National Transportation Safety Board

Washington, D.C. 20594

Name: BART MADERIOS

Department: _____

Title: _____

Date of Interview: 2-28-2019

I have reviewed my transcript(s) from the above referenced accident and:

- ☐ I have no comments to make.
- ☐ My comments are submitted herewith.
- ☑ My comments are marked on the attached copy.

[redacted]

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of:	*
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MERRIMACK VALLEY RESIDENTIAL GAS	*
FIRES AND EXPLOSIONS	* Accident No.: PLD18MR003
SEPTEMBER 13, 2018	*
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Interview of: BART MADERIOS

Courtyard by Marriott
Andover, Massachusetts

Thursday,
February 28, 2019

APPEARANCES:

RACHAEL GUNARATNAM, Hazmat Investigator
National Transportation Safety Board

ANNE GARCIA, Human Performance Investigator
National Transportation Safety Board

ROGER EVANS, Investigator in Charge
National Transportation Safety Board

STEPHEN JENNER, Ph.D., Accident Investigator
National Transportation Safety Board

I N D E X

I N T E R V I E W

MS. GUNARATNAM: I'm starting now. Okay.

It is February 28, 2019. We are here today to conduct an interview regarding the natural gas explosions in Lawrence, Massachusetts in the Merrimack Valley area with regard to investigation PLD18MR003. We are doing the interviews at the Courtyard Boston Andover Hotel at 10 Campanelli Street, Andover, Massachusetts.

My name is Rachael Gunaratnam, spelled R-a-c-h-a-e-l, G-u-n-a-r-a-t-n-a-m, a hazmat investigator. And I am here with --

MS. GARCIA: Anne Garcia, G-a-r-c-i-a, human performance investigator for the NTSB.

MR. MADERIOS: My name is Bart, Barton Maderios, B-a-r-t-o-n, M-a-d-e-r-i-o-s, former employee of Columbia Gas in Massachusetts.

MS. GUNARATNAM: Okay. Thanks, Bart, for coming to meet with us.

INTERVIEW OF BART MADERIOS

BY MS. GUNARATNAM:

Q. I just wanted to just start off with your background. You just said you were a former employee of CMA. How about you start with, you know, some of your education and positions you've held. And --

A. I started with Columbia Gas in 1977, January 17th, as a distribution operator working, repairing main line leaks in the road, in the street. I worked there for a year and a half, and

then I transitioned into the gas operations department, which was pressure control and operating and maintaining the LPG and LNG plants at the Lawrence, Massachusetts facility.

In 1988, I became the general supervisor of operations for Bay State Gas at the time, and held a supervisory role through May, through actually -- I officially retired July 1st of 2018, where I retired as a supervisor of gas operations.

Q. Okay. And what were your responsibilities in your most recent role?

A. In my most recent role, I was responsible for pressure control, which was the gate stations, regulator stations for the entire four towns, which is Lawrence, Andover, North Andover, and Methuen. And also responsible for operation, maintaining the liquefied petroleum gas plant, LP air plant, and liquefied natural gas plant, the LNG plant, at the 55 Marston Street facility.

Q. Okay.

A. Took care of the facility, the building -- buildings and grounds in the facility, and also took care of the measurement for the large volume customers and the elevated pressure customers that we, my department was responsible for.

A. And when you say measurement, are you measuring --

Q. Measuring natural gas.

A. Natural gas? Okay.

Q. The measurement of natural gas. And who were the customers under your supervision?

A. The customers under my --
Q. Yeah. Well, you -- was it the Lawrence area?
A. Yes. The Lawrence, Andover, North Andover, and Methuen. And -- but let me step back. In 1988, they -- Bay State Gas had bought Northern Utilities, and I was responsible for the Portsmouth operation as well as the Lawrence operation. And we had 23 towns in New Hampshire and the four towns in Massachusetts. And for a short period of time, I also took care of the Portland Division, which was Portland, Lewiston facility, took care of the LNG plant up there for a short period time as well as the propane-air plant in Portland, Maine. We had a propane-air plant in Portsmouth, New Hampshire as well.
Q. Okay. But specifically in the last -- leading up to the accident, as gas operations supervisor, you dealt mostly with Lawrence?
A. I dealt only with the four towns in the Merrimack valley.
Q. All right.
A. They sold -- I think NiSource sold off [redacted] utilities, I want to say in 2009.
Q. Okay. All right. So can you describe -- I know you talked about what you oversaw. Specifically with -- I guess we'll start talking about the emergency response duties that you may have had with the fire department. Can you just tell us what you would, what kind of things you would do with the fire department on training and interaction coordination?

A. With the liquefied natural gas [redacted], we had -- there was a specific CFR for LNG. And one of the requirements was to maintain communication and a liaison with the emergency response for the territory. And I would perform natural gas emergency response for emergency responders. And it was one of the classes that I enjoyed, I enjoyed doing very much. And it was well taken.

The emergency responders really appreciated the fact that I would take the time to, you know, give them the nuts and bolts as to natural gas emergency response.

Q. So how often would you, like, maintain communications with them? What --

A. Every year. Annually I'd be in contact with -- well, now I say annually, but it was way more than annually. I mean, I was on a first-name basis with most of the fire chiefs and the firefighters. I tried to do the, you know, formal training every 2 years, and -- particularly in Lawrence. And I would actually bring them through the plants, do a walkthrough with the plants so they could actually see what the facility was all about.

In North Andover, actually, they went through a phase where they had me coming in every year. I did a training almost every year with North Andover. One of the reasons I did that, is when I first started as a -- in the supervisory role, emergency response was definitely afraid of that facility.

I basically asked the firefighters, what would you do if there was an alarm at the facility at Lawrence? And they said,

we'd head for Methuen. And that struck me as odd. And it bothered me because here emergency responders didn't have a clue as to what was in their community. And that role started a very good relationship between the gas company and emergency responders.

Q. Okay. So how far back did you say you started working with the fire chiefs on regular annual --

A. I want to say '89 --

Q. '89?

A. -- '90. I don't remember. I mean, it's all, it's all well documented.

Q. Okay.

A. I had well documented in electronic version.

Q. Okay.

A. And I worked with the community and government relations folks as far as they'd help me set the training. And then, and I would do that on a regular basis. And even when I was in New Hampshire and Maine, I'd perform that training for the emergency responders in New Hampshire as well.

