHHATRE: Frank?

MR. McCARTON: I don't have anything.

BY MR. GEORGELIS:

Q. I'm a little confused, and I apologize.

A. That's okay.

Q. You're certainly a better an expert at this field than I am. But when Kalu asked you if you have a joint, if it fails,

would it be an external load or the fuse joint, you said it would be the external load. But when Chris asked you could it be anything with the way it was installed, you indicated that it could be sweat or something when it was fused; it would have passed a pressure test, but could fail because there was some kind of improper installation.

A. Right.

Q. So what --

A. It depends -- when Chris was asking the question, he was asking it from the fusion point, from the act of fusing point of view only.

Q. Okay.

A. Okay? When he asked the question, he was asking for a properly fused joint, can you take it out? So you can take it out through external loading and stuff like that.

Q. Okay. So --

A. That's how I was answering the questions.

Q. All right. So, let's -- so just clarify for myself.

A. Okay.

Q. If you fuse a joint, could it pass the pressure test, even though it wasn't properly fused?

A. If it's improperly fused, it may not pass the pressure test.

Q. Could it pass the pressure test?

A. I don't know. That's a tough one.

Q. Okay. And then you said that you've had occasions where fused service tees did fail for improper installation?

A. Yes.

Q. And I think you said it was -- you have about six, a half a dozen of them, you said, since 2011?

A. Of the service, of the service tees.

Q. Of the service tees.

MR. GEORGELIS: Could we go off the record for a second?

MR. CHHATRE: Off the record.

(Off the record.)

(On the record.)

MR. CHHATRE: No, no, we can go on -- back on the record.

MR. NICHOLSON: Back on the record.

MR. CHHATRE: Any more questions?

MR. GEORGELIS: No further questions.

MR. CHHATRE: Lenny?

MR. SINGH: Yeah, a couple of questions, Joe.

BY MR. SINGH:

Q. Kelly -- going back to Kelly's point about a fuse that's done, pressure tested and, you know, it -- let's say it passes. And I guess the question Kelly asked, let's say, for a lack of a better number, one is tapping that tee and exerts a force, let's say, 110 pounds per square -- foot pounds of torque. Is that a good test in your professional opinion, from an engineering

perspective, that could say that that tee -- that fuse is somewhat sturdy and can -- in good shape, that level of stress on it and strain?

A. It does subject the tee to additional torsional load.

Q. Uh-huh.

A. And pull-up, you know, because -- but one of the things I've learned on these cutters is there's actually a screw within the cutter. So while you may have an initial thrust load up as a cutter begins to bite and cut in, it finally starts to screw itself into the parent material. So it actually winds up assisting; it actually provides an assist. So now the tee is just basically seeing a torsional loading, as opposed to a heavy thrust load. So, it actually relaxes. Because if you look -- that's how the coupon is held in the tee. It's screwed -- the cutter screws itself onto the coupon.

Q. You're talking at the very end of that --

A. Yeah, if you --

Q. -- the torquing process, when you're cutting through the main material --

A. Yeah, when you begin the initial cut.

Q. -- instead of an upward force --

A. You might have it initially.

Q. Right.

A. But then as it starts --

Q. It's converted to a rotational or torquing --

A. Yeah, it -- well, it starts to grab the pipe.
Q. Right.
A. So it screws itself into the pipe.
Q. Okay.
A. Because there's internal cutting edges on the inside of a cutter.
Q. Right.
A. I don't know if you've seen it.
Q. Yes, I've seen it.
A. Okay. So, it actually assists and starts to screw itself in. And that's how it grabs the cutter -- the coupon, and then takes it out when you unscrew it.
Q. Okay.
A. And remains in the steel.
Q. You're saying the loading drops at that point on the --
A. Well, no, actually, it should -- it declines. I can't tell you what percentage it drops by.
Q. Okay.
A. But there's a decline. Because I spoke to a manufacturer about this, you know, how does it work.
Q. Okay.
A. It's something they, you know, they tell me.
MR. CHHATRE: You're still on, Lenny.
MR. SINGH: Yeah. I lost my train of thought. I had another question, but I -- I'll pass for --