Q. Okay. So do you still have those documents? Or --

A. I do not have those documents.

Q. They're just -- back at CMA?

A. Electronic documents at CMA.

Q. All right.

A. I can give you the names of the files.

Q. Oh, okay.
A. The Excel files.
Q. Go ahead.
A. It's firefighter training. It's an Excel document, and it was on the common drive in Lawrence as well as the H drive that I had in Lawrence.
Q. Okay. So primarily every year, you would go through training with fire departments specifically on that plant, [redacted]?
A. No.
Q. Okay.
A. No. Not the plant, just the plants, but pressure control and the emergency response in the community.
Q. Okay. So in there, so what kind of exercises for the community type stuff would you do?
A. Well, the training, I -- my -- what I understand the question to be, the training would be, you know, what is natural gas? How does it get to their community? And then what to do if there was a leak or -- and how to prevent overpressurization. You know, blocking relief valves, relief vents, and things of that nature. And they totally understood that.
Q. And those were relief, that's where they -- were they at the regulator stations?
A. No. They were at the -- the ones I focused on most recently were at, you know, customer facilities. But originally we had a relief valve at the gate station in Methuen. And that was a big

thing I keyed on. If they shut that relief valve off, there was a blocked valve under the relief valve. If they shut that relief valve off, they -- within minutes there'd be fires and explosions all around them. And very accurately to what actually happened in September of '18.

Q. If they turned the relief valve off?

A. If they turned the block valve off --

Q. Oh.

A. -- underneath the relief valve.

Q. Oh, okay.

A. And actually, I went into detail about overpressure protection. And federal, the federal and state regulations required overpressure protection.

Q. Right.

A. And I went into detail on overpressure protection with the emergency responders.

Q. Okay. So can you describe in detail what that -- like how you would do that with them?

A. I would do that -- if there was a relief valve blowing and, not to stick a broom handle in the relief valve because that would overpressure the individual --

Q. Customer?

A. -- facility. At the customer's facility. And if, you know, if it was blocked by ice, if the ice had actually blocked an overprotection protection device, not to smash it with a hammer or

an axe, and basically to use water to melt the ice off so that the relief could operate in the way it was designed.
Q. Okay.
A. And talked about regulator stations. If they, you know, responded to a regulator station, not to operate any underground valves because they could operate the wrong valve and put high pressure into a low pressure or basically shut off thousands of customers with the turn of a valve.
Q. Oh, okay. So did you -- with overpressure protection, was the focus more on a single customer or did you also look at overpressure protection on the whole system?
A. The whole system.
Q. The whole system. Okay. So something like that would affect multiple --
A. Correct.
Q. -- customers? Okay. So that was, you were showing them how to -- if the relief valve was affected, you would show them what not to do or what to do?
A. When we had to, the facility, I really took into detail and actually had photographs of, so it was Oak Street, the Oak Street, the gate station which was in Methuen, and actually had pictures of the relief valve and the block valve underneath the relief valve, and explained to them, don't close a block valve under relief valve, because that could impact the entire network of underground piping, and explained why.

You know, I mean the, we had 750 pounds of pressure coming into that facility, with a 200 MAOP going out. If they closed the relief valve, they could put 500 to 600 pounds in the 200-pound system. Basically you'd have multiple failures in a very short period of time.

Q. And when you say failures, you mean the pipes would break? Or --

A. Pipe failures, equipment failures, regulators would fail. I'd go into detail about pilot lights. Pilot light on a range, which is normally 3/8 of an inch tall would become 17 or 18 inches tall, and then that would ignite cabinets and kitchens. And those are the details I offered to the emergency responders.

Q. So how were, what were responders supposed to do in time, like, so they just weren't supposed to touch those things? But --

A. Right. Notify --

Q. Yeah.

A. -- the gas company at that point.

Q. Okay.

A. Notify the gas company. Or they could, if it was individual customer, always gave them the authority to close the, close the service valve, the inlet valve --

Q. Oh. On the meter?

A. But not, on the meter, but not on an underground district regulator.

Q. Okay. All right. Because, under what scenario would they

want to touch those valves? The block valve?
A. It just, I mean it's just human nature.
Q. Oh, okay.
A. And I would explain to you, you would, you know, for a relief valve, the relief valve that I spoke of at the Oak Street station, if they closed that block valve, there was a 6-inch relief valve there at the time. The noise, and the noise would be just deafening, and the easiest thing to stop the noise and stop the release of gas would be to close the valve.
Q. Oh, okay.
A. And you would have an immediate solution to the problem. The noise would go away and the release of gas goes away, but now that gas has to go somewhere. It goes in the, in the downstream piping, and that's where you'd have fires and explosions within minutes all around.
Q. I see. So you're instructing the fire department, in light of an overpressure event don't touch these valves, but go to the houses and valves that --
A. The service risers.
Q. The service risers, and --
A. And --
Q. -- shut the meters off?
A. At each, at each training session, if, I probably mention the shutting off the service risers at least 20 times. You want to shut a service riser off, please do that. That's the best thing

to do. But don't, you know, stick a plug or a broom handle into a relief valve of a blowing regulator because that would defeat the purpose of the design of that regulator.

Q. Okay. All right. Great. So, okay. So after you, so that's the regular training you provide them. Was there any other type of training besides that you would offer them?

A. Again, liquefied natural gas.

Q. Okay.

A. We had liquefied natural gas deliveries on a regular basis at the facility. I'd always offer them, let them know when the transports are coming in so they could actually see the properties of liquefied natural gas.

Q. Okay.

A. You would, I would put it in a glass beaker and they could actually see it boiling in the glass beaker.

Q. Okay.

A. You know, we would put it in a plastic bottle to see that you could, you could control it in a, just a mere plastic bottle because it was so cold.

Q. Yeah.

A. And we also had propane deliveries on a regular basis. And I'd go over them, each time I'd go over the emergency features of each transport and what to do in the event there was an emergency with any, either of the transports.