MR. CHHATRE: If you want to come back, we'll come back.
MR. SINGH: Yeah. I'll pass for a second.
MR. CHHATRE: Chris?
MR. STOLICKY: I'm all done.
MR. NICHOLSON: I've got a follow-up.
BY MR. CHHATRE:

Q. A couple of follow-up questions. I'm going back to the service tee again, the six number -- six or seven. Now, when you get the component, in this case service tee, do they tell you where it came from, how long it has been in service or what caused a --

A. Yeah, they'll tell --

Q. The history comes to you?

A. Yeah, they'll tell us the address, the location. And then we pull up the M&S plates, and that's how I know how long it's been --

Q. How long it has been in there?

A. Right. Because we're able to click on the M&S plate and see the attributes.

Q. But that information doesn't come from the person who is sending you --

A. No. They just send us the tee, here's the address, take a look at it.

Q. And from your database you know when it was installed?

A. Right.

Q. Okay.

A. From the M&S plate.

Q. Does any of the components come to you during the installation itself? Like somebody is trying to install a tee, the first thing fails, try to install again, second thing fails, and they want to find out what happened?

A. Right. We do --

Q. Does that happen?

A. We do get some investigations. Typically, they'll send us a butt fusion joint to see how well --

Q. Butt fusion.

A. -- to see how well their butt fusion joints are doing. So, they, they might just -- the inspector over there has -- any inspector has the power to say send that to the lab.

Q. Okay.

A. So we get it, we'll run a simple tensile pull on it to see how well it did.

Q. Okay.

A. Bend test, whatever is necessary.

Q. Okay. So your report, when you send the report back, has the information about this component and where the component came from, the location --

A. It will be a simple e-mail response to the inspector or the person interested how did the fuse do.

Q. Okay.

A. Yeah, very simple, nothing elaborate.

Q. Now, you say you -- when you qualify the pipe and the service tees, you use the procedure developed by Con Edison?

A. Uh-huh.

Q. And you may or may not be participating, and in this particular case, you say you don't have reviewed the procedure given to you by the training center? Or whoever develop the procedure.

A. Right. Yeah, if they choose to put us in the comment field, we'll review it.

Q. All right. But now, when they develop the procedure do you qualify the procedure in the lab before they issue the procedure to technicians? Granted, they may not --

A. Yes.

Q. -- seek your input when they develop it. But when they develop it, do you qualify that in the lab to make sure it's working?

A. I have never qualified a procedure.

MR. SINGH: So, I think -- let me rephrase the question. Let me -- I think I know what you're asking. Let's say a new fitting comes along --

MR. CHHATRE: No, let me rephrase it myself.

MR. SINGH: Okay.

MR. CHHATRE: I don't need your help for that.

MR. SINGH: Okay.

MR. CHHATRE: I will just --

BY MR. CHHATRE:

Q. The department -- and I may not be correct here, the training center -- who developed the procedure for fusion welding?

A. The procedure comes from gas distribution engineering.

Q. Okay. They develop the procedure. They may or may not seek your input in developing the procedure when they develop it?

A. Yes.

Q. And earlier you said they -- in case of the service tee fusion they did not seek your input.

A. I don't recall.

Q. Now -- so they develop the procedure. And my question is, before you qualify the pipe suppliers or the service team manufacturers, do you check the procedure to make sure the procedure is working adequately? That the procedure is producing the correct joint?