Q. Okay. So have you ever experienced an overpressure event

while working there?
A. Yes. I'm trying to remember. There was one we had that was a minor one, but water got into a regulator vault in North Andover and caused a, not, well it wasn't a major incident, but I believe it was reported, I think it was reported it anyways. But as soon as we were able to get the catch basin cleared, the incident went away. But there were no damage, there was no damage, no problem.
There was another event in Methuen, Massachusetts on [redacted] Street where there was actually an explosion in one apartment. I don't know what the final determination was, but where, there was multiple investigation, they couldn't find anything wrong with the equipment, don't really know, we weren't positive there was overpressure. But it appeared to be an overpressure event.
Q. And how did the fire department respond in those situations?
A. They responded, I mean, there was -- there wasn't any ensuing fires. But they responded, emergency response to that facility, or [redacted] --
Q. Oh, okay. But they didn't touch any valves or anything? They --
A. Again, I, whether they turned the service riser off --
Q. Yeah.
A. I don't know if they turned the service riser off. I was focused, my responsibility was the regulator vault, the regulator station itself.
Q. Okay. And what did you do in those two incidents?

A. Recorded. I mean, recorded pressures, checked pressures, recorded pressures, checked the equipment, tested the equipment.
Q. Okay.
A. And actually, the Department of Public Utilities was involved. We actually pulled the equipment and locked it up so that they could witness the investigation of the equipment itself.
Q. Okay. And when you say equipment, you're talking about the regulators?
A. Correct.
Q. Okay. So you, did you have to shut off those stations then to do all that?
A. Yes.
Q. Okay. Yeah. So you, okay. So when that happened, you shut off the station and tested the equipment? Okay. And recorded pressures?
A. Um-hum.
Q. Okay. And that, do you remember the timing of those incidents, when they --
A. I don't.
Q. Okay. That's all right. We'll ask if we haven't already. So, okay. And when you left, did anyone replace you for the --
A. You mean --
Q. -- as a liaison?
A. -- at measurement and regulation? This is one of the, one of the areas that was an issue, is that they split measurement and

regulation, which is, they call M&R. M&R is measurement and regulation, and the propane and LNG plants, they split those two departments. And where the division is so small, it was, in my opinion, it was not the best decision for the company or for the community.

Q. Okay. So tell me, so now, let's go into that department. So when you were in M&R, that was when you became operations supervisor?

A. I was in M&R as a union worker --

Q. Okay.

A. -- in '81, they started that in '81. And then in '88 I became the supervisor for --

Q. Okay. M&R?

A. -- plants and M&R.

Q. Okay. Compliance and M&R?

A. Plants.

Q. Plants and M&R.

A. Plants.

Q. I'm sorry. So how many people when you first started were there?

A. When I first started in '81, there were probably, I don't know, there were probably 8 or 10 people in the department.

Q. Okay.

A. I could, I could sit here and name them off, but it would take me a few minutes. But I could, I could get a hard number.

But there quite a few people. And especially in the wintertime, and that's how I started. Because I'd work distribution in the summertime, and in the wintertime they needed more people to operate the plants, unload the, unload the trucks, the transports. So they'd bring two or three operators from distribution to work at the plants for shift work for 3 months or 4 months of the year.

Q. And did that staffing change over the years?

A. It did. It did. With the addition of natural gas supply to the region, when the Canadian pipeline got tied in, we got another source of natural gas from the north instead of getting everything from the Tennessee gas pipeline out of the south. The supplies were much more abundant, therefore the need for the peak shaving facilities became less and less. And that's when staffing started to decline. And then there was also the downsizing phase that took place with every utility probably 10 or 12 years ago. And I remember when that was. Everybody downsized, and you did more with less.

Q. Okay. And so when you left, how many were in the department?

A. The day I left?

Q. Yeah.

A. There was one person in the department.

Q. Okay. So you were saying it used to be one department and then they split it?

A. Um-hum.

Q. So what did they split exactly?

A. They split off the responsibilities for measurement and regulation. That went to, Jeffery Croke was the, he was the supervisor for measurement and regulation for entire Massachusetts. So they took those two technicians, and those two technicians reported to Jeffery Croke. And I was left with the plants, LPG and LNG plants, and it was still up in the air who was taking care of the large volume customers. And I maintained responsibility for the large volume customers.

Q. Okay. So Jeffery Croke dealt with the single customer and residential?

A. No. Jeffery Croke dealt with the measurement and regulation stations.

Q. Oh, stations. Sorry. Okay.

A. Pressure control.

Q. I see. And you maintained the large plants?

A. The LNG and propane plants.

Q. Plants, okay.

A. And then the large volume customers, the individual customers.

Q. Okay. Thank you.

A. I was actually still doing both when I left because it wasn't really clear as to what the responsibilities were. And I felt responsible for that, and so I wouldn't let anything happen. And that made it so I kept my hand in it.

Q. Okay. So when it was one department, you guys dealt with all

of it together?
A. Um-hum.
Q. The large plants, the regulator stations, and the distribution side to the customers? So it got split up, what then, when was that actually?
A. That took place over the last 2 years.
Q. Okay.
A. From '17 to '18.
Q. Okay. And so describe us, what the split, how that impacted operations.
A. Well, it takes, it takes technicians, it takes resources, it takes personnel away from the combined unit. And when you take personnel away, you can't get the work done.
Q. Okay. And which work are you, you mean just the work itself? Yeah.
A. The work in both, in both areas.
Q. Yeah.
A. The propane LNG plants, the large volume customers, and M&R work was going to get done because they took those, they took those two technicians to maintain the M&R.
Q. Okay. So would your responsibilities after the split deal with replacing cast iron with plastic?
A. No. I had no, I had no authority, or no involvement in decision making as to replacing cast iron pipe. That was not my responsibility at all.

Q. Was that after the split? Or --
A. No.
Q. Or ever?
A. Ever.
Q. Ever? Okay.
A. That was, that was between engineering, distribution, and construction.
Q. Okay. That was between engineering, distribution, and construction?
A. And they call it plant now. Distribution, when, again, I'm old school. My thought process with distribution was the distribution system, the underground piping. But the NiSource nomenclature was that's plant work.
Q. Oh.
A. To me, plant work was LNG and propane, so they got, that was confusing to the layman.
Q. Okay. But did you ever work on that kind of project?
A. Oh yes.
Q. Okay.
A. Yes. As, and my involvement in the construction project, I'd be involved in, on the large project, engineers would ask for advice and critique on procedures and elements of the pipe that they were, the segments of pipe that they were replacing.
Q. Okay. So would you maintain historical documents on the actual pipe system?

A. No.
Q. Okay.
A. Well, the only, the only historical documents that I did maintain was, we operated the entire system, the entire high pressure system, I want to say it was in '90, in the '90s, the early '90s. And we went from a 60-pound system to a 99-pound system. I did maintain paper documents --
Q. Okay.
A. -- as well as electronic documents for that upgrade.
Q. Okay. So why would they, if they didn't maintain the documents, like, why would they come to you about that?
A. Again, that was experience and somebody that's involved in pressure control for the entire system.
Q. Okay.
A. They wanted to make sure that there was nothing they were, they were missing --
Q. Okay.
A. -- when they did that.
Q. I see.
A. And again, experience played a huge role because you could offer that experience and, you know, what to do and what not to do in, you know, cutting off a pipe or introducing gas, putting a new segment of pipe in service.
Q. Oh, okay. So before the split, you oversaw all of that, right?

A. I didn't oversee it. I did not oversee it. I had, I only offered advice or --
Q. Oh, okay.
A. -- you know, we'd have a meeting. And say, they're going to, they're going to replace a segment of pipe on Park Street --
Q. Okay.
A. -- and, you know, you know, what do we need to look for? Is there anything that you know, any nuances that you know of in that system and, you know, if it impacts the regulator stations, you know, is there anything in regulator station that we need to be concerned about?
Q. Okay. So I'm sorry. I didn't mean, like, what I meant by oversight, I meant when you, before the split happened and Jeffery Croke went this way and you went this way, you were in charge of that M&R department?
A. Yes.
Q. Okay.
A. Correct.
Q. So you were the most familiar with everything?
A. Exactly.
Q. Right. Okay. So that's why they would consult you?
A. Right.
Q. Okay. So before the split, did you also work, so they would consult you on these capital projects for replacing lines?
A. Not all of them, but on the major ones. Or the ones that

had, you know, that they weren't quite sure of, they would contact me.

Q. Okay.

A. And the seasoned inspectors, the seasoned construction inspectors, they would notify me the day before, hey, we're going to, we're going to cut off a section of low pressure main in this area, you know, just so you're aware.

Q. Okay.

A. And if, and if a light went on, I would say, you know, did you take a look at this? And so I was offered that opportunity to advise them if there, anything that came to mind.

Q. Okay. So if they were specifically asking about a, replacing a cast iron with plastic, and they said, we're going to do this section today, what kind of things would you tell them to look for? Or is it --

A. Well, and I wouldn't tell them to look, it depended on, you know, the segment of pipe that they, probably 99 percent of the time, 98 percent of the time, it's like, okay. Thank you for letting me know. And then I would notify gas control and my technicians to, you know, look for any pressure anomalies in that segment of pipe if there was a telemeter, a pressure recording device, a pressure transmitting device in that area.

Q. So would you direct them during the, whatever project that was being planned? Or --

A. No.

Q. -- you'd just tell them to look out? Okay.
A. Just, I just, you know, if we got a call, if gas control saw an anomaly, you know, my guys are prepared, okay, they need to respond because, you know, the construction crew is working in this area.
Q. Oh, okay. Great. And gas control being the Columbus --
A. Columbus, Ohio.
Q. -- Ohio?
A. Right.
Q. Okay. All right. Was there ever a situation where you had to review a project, documents, and like identify things in the --
A. That was more on the -- if we did it, we upgraded a section of pipe, they would -- the company was doing a good job of replacing cast iron with plastic, or bare steel with plastic. And in some instances, that would require to upgrade the pressure to go from a low pressure system to a 99-pound system, or a low pressured system to a 5-pound system. So those upgrades I was always involved in because I would be the one controlling that pressure increase.
Q. Okay.
A. And I was the most experienced and familiar with the regulations and the requirements of the upgrade process.
Q. Increase, okay. And what would you, what would be your role in that? Would you just review the documents? Or would you be present during the project itself? Or --

A. Both.
Q. Okay.
A. We would review the documents, and most recently I was very impressed with the way that we had to sign off on documents to make sure that we all knew what our responsibilities were and that we took care of the responsibilities that were set upon us.
Q. And did you work with contractors?
A. I did not. Well, I mean, I work with contractors, but the, those meetings and that stuff all took place with in-house people, the engineers and the, and the construction managers, and supervisors.
Q. Okay. So then when you were executing that project, would you also have meetings with the contractors who were doing that?
A. Correct.
Q. Okay.
A. I'd be in the field.
Q. Okay.
A. When we did the upgrades, I would actually be on sight and, you know, working with the project coordinator to make sure that everything followed the procedure that was written beforehand.
Q. Okay. So were you familiar with the project that was going on at the time of the incident?
A. I was not.
Q. Okay. So you weren't involved in, ever? Because I know you retired 3 months, 2 months before? Or May?

A. I officially retired in July.
Q. Okay.
A. They walked me out the door in May.
Q. Okay. So we're -- because this project apparently was part of a bigger project, capital --
A. And I'm going to be honest with you. I still don't know what the, what the project was.
Q. Okay.
A. I still don't know what the project was.
Q. So you weren't directly ever involved --
A. No.
Q. -- with that project?
A. Uh-uh.
Q. Okay. Just checking. So what do you, what can you tell us about locating and identifying sensing lines on a --
A. In most instances, I, and the records, the records from the '70s and '80s were not as accurate as everybody would like them. And locating control lines was a difficult task, and not everyone understood the importance of the sensing line, control line, or sensing line, or static line, whatever the, whatever type of regulator was there.

And, but, you know, when there was work there, I would, I would always send one of my crews. I would send, and to make sure that they were able to locate as best they could the control lines for these stations.

Q. At what point would you send them, like is it right prior to the construction? Or --
A. Prior to the construction, and then if, whenever they requested it. If they weren't sure --
Q. Okay.
A. -- if they were, they, and particularly if they were digging close to a regulator station --
Q. Okay.
A. -- I would have somebody go and --
Q. Locate them?
A. -- locate the, well wouldn't locate them. We would help locate them.
Q. Okay.
A. And if the construction was in the close proximity, and I would, I would check with engineering, and system planning, and in a lot of instances we would basically shut the regulator station off so that if there was, you know, something went awry, that regulator station, it wouldn't, it wouldn't go out of control.
Q. Okay. So in terms of, when you're replacing a, have you ever replaced a, cast iron with --
A. I have. And, you know, when I was in distribution --
Q. Yeah.
A. -- I did replace, I've actually physically replaced cast iron pipe with plastic pipe.
Q. Okay.