A. Yeah. We actually --

Q. You do that?

A. We perform the joints ourselves to make sure --

Q. Using their procedures?

A. Using the procedure in force.

Q. Okay.

A. Absolutely.

Q. Okay. Now, has it ever happened that a procedure did not meet your testing and they had to redevelop it?

A. No, never happened during my time.
Q. Never happened. Okay.
A. No.
Q. Now, typically for the service tees again, going back to service tee failures, for lack of a better word, typically how long the service tee will be in service? The shortest, longest? If you don't know the average --
A. It could be any one. I mean, the -- talking about the service tees that come back to the lab for testing? It could be any time. I mean, it --
Q. Do you recall the shortest -- I'm sure I'm going to get a copy and we will have it, but I'm just trying to --
A. Yeah, a short one, maybe a few years.
Q. Okay.
A. A long one would be longer than that.
Q. Could be -- okay.
A. Various.
Q. So the very fact that they are fusions in service means they initially passed the pressure test; did it not?
A. Yes. That's part of the procedure, service installation spec.
Q. So, then, if it's an installation issue for the failures, which we are classifying it cold fusion could be an installation issue, but --
A. Uh-huh.

Q. So if an installation issue and the tee comes back to you anywhere from couple of years to upwards --

A. Uh-huh.

Q. -- that means it did pass -- it's a service installation issue, but it did pass the pressure test?

A. Right.

Q. Okay.

MR. CHHATRE: I guess that's pretty much it for me. Thank you.

MR. MADIA: Okay. You're welcome.

MR. NICHOLSON: I've got some follow-up.

MR. CHHATRE: Okay.

BY MR. NICHOLSON:

Q. First off, you said we have dates that these fitting -- these Georg Fischer fittings were qualified by your lab?

A. Have date -- I'd have to check the record on that. When they were first qualified?

Q. Yeah.

A. I'd have to go back. I don't have the, I don't have the --

Q. You have the dates or the --

A. I don't know the dates.

MR. NICHOLSON: Do we have paperwork that would have been --

MR. SINGH: Yeah, we're going to ask him.

MR. MADIA: Yeah.

MR. SINGH: That's one of the things we talked about in Oklahoma, trying to find that information.

MR. NICHOLSON: You are -- okay, you are seeking it? I wasn't sure if we had to ask for it, okay.

MR. SINGH: Yeah, we talked about that in Oklahoma.

MR. NICHOLSON: Oklahoma was --

MR. SINGH: Last week.

MR. NICHOLSON: -- ages ago.

BY MR. NICHOLSON:

Q. So, when you get these parts in the lab, you do the analysis to find failure, and installation can be one of those. Or lack of -- or fusion, poor fusion, I think was one. Can you tell when you look at a joint whether you had a cold fuse or contamination in the fuse joint? Can you make that distinction in the analysis you do?

A. Yes.

Q. Okay. What would indicate contamination versus poor fusion?

A. Contamination is particles or debris that seems to be implicit in the joint, stuff that we would not expect. Example, brown particles. You know --

Q. You shouldn't see that?

A. No.

Q. Okay. And what about a cold fuse? What does that look

like?

A. Cold fuse could be anything that is indicative of insufficient bonding, such as maybe the failure going across the body of the fuse as opposed to material. For example, the chimney of the tee or the parent material.

Q. Uh-huh.

A. If you get failure, you want to see the pipe being taken up.

Q. Okay.

A. Or the chimney structure. You want to see the fusion -- the joint itself being torn apart because that's where the crack started.

Q. And you don't see that in a cold-fused joint; is that what you're saying?

A. In a cold-fused joint you would see it.

Q. You would see it?

A. You would see it, because you don't have sufficient bonding and as a result it came apart at the fuse itself.

Q. I see.

A. Because the fuse is supposed to be stronger than the parent material.

Q. Okay. You're not taking a portion of the pipe material off of the tee?

A. Right. Right.

Q. You're seeing the original surface of the tee?

A. Yes. We're seeing --
Q. Is that what I'll see?
A. -- we're seeing what looks like the joint itself.
Q. Okay.
A. When you look at the two pieces.
Q. I've seen the heater plates and they've got like serrated edges on them.
A. Right.
Q. Right?
A. You get that signature as well.
Q. I'll get that signature on a cold fuse or -- when will I see --
A. It could appear in a cold fuse, yeah.
Q. Okay. But I -- on a good joint, I shouldn't see it at all?
A. No. You wouldn't see it.
Q. So, that goes away?
A. It goes away because you're lifting the -- either the pipe material or the chimney structure. Right? So the --
Q. So, it doesn't leave those little marks?
A. That would -- those little marks associated with the iron --
Q. Yeah.
A. -- are kind of like embedded in the fuse that was pulled apart by -- that's still in the main.