A. So I know how to do it. I've been involved in physically doing it myself.
Q. Okay. So if you were, so can you describe a time where you had to do that and identify the sensing line?
A. No. We never, I never was involved in that --
Q. Okay.
A. -- aspect of it, no.
Q. Okay.
A. If we were replacing a regulator station, then that was a different story because you're replacing the entire station and we were installing a new station. So you physically saw where the control lines or the sensing lines were going and --
Q. I see.
A. -- things of that nature.
Q. So when, so you're saying the only times you would know to kind of look for the sensing lines was when there was digging near the regulator station or there was construction in close proximity --
A. Correct.
Q. -- proximity to the regulator station?
A. Correct.
Q. Okay. Were there any other, that was, are those the only two times? Or --
A. If they, and again, if there were unusual circumstances. If, you know, I mean sometimes there was a couple of stations where

the control lines were not would expect them to be. And that's what I can only surmise happened in this location, is they shut off a main, cut off a main that the control lines were tied to, and it wasn't in a close proximity to the regulator station as they would expect it to be.

Q. Okay.

A. But I don't know that to be fact. But again, that's from what I saw, and sleepless nights I had. I can only surmise that that's, you know, what -- that's the only thing that could have happened.

Q. So can you describe how the sensing lines are attached to that main? So they're at the regulator station, those sensing lines?

A. The control lines or sensing lines, there's a -- there's a reason for the different titles of each one. But the sensing line would go from the regulator, the actual valve, from there into the -- it would attach to the downstream piping so that the regulator knew what the pressure was in the downstream piping, and it could open and close with regard to the pressure in that downstream piping.

Q. Okay. And that, so those sensing lines, were they attached to the main line that was attached to the downstream piping?

A. Yes.

Q. Okay.

A. Yes. They, and they were hard . One of the

requirements that I had was that, well, we would always use a steel control line and attach that to a steel, a steel pipe so that it couldn't be damaged easily. It had to, it had to have some force to damage it.

Q. So if you're working on downstream piping, how would that, how would that impact that sensing lines?

A. In the event you cut off a section of pipe where those sensing lines are, if the sensing line sees that the pressure is dropping in that piece of pipe, then the regulator is designed to open up.

And if, and the regulator's going to continue to open until that sensing line pressure satisfies the set point of that regulator.

Q. So, but is there any, is there any construction work piping that would just, what I'm trying to understand is where you don't have to worry about the sensing lines?

A. Yeah. I mean, if you're not, if you're not working in close proximity to a regulator station, no. You can --

Q. Oh, okay.

A. You can cut off 1,000 feet of pipe --

Q. Oh.

A. -- and not be concerned about a sensing line.

Q. Oh. So at what point do you have to start working about the sensing lines?

A. When you're in, I mean, when you're in close proximity, you

know, within, I don't know, 100 yard radius of a regulator station.
Q. Oh, okay. And is that described anywhere?
A. No.
Q. Okay.
A. No.
Q. That's just from experience?
A. There's a requirement --
Q. Oh.
A. -- that, NiSource had a requirement that if the, if a construction was taking place within, I don't know, 50 feet of a regulator station, you had a technician on site or you notified M&R, and they would decide whether to have a technician on site.
Q. Okay. So it's only when in close proximity that you had to have a technician on site?
A. Correct.
Q. And that technician would have a pressure gauge with them? Like --
A. Right.
Q. Okay.
A. Yeah. They'd have a pressure gauge. Now, of course there pressure recording devices in most of the stations. So they could actually see the pressure in most of the stations that were there.
Q. And if the pressure increased, who would he be communicating with? Or would he --

A. The, well, if the downstream pressure would increase, he would have the authority to shut the station off or get control of the station.
Q. And then would he, what would be the steps after that if he shut the station off?
A. I mean, notify the supervisor, notify gas control, and notify engineering --
Q. Okay.
A. -- as well as the management for the, for the division.
Q. Have you, in your experience, dealt with that, where the, that they had to shut off the regulator station? Or was that the Methuen and Andover?
A. Yeah. That, well, yeah. The one in Methuen, we shut that station off when they anticipated, they thought it was an overpressure --
Q. Event?
A. -- issue. And I'm trying to think. Now, never did I have to, oh I should have, never say never, you know? But I don't recall any event where I had to shut off a regulator station because of a damage.
Q. Okay. From construction or --
A. From construction.
Q. Okay. And so was that requirement for a technician to be present, was that in place before you left?
A. It was. It was. Did we comply with it all of the time? No.

Because we didn't have the resources.
Q. Okay.
A. I couldn't send a crew, we'd, well I'd send them out in the morning, pass by, see what they're doing, see if they need you there. If they need you there, you stay there, but if they don't need you there, we have compliance work we've got to execute.
Q. Okay. So NiSource always had this requirement to have somebody there?
A. Not always. They just recently in the past, I want to say 4 or 5 years, they instituted that policy.
Q. To have that person there?
A. To have someone from M&R on site.
Q. Oh, okay.
A. Because they had that situation happen in other states. And I don't recall which ones they were, but --
Q. Okay. So that was more recent requirement?
A. Yes.
Q. Okay. And you, but you said that wasn't always necessarily implemented because of resources?
A. Correct.
Q. Okay. And it was always someone from M&R?
A. Um-hum.
Q. Okay. All right. I'm trying to think. Okay. So were there any procedures that you saw change over the years that also impacted construction projects similar to this that you thought

were not safe?
A. No.
Q. Okay.
A. No. not that I can, not that I can recall, no.
Q. Okay. So what were your concerns about what was going on towards your retirement?
A. We didn't, again, the requirement was for us to have a crew at these sites. We didn't have the resources, and therefore I couldn't provide that service.
Q. Okay.
A. And one of my other concerns were that the inspectors that, the company inspectors that were working with these contractor crews, you know, everybody had the operator qualifications, but operator qualifications doesn't provide you with the experience of what to do in an anomaly, for an anomaly.
Q. Okay. So you're saying not enough resources and also not enough qualifications?
A. And, not so much qualification, but inexperienced.
Q. Oh, experience.
A. Inexperienced inspectors and construction crews.
Q. Okay. And are you saying that because of what you witnessed on site?
A. Yes.
Q. So what kind of things would they miss?
A. You know, nothing real, that was dangerous. It's just that

they would miss the things that, I mean, putting pressure gauges in certain areas. They would, you know, wouldn't bother putting a pressure gauge in that area, and that's not something, you learn from experience that if there's a requirement for a pressure gauge, you put the pressure gauge in.

And it, those were most of the ones. I mean, I can't, I can't recall them all. But it just, you know, you'd see something or you would hear something, and then, you know, the ones I'm speaking of, the ones that I've witnessed, but I would hear things that, you know, and I don't dwell on it, but it kind of bugs you, you know --

Q. Yeah.

A. -- that that stuff is happening out there. But you don't know, but somebody's telling you that it is.

Q. So did you ever experience any downstream in houses, fires due to construction projects?

A. Not so much overpressure, but underpressure. Underpressure was, is, you know, not as dangerous, but yet it impacts the customers greatly. They had one in Methuen where they were doing some work and they basically lost the pressure in the pipe, and they had to shut the entire district down in order to repressurize that.

Q. Okay.

A. And I still never heard what the, what the cause was. But I'm confident that somebody didn't put a gauge where it needed to

be, and didn't have the authority, or didn't execute the authority to stop the project when the pressure anomaly happened.

MS. GUNARATNAM: Okay. I'll turn it over to Anne.

MS. GARCIA: Okay. Thank you. This is Anne Garcia --

MR. MADERIOS: Bart Maderios.

MS. GARCIA: Okay. Thank you. I have a couple of questions for, just kind of jumping back to fill in some questions in my mind from the discussion that you were having with Rachael, and then perhaps a few additional ones. And then we'll pass it on to the folks who are listening on the phone --

MR. MADERIOS: Sure.

MS. GARCIA: -- to ask you questions also. Okay?

BY MS. GARCIA:

Q. So, first, just for the specifics, what was your title on your position when you left the company?

A. I was, I was the supervisor of systems operations. That was my official title when I left the company.

Q. Okay. For what department, or area, or --

A. For the, for the, I mean, for the Lawrence Division. And again, it was, it was unclear whether it was my, in my estimation, or my opinion, the day I left, I did not have responsibility for measurement and regulation. I had responsibility for the propane and LNG plants.

Q. Okay. And who did you report to? Who was your boss?

A. The operations center manager, who was Dana Argo. His name

was Dana Argo, D-a-n-a, A-r-g-o.
Q. And what was his title again?
A. The operations center manager.
Q. Okay. And was he located in --
A. Lawrence. He was --
Q. -- Lawrence?
A. His office was in Lawrence.
Q. Okay. Thank you. Before the split, what was your title, your job title? Was it the same?
A. This, yeah. The, my job title was the same since NiSource took over, and so my title never changed.
Q. Okay. And what year did NiSource take over?
A. I don't recall the year. It was prior to, I don't know. It was probably in the early 90s, mid 90s.
Q. Okay. You mentioned back in 1981 when you started, there were about 8 to 10 people in the department. What jobs were they doing, those people?
A. They were doing pressure control, they were operating the LNG and propane plants at the time. Again, but this was before we had the additional pipeline supply from the north. We had around the clock shift coverage for each plant, for the LNG plant and for the propane plant, which required a plant operator and a plant unloader for each of those plants.

We had four people, at least four people on a shift, and lots of times you had five as a mechanic for responding to repairs of

either one of the plants.
Q. Okay. And when you left, was there still around the clock shift coverage?
A. Upon request. When needed. In the event that a gas supply, they couldn't secure enough gas supply, we would operate the plant and provide, we vaporize [redacted] natural gas or [redacted] propane to supplement the natural pipeline gas.
Q. Okay. Thank you. And what is your education level?
A. High school. I graduated from high school in 1974, Bridgewater-Raynham Regional High School. No college education.
Q. Okay.
A. Lots of school of the hard knocks.
Q. Yeah, and you worked your way up. I just have a list of questions now we'll go through, not in any particular order, okay? Rachael has asked you about, you know, a system wide failure versus a failure that's just one house or something, and you'd mentioned the work that you've done with emergency response and the firemen. Did you have a plan in place in the event of a system wide failure?
A. Yes.
Q. Did the company have a plan in place?
A. Yes. The company did have a plan. We have a critical valve. We also main, the, maintain the critical valve, what we call valves. And that's a federal requirement and a state requirement so that the in the event that there was an issue, we could upgrade

critical valves to --
Q. What are critical valves?
A. Critical valves, you could isolate a segment of pipe, of piping, and of late, they actually put customer numbers on these, on these segments. So if you closed off three valves, you would, you would shut off 3,000 customers. So if you shut off these four valves, then you'd shut off 500 customers. And there was a plan in place that was executed very well to make sure that we maintain those valves.
Q. Okay. And do you know if there was a risk assessment done by the company of a major system wide failure?
A. Risk assessment was done on a regular basis as far as, and not as far as failures, but they would, they would put, we did a risk assessment, an annual risk assessment on regulator stations. They did risk assessment of pipe, you know, pipe that was of concern that, you know, they look at leak history and things of that nature. Those risk assessments took place every year. But as far as system failure, no. I, no, not that I'm aware of. I mean, I would meet with insurance company, and they would look at those type of risks, do a risk assessment, but nothing that I could detail.
Q. Okay. Do you know who in the company did the annual risk assessments?
A. Engineering. It was headed up by Dave Mueller. Dave Mueller was the director of engineering, or the manager of director,

manager of engineering when I left. He was, I mean he had people in each location that would make sure that they met with me for M&R or for regulator stations, and with various people for piping and whatnot.

Q. Okay. Thank you. Do you know in terms of the work orders for something like this, you know, changing out a large area of cast iron for plastic pipes, who has the big plan of all of the work packets that have to be done over many months and years? Who holds onto that big plan and is responsible?

A. That was, engineering had that. Again, through the risk assessment program, and engineering, and the regulatory people would actually look and decide what segments of pipe were going to get replaced and things of that nature.

Q. Okay.

A. One thing I was very impressed with was the amount of pipe that got replaced in the last 8 years was absolutely incredible. Working for Bay State Gas in the 70s and 80s, that money wasn't available to replace that type of pipe, but NiSource really had an aggressive effort to replace suspect pipe, and I was pleased with the, with the progress.