Q. Okay. So that's a telltale sign right there, if I still see the little iron marks, possibly?

A. Yeah, that could be -- that could possibly point in that direction.

Q. Point in the direction of cold fuse or --

A. Insufficient fusing.

Q. Insufficient fusing.

You mentioned one of the tests you do is an impact test, but I didn't hear when you -- that's where you drop a dead weight from a specific height. Can you just tell us what the --

A. No, it's not.

Q. Oh, I'm sorry.

A. It's a little bit less rigorous. It's actually taking a 3-pound mallet and hitting it.

Q. Oh, okay. Is that done by you?

A. It's done by my operator qualified mechanics.

Q. Okay. Not really a calibrated test?

A. Not calibrated.

Q. It's just more of a sledgehammer test for --

A. Right.

Q. Okay. A 3-pound sledge?

A. Take a 3-pound mallet.

Q. Mallet.

MR. EMEABA: Mallet is rubber.

MR. MADIA: Yeah, it's not a sledge. A sledge is --

MR. NICHOLSON: Yeah, it's not a steel head. I understand.

MR. MADIA: It's a 3 pound -- it's something you hold in your hand.

BY MR. NICHOLSON:

Q. And I just want to clarify, I thought I heard two things. Originally when you were asked about qualifying products, I thought I heard you say you test to the manufacturer's recommendations. Is that correct?

A. Yes.

Q. You do? But then later I thought I heard you also test to Con Ed's procedures. So help me --

A. With regard to the fusion itself. If you have to fuse a product, you have to use the temperature cited in our fusion specification.

Q. Okay.

A. Right? So, for example, the --

Q. So when were you using --

A. -- for example, the Central Plastics 8 by 2 tee has three numbers on it: 190.095. You have to use -- that's --

Q. Okay.

A. -- those are the numbers that we use by the manufacturer. Then we use our own fusing procedure, the 500 degrees, to take the temperature -- to get the proper temperature and fuse properly.

Q. Um-hum. So, your spec is only temperatures? It doesn't call our pressure? Because I think I've seen --

A. Our spec -- yeah, our spec will call out the pressures, but they lift from the manufacturer. They get lifted from the manufacturer.

Q. Well, but the -- now, the procedure I saw at the time of the accident actually had pressures that differed from the manufacturer's. So, are we talking now or then? I mean, I want to know what was in place in March of 2013.

MR. EMEABA: '14.

MR. NICHOLSON: '14. I apologize. Thanks.

MR. MADIA: March of 20- --

MR. NICHOLSON: '14, this year.

MR. CHHATRE: That's when the accident happened.

MR. MADIA: Yeah, yeah. Right, right.

MR. CHHATRE: When the accident --

MR. MADIA: I can only speak of the procedure I know. So I don't know that one.

BY MR. NICHOLSON:

Q. Okay. So, which is it? I'm still confused. You tested to the Con Ed procedure for installation, for --

A. Yeah, whenever -- when we install a tee, we use a Con Ed procedure which specifies the pressures.

Q. Okay.

A. And we use those for our machines.

Q. It specifies the pressures, not the temperatures?
A. The temperature is also specified in the --
Q. Okay.
A. It's a series of specifications. You have the temperature and the pressures.
Q. Okay. But those are Con Ed's, not manufacturer's?
A. Actually, the manufacturer is on, is -- it's matched. The procedure I've seen, the two are matched.
Q. Okay. What if they're different? Do you do both? Does the lab look at the manufacturer's versus Con Ed's to make certain they are identical?
A. Yes. If there's a difference, then we contact the specification SME.
Q. Okay.
A. Who is in gas distribution and engineering, and we advise him of the difference, and what should we fuse to?
Q. Okay. So, you're looking at both.
A. Right.
Q. And if there's a discrepancy you actually do take it back to somebody?
A. Yeah, we report to the SME.
Q. Okay.
A. Yeah, we alert them.
MR. CHHATRE: Are you done?
MR. NICHOLSON: Nope, sorry. I've got to go through my

notes here.

BY MR. NICHOLSON:

Q. Do you, do you check -- it wasn't clear to me either, when you, when you have the procedure and you're given a new part, and we'll confine our discussion to that 8 by 2 tee, do you look for ways that it could be installed incorrectly? Do you take temperatures outside certain boundaries?

A. No. We don't look for ways that it could be installed incorrectly. If we do see a gross error that our operating forces could do, we'll advise the SME. And --

Q. Okay.

A. So they can write it in the spec as a caution flag or something like that.

Q. Okay. So you don't really test the procedure for its tolerances or where it might be --

A. No.

MR. CHHATRE: For the record, just spell out SME.

MR. MADIA: Subject matter expert.

MR. CHHATRE: For the transcriber.

MR. MADIA: Right.

MR. NICHOLSON: Okay. That's -- I'll pass for now. Thank you.

MR. MADIA: You're welcome.

BY MR. EMEABA:

Q. Have you --

MR. CHHATRE: Kelly.

BY MR. EMEABA:

Q. Based -- Kelly. Based on the failed tees you received, based on what you stated earlier, how do you know the one that was the failure resulted from human sweat being rubbed over the pipe?

A. No, that's -- I wouldn't know that. That's just a -- that's just information from literature.

Q. Okay. From literature.

A. But that could be one of the ways a fusing -- that would be -- you would have to get that from literature.

Q. So you cannot --

A. For us to see that, that would be quite an undertaking.

Q. Okay. Because you stated that it could be one of the --

A. Yeah, I was speaking from literature at that point.

Q. From literature.

A. The general notion of contamination.

Q. Okay. And the other question, have you observed where your employees, the employee of Con Edison, were being qualified to do this fusion, plastic fusion?

A. Yes, I have observed them.

Q. You observed them? Okay. And can you say that the qualification process they receive have been consistent with what you, the lab analyst or -- expect, consistent with the proceeding?

A. I could say that, yes.

Q. Okay.

A. Because we have to follow the same thing.

Q. Okay. When they were qualified, based on your observation, did you observe them test those joints that were made?

A. Yes, I observed that.

Q. They tested them?

A. Yes.

Q. Okay. Okay, currently, do you also know the issue -- the fact that such tests have not always been occurring in your system doing their qualifications?

A. Of the -- yes.

Q. You also know that too?

A. I am aware of that, yeah.

Q. Okay. Can you -- if you can remember, when last did you make such -- observe in a requalification or qualification of your employees to do fusions?

A. Well, they get qualified at the learning center. So I wasn't there seeing them.

Q. That's what I'm saying, when last? Can you remember?

A. When last? No, I can't remember.

Q. How many years?

A. They get qualified every year.

Q. No, when last did you observe such activity?

A. Oh, when I -- I don't recall that.

Q. Twenty years? 15 years?

A. No, it was --
Q. Ten years?
A. Well, yeah, I started at the lab in 2007. But I personally did not observe my own people getting qualified because that's done at the learning center, not in the lab.
Q. Okay. So that's what I'm asking, if you --
A. Yeah, so --
Q. -- have observed them being qualified. You said yes.
A. I observed others being qualified in our lab.
Q. Okay.
A. Right. During the operator qualification.
Q. In your lab?
A. Right. But my physical employees, they were properly qualified at the learning center.
Q. Okay. Did you observe them being completely qualified in your -- at your lab?
A. No, not -- no.
Q. So you only observed them being, but you did not observe the entire process?
A. Right.
Q. Is that what you're saying then?
A. Right.
MR. STOLICKY: Just a clarification.
MR. EMEABA: Thank you.
BY MR. STOLICKY:

Q. Were they doing the 3-year in your lab or was it the 12-month requal?

A. The 12-month.

Q. Okay. And was that just that the more recent retesting after the --

A. This is a recent retesting, yes.

Q. Was it any time before that?

A. No.

Q. Okay.

MR. EMEABA: Thank you.

MR. MADIA: You're welcome.

MR. CHHATRE: Frank? You had a question, I remember that. Or you forgot?

MR. SINGH: No, that was me.

BY MR. McCARTON:

Q. During your failure investigations, do you know if -- whether the installation was either done by a contractor or in-house forces?

A. Yes, we're advised. We're told.

Q. Have you seen one of the installations have more prevalent issues than the other?

A. Cannot say.

Q. Okay.

MR. SINGH: I just want to go back to clarify the conversation about qualification of materials and fittings, right?

You mentioned that the training center creates our procedures. The training center doesn't create our procedures.

MR. CHHATRE: No, I think he clarified that.

MR. SINGH: Yes. Right. But I just want to --

BY MR. SINGH:

Q. Joe, so a new -- so, let's take an example, for instance. Tomorrow, [redacted], Inc., creates a new tee. How does that tee get onto our system and into our procedures?

A. We first have to take the tee --

Q. Who is we?

A. Oh, the gas development lab.

Q. What does the gas development lab do?

A. We take the tee and all the information associated with it, and try to see -- understand how it was fabricated and to what specifications in industry that it conforms to -- ASTM 2513; what testing the manufacturer has done. We may even call on other sister utilities to see how well this tee has done.

Then we'll take the tee and fuse it using our procedures, and make sure it fuses to our various different host pipes -- Performance Pipe, JM Eagle, MDOT -- to make sure it fuses to our pipes. Because this is where it's going.

And once we've done, that we will take a sample, put caps on the ends of the pipe and it, pressurize it, and put it in our sustain tank and run it for -- I think it's a 1,000-hour test. And just to see how it ages, okay? And once that is done, then

we'll take it --

MR. CHHATRE: What temperature? I'm sorry.

MR. MADIA: Hmm?

MR. CHHATRE: What temperature?

MR. MADIA: That about a -- I think 176. Yeah.

Okay. And then once we take it out of the sustain tank, we'll put it in our burst tank and blow it up, to see if the joint or its structure resists these pretty tough testing.

And once it -- once we -- or once that's passed, we'll send it out to the field as a sample, see how well our field forces fuse with that. We'll also fuse with it in our lab to make sure it fuses well. And then we'll just write a report saying that the piece has -- is acceptable for use. We'll present the report to our chief distribution engineer for concurrence. He may have some questions. We'll research that. And then it goes out to purchasing as another item that can be used, can be picked up by our field forces.

BY MR. SINGH:

Q. Let's say, for example, now, something changes in that process where the fusing doesn't match our spec. What do you do with that information? Let's say it's -- it has to do with a higher temperature or a lower pressure. What would you do with that information?

A. We would go back and use it on our accepted tees to make sure that this is not damaging or deleterious to the fusion

quality.

Q. So let's say --

A. So we'll run our -- we'll run pressure --

Q. So let's say now that fitting -- it works, but -- it passed your burst test, your extended life test, but some parameters change but we want to put it in stock. What would we change? How would that be changed?

A. When we -- repeat the question.

Q. So this fitting doesn't conform to our spec, some parameters are different, but we feel it meets the needs to our system. Some parameters are changed. How do you reflect that change in the parameters, and where does it go?