Q. Is it, who is it that decides what order the different work packets get done in?

A. I don't know.

Q. Okay.

A. That would be through a construction, between construction

and engineering. Construction and engineering would decide that.
Q. Okay. Thank you. Do you know if there have been any changes that have occurred in that whole engineering work order process while you were there?
A. Oh yes. We went to, we transitioned to Work Management System.
Q. When was that?
A. That was, I want to say in 2012. And, you know, at first it was a nightmare. But the more, the more I got use it, the more we got to use it, we became more familiar with it, and it certainly was effective.
Q. Okay. Is that a computer program? What is that, Work Management --
A. That's a, that's a computer based program that was in place when I left in May.
Q. Okay. And which departments use that?
A. All departments use that. All departments used Work Management System for any of the work that they did. And the Work Management System basically was focused around compliance to make sure that we maintained compliance with the regulations that we needed to comply with. And it was a, it was a paper trail basically, a record, an official record of our compliance work.
Q. Okay. So these, so I guess that that would be, you mentioned Dave Mueller would be the one who had the big vision?
A. That's correct. He was, and, well I, it may, it may have

been above him as far as, you know, how much money was available. But as far as the local for Massachusetts I believe, my opinion would be Dave Mueller would be controlling or recommending which projects got done and which projects, you know, the priority of the projects that get done.

Q. Right. And then when you have a particular work packet, do you call them work packets? The, a piece of work that was being done by --

A. I dealt with work orders, so I didn't have those.

Q. Work orders.

A. But they, I know they had work job folders.

Q. Okay.

A. Maybe, some of them called it work packets, some of them called it job folders.

Q. Who was, who would you specifically interact with when they were about to do a piece of work?

A. Construction, the construction manager or supervisor, or project leader, or whatever, and then also engineering and --

Q. Okay. So construction, that would be like the contractors who were --

A. No. The construction --

Q. -- that --

A. The company had a construction department --

Q. Okay.

A. -- that the contractors work for the construction department.

And engineering and construction work closely together to make sure that, you know, they were traffic cops, that, you know, that they got enough resources for this project and they could, they could shift resources around to accommodate the construction needs for the different projects.

Q. Okay. So the engineering person would develop the work packet, and then construction would --

A. Execute it.

Q. -- execute it?

A. Correct.

Q. Okay. Thank you. This is very helpful. I appreciate it. You mentioned the overpressure procedure.

A. Overpressure protection is, I believe is what I --

Q. Okay.

A. -- referred to. I don't think there's a, I don't know if there's a procedure for overpressure.

Q. Okay. Thank you.

A. Okay.

Q. And you mentioned that in the past, you would have had a person there to, who would notice if there was a pressure, an anomaly in the pressure?

A. Correct.

Q. Okay.

A. And again, that was if I, if I deemed it necessary. You know, with my experience, if I deemed that they were doing a

project in an area that required a technician, I'd send a technician. If it was a bigger project that I was more concerned about, I would respond myself with a technician.

Q. Okay. Could you just repeat, I know you already talked about this a bit, but just walk me through what the specific overpressure protection procedure would be for your person who was there.

A. Again, the first thing that we always did, I always instructed my technicians, and I always did in the fields, was you install pressure gauges upstream of the pressure device, and you install pressure gauges in between the pressure control devices, and the overpressure protection, and you had a pressure gauge downstream.

So you could see three different pressures and so you knew exactly what was taking place in that system. If the pressure changed, whether the pressure went down in the downstream system or the pressure went up in the upstream system, you knew what you had to do to gain control and prevent an overpressure or an underpressure situation.

Q. So, and these would be temporary --

A. Yes.

Q. -- things that they would put in and take with them?

A. Right.

Q. Okay.

A. They would put them in actually what they call Pete's plugs.

It's like a basketball. If you ever inflated a basketball, you put a pin the basketball and you can inflate it. We'd actually put these pins in the bottom of a pressure gauge, and you can install it into a fitting that was, that was installed on the gas piping that would allow you to stick the gauge in, tell you what the pressure was, and then remove the gauge when you were done without interrupting service for that particular location.

Q. Okay. And would this normally require the person to be there for the entire duration of the work? Like for a whole day, or for --

A. Depending on the, on the work that they were doing. If it was just a, if they were just installing stoppers or cutting off a segment of pipe, once that segment of pipe was depressurized, then I'd send the crew on the way.

Q. Okay.

A. You know, if they were going to do multiple stops or multiple cuts, then we'd have the crew there the entire day.

Q. Okay. What kind of timeframe are we talking about from where they might observe an anomaly to taking an action to correct it, versus having it get out of control?

A. They, they'll know within 5 to 10 minutes they'll know if there's an anomaly that they need to, they need to take action to.

Q. Okay. So it wouldn't be an immediate thing that --

A. Well, it could be. It, again, it depends on the size of the pipe, it depends on --

Q. So on the main line?
A. -- the pressures in the, in the pipe that they're working on. you know, low pressure, it's going to take, it may take 20 minutes to see an anomaly.
Q. Okay.
A. You know, high pressure, a 99-pound system, it may take 2 or 3 minutes. In a 200-pound system, it may take 30 seconds, you know? So there's no set timeframe. Is, you watch the gauges, and the gauges will tell you what you need to do.
Q. Okay. So what I'm hearing you say is that someone with the regulator there, someone with the experience and knowledge, when an anomaly starts, they would have time to do something to mitigate it.
A. Correct.
Q. Okay.
A. Well, again, I say that, and that mitigating may be stopping the construction crew from doing the work that they're doing. You know, if, in overpressure situation, the only thing they can do is basically shut off the station that they feel is the cause of the anomaly.
Q. Thank you.
A. If the pressure reduces, they would have the authority to instruct the construction crew to stop the procedure and reopen the segment of pipe that they're dealing so that they wouldn't have an underpressure situation.

Q. Okay. Thank you. With construction work going on, if there was a need to move the sensing lines, when you were there, would part of the procedure be to have you have input, take a look at the plan? Or --

A. Yes.

Q. Okay. And at the time when you left, was that still the procedure?

A Yes. If they were working on control lines, I would be involved in decision making as to where they got attached and how they got attached.

Q. And when they got moved?

A. Yes.

Q. Okay. And do you use control lines and sensing lines interchangeably? Or could they be different?

A. Depend on the equipment. Depends on the equipment. If you have certain regulators that require control lines, which is a downstream control line, excuse me, that has a bleed, a downstream bleed from the regulator pilot where the pilot actually bleeds a small amount of natural gas into the sensing line, or into the control line, so that's a control line.