A. Okay. The appropriate spec that gets impacted, you have to go to their SME and present the new parameters for fusion, or whatever the case may be, to make sure that the SME who is writing the spec doesn't impact any other parts of the spec. So an analysis is done on that end. And then if we need to conduct additional tests to satisfy the SME who is writing the procedure or the specification, we'll conduct those tests as well and report back.

Q. So, that's when the spec would get changed and updated and translated to all the areas for comments and eventually people would be trained on the changes in the specifications?

A. Right.

Q. I just want to clear that up because it sounded like it

was a little --

MR. NICHOLSON: I'm not clear. This is Matt. The scenario you just put out there was if the spec changed -- something in the spec changes.

MR. SINGH: As a result of a change in a new fitting or a new part being qualified as different from our current spec.

MR. NICHOLSON: Okay. So, your scenario was a new part?

MR. SINGH: Right.

MR. NICHOLSON: That seems equivalent.

MR. SINGH: So the first -- right, the first part was everything works within our spec.

MR. NICHOLSON: Yeah.

MR. SINGH: So, it qualifies, it goes up, it gets put into stock. Now, here's -- it's qualified, but there's some parameter changes that's required in the spec change. So that would initiate a specification change. Right? So then folks would have to be trained differently.

MR. NICHOLSON: For an equivalent part?

MR. SINGH: It could be equivalent, but some parameters are different.

MR. NICHOLSON: Well, then you need a separate procedure or --

MR. SINGH: It could be embedded within the same procedure; for part X --

MR. NICHOLSON: Okay, I see.

MR. SINGH: -- you use this, right?
MR. NICHOLSON: Okay.
MR. SINGH: Hence, the new spec says follow the manufacturer's recommendation.
MR. NICHOLSON: And that would be -- the lab drives that --
MR. SINGH: Correct.
MR. NICHOLSON: -- back to the SME?
MR. SINGH: I just wanted him to clarify it didn't come, it didn't come this --
MR. NICHOLSON: What if the SME just decides I don't like 500, I want to use 250?
MR. SINGH: There would have to be some basis for that. Because eventually it has to get signed off by different levels.
MR. NICHOLSON: Is there a control in place that says because the spec changed it has to go to the lab?
MR. SINGH: No, it comes the other way, right? The lab makes recommendations on new materials and fittings.
MR. NICHOLSON: But he said he doesn't write the procedures.
MR. SINGH: No, what --
MR. NICHOLSON: The procedures --
MR. SINGH: The SME does.
MR. NICHOLSON: Right.
MR. SINGH: Right. So there would be a discussion as to

what would change. And as Joe mentioned, what else would be impacted if we change? So we might decide to say, no, we don't want that fitting. Right? Because there's too many other things would be impacted.

MR. NICHOLSON: But the SME can change a procedure -- he owns the procedure -- can't he?

MR. SINGH: Not just, not just on his own, just make a change for no reason. There's got to be some reason why he would change it. There's comments from other folks, and you have to communicate those changes.

MR. NICHOLSON: So, there's a workflow --

MR. SINGH: Yes.

MR. NICHOLSON: -- is what you're trying to say?

MR. SINGH: Correct.

MR. NICHOLSON: Is part of the workflow the lab?

MR. SINGH: Yes.

MR. CHHATRE: I think the question Matt had was really is a process in place? Does it happen informally or does it -- that they had to follow a formal procedure before they do that? Do they have a procedure?

MR. SINGH: There's a process in place, right. So some -- Tasos, Inc. comes to the lab and says, hey, I have this new part; I want to -- you know, I think it makes -- it meets Con Edison's needs. Joe does all the testing, proves it, comes to engineering and says, you know, I want -- you know, chief

engineer, can you approve this part? Makes -- looks at all the specs, you know. We make the changes. It's applicable. No change is required or a change is required in our specs to adopt that material. So there is a process in place.

MR. NICHOLSON: Forget [redacted], Inc.

MR. SINGH: Uh-huh.

MR. NICHOLSON: I was actually asking about an existing part, where the procedure is changed --

MR. SINGH: Right.

MR. NICHOLSON: -- by an SME. Does that get routed through the lab?

MR. SINGH: There's -- it's circulated to all for comments, including the lab.

MR. NICHOLSON: Okay. That's what he was --

MR. SINGH: Right.

MR. NICHOLSON: -- referring to earlier?

MR. SINGH: Correct. Right. There's an opportunity to comment before any changes are made to the specs.

MR. NICHOLSON: He can -- okay, he can comment, but he doesn't necessarily have to run the tests?

MR. SINGH: Well, he can choose to say, well, you know, I would like to subject it to these tests before.

MR. NICHOLSON: Okay.

MR. SINGH: Right? That's his -- that would be his recommendation.

MR. NICHOLSON: Okay.

MR. CHHATRE: Do you still have --

MR. SINGH: No, that's it for me.

MR. CHHATRE: Any questions? Normally we don't go three rounds, but you gave -- so much information you have, so we've had to go the third round here.

BY MR. CHHATRE:

Q. The slow crack growth, have you seen any evidence of the slow crack growth in your service tees?

A. No, I haven't.

Q. Okay. And as far as the procedure goes, your technicians who test all these products are qualified by gas engineering, you said? Which -- who qualifies the procedures again? Repeat that. Not -- I know training center doesn't do it. Who develops the procedures?

A. The specifications?

Q. Right.

A. That's gas distribution engineering.

Q. Gas distribution engineering. Okay. So they develop the procedure. It comes to you for comment. It may not come for you -- come to you for comment. But you are still required to test that procedure to make sure it's adequate?

A. Right.

Q. Okay. Now, your people go and get trained on that procedures.

A. Um-hum.
Q. Who do the testing?
A. That's the operator qualification program at the learning center.
Q. Okay. Now, there's an ELE requirement. Was that in effect at the time of accident, that you will do the ELE test in your lab?
A. The?
Q. ELE requal, if you want to call it.
A. In the lab itself?
Q. Yeah.
A. No, that was in the learning center.
Q. The learning center.
A. That was -- no, it wasn't in the lab. It was the learning center.
Q. The learning center. But now it is in the lab?
A. As a satellite, overflow.
Q. Okay. Oh, you overflow?
A. Overflow.
Q. Okay.
A. As things go back to normal, it will go to the normal, it will go to the learning center, where it belongs.
Q. Yes. Okay. Now -- let me phrase the question properly here. Why there is no requirement that each failure has to come to you?

A. It's a protocol in the procedure that's -- they call it the GIS web, and there's a -- if you look at the GIS system that the mechanics use, there's an item called "plastic failure, send to lab." There's a protocol in there.

Q. But, I mean, but it's up to them whether to send it to you or not.

A. It's up to them, right.

Q. Right. And my question is, was the lab's input asked for? Or who made the decision that it's an option and that not every failure will be looked at? I guess my -- let me rephrase the question.

How would you know a certain part has a more frequency of failures if you don't see each and every one of them?

A. Yeah, I wouldn't know that.

Q. Okay.

A. I wouldn't know that.

MR. CHHATRE: That's all. Thanks.

MR. MADIA: Okay. You're welcome.

MR. CHHATRE: Anybody have any follow-ups? Thank you so much for coming.

MR. MADIA: My pleasure.

MR. CHHATRE: I appreciate all the time.

MR. MADIA: Okay.

MR. CHHATRE: Off the record.

(Whereupon, the interview was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	CON EDISON NATURAL GAS RELEASE WITH IGNITION HARLEM, NEW YORK MARCH 12, 2014 Interview of Joseph Madia
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PLACE:	New York, New York
DATE:	August 5, 2014

was held according to the record, and that this is the original, complete, true and accurate transcript which has been transcribed to the best of my skill and ability.

_____

Jane W. Gilliam
Transcriber