A sensing line or a static line is sensing static pressure, which is, there's no flow in that piece of pipe. It's basically static pressure in that piece of pipe, and that's the difference between the two.

Q. Thank you. Okay. When the work packet or work order require

that sensing lines be moved, well who is it that determines that the sensing lines need to be moved, and who is the person who would contact you?

A. Engineering would determine what, that they need to be moved. And they would contact me to say, okay, we need, we're going to relocate these control lines. And we'd go forth, and they would send a plan, and --

Q. What level person in engineering?

A. Again, I don't know the title, but the head engineer in Lawrence would be the final decision. But I would get, I would get contacted by one of the junior engineers. And one of the junior engineers contacted me frequently to ask me questions of things like that, and, you know, do I need to be concerned about this or not?

Q. Okay. So that would be basically the lowest level engineer --

A. Right.

Q. -- in the --

A. And then it would go right to the next level, and even further go to the state level, and I'd have an interaction with the state level engineer if need be.

Q. And would the junior engineer then talk to the construction person?

A. Yes.

Q. And would delegate the work order to them?

A. Yes, correct.
Q. Okay. After consulting with you?
A. Um-hum.
Q. Okay. And so that construction person then would hand the work off to the contractor?
A. Correct.
Q. So the contractor worked for the construction person, not for the engineer?
A. That's right.
Q. Okay. Thank you.
A. Again, that's my observation, and then that's what I feel was in place at the time.
Q. That's very helpful. And I'm just curious, you mentioned that you officially retired in July, but you were walked off in May. What's the difference in the timeframe? What happened?
A. It's very difficult to talk about. You know? Because I was crying for resources, they had a plan to fire me. They put in a plan to fire me. And once I announced that I was going to retire and take my vacation, they decided, we don't need you here for the extra time. We want you out in the next 20 minutes after 42 years.

So it's very difficult. It's very hard for me to talk about. Because I gave that company 42 years of my life and not to get recognized for spending 42 years, and doing such good work in the 42 years, I'm still a little bit bitter. And that's because I

wouldn't, I wouldn't give in and say, you know, yeah, we don't need resources. Because I would never be a yes man. I continued to tell them, we need help, we need people to prevent this type of thing from happening.

Q. Who did you talk to? Who did you tell that you needed help?

A. Obviously my immediate supervisor [redacted] Argo, and Frank Davis. He was the general manager.

Q. What was his name again?

A. Frank Davis.

Q. And what was their reaction the first time that you went and said you need more resources? And how long ago was that?

A. That was probably a year and a half ago. They told me to put a plan together. I'm, can't remember the name of the plan, but I built a, built a plan, and explained exactly why we needed the help. And it was the form of, it was a PowerPoint presentation along with a Word document presentation that I physically went to Westborough and presented it to Frank Davis. And they thought it was awesome.

And then, you know, that's as far as they went. Never got the resources, so I continued to complain about it. The union came to me and, constantly, so I would go to my boss, and then his boss. And nothing got done. And finally they got, they got sick of hearing from me, so they developed a plan to fire me.

Q. You wouldn't still have copies of that, would you?

A. I don't have copies, no. I don't, again, I don't know, I

mean that was, I was escorted out of my office, and after 42 years I had to put all that, all that stuff in the back of my truck and take it home. I dumped it basically in the middle of my garage floor, so I haven't gone through it all yet.

But I may have some of it. I don't know. But I know it's all, the electronic versions are all there, and I'd be more than happy to, if those electronics, files were made available, I'd be more than happy to point out to anybody where those files were and the names of those files.

Q. Okay.

A. And actually, they, the existing union people that are they, I think the guy that took my place in the plant, the plants, the LNG and propane plant, Steve McGinnity , I'm sure he is fully aware of those documents. He may have copies of those documents. The union may have copies of those documents because the union was involved my cry for resources.

Q. How do you spell Steve's last name?

A. M-c-G-i-n-n-i-t-y.

Q. Okay. And you say he took your place in the union?

A. Well, I'm hearing it, I don't if it, for a fact, but I'm, I was told by a vendor actually, that Steve McGinnity took my role as a supervisor for the LNG plant and the propane plant.

Q. Okay.

A. I don't know that to be a fact.

Q. Okay. Who in the union would know?

A. Joe Curran. Joe Curran was the --
Q. How do you spell his last name?
A. Joseph Curran, C-u-r-r-a-n. He was the shop steward, assistant business agent.
Q. Okay. That's --
A. Had I not been walked out in May, I wouldn't have, you know, had they not put this plan to fire me, I was, I'm only 62 years old. I had planned on working there for another 3 years. Had I worked for another 3 months, all of these people would not have been displaced and their lives would not have been disrupted and ruined the way they were.
Q. So I'm curious, Bart, then. You think that Steve McGinnity, who you believe took your place as a supervisor, that he did things differently than you did them?
A. Well, understand now. Let me, let me point out that Steve McGinnity had the responsibility for the propane plant and the LNG plant. The M&R responsibility, the measurement and regulation and pressure control was taken over by Jeffery Croke.
Q. Okay.
A. So that was, the split took place, and so I don't know how involved Steve McGinnity was involved in pressure control. I don't believe he was involved at all, but he was the most qualified technician that was there when I left.
Q. Okay. So you think that if you had stayed there that you would have done something different in the procedure that

happened?
A. Again, if, again, I, like I said, I don't know the details, but from what I saw, it could only lead me to one location, and at that location the control lines were not where the, where they would traditionally be, and they were on a different segment of pipe. And I believe they cut that piece of pipe off. And had I been there, I would have known that, no, don't cut that piece of pipe off until you relocate the control lines.
Q. So you say the were in a different place than where they traditionally would have been. Where would they have been?
A. Within close proximity of the regulator station.
Q. Okay.
A. And if what I think has happened, they were actually on another street.
Q. Why would they, do you know why they would be in a different position than --
A. Yes. I do know specifically why that particular intersection was a mess, it was a nightmare. And in order for us to get accurate pressure control, we had to put the control lines on a different piece of pipe.
Q. Okay. So you mentioned that NiSource has a regulation, this is my last question.
A. No, it's fine.
Q. That within 50 yards, you need a person on site to check the pressure, and you said that you thought, well 100 yard radius of a

regulator station would be needed in order to address the sensing lines. It's my understanding that these particular sensing lines were even farther than that.

A. And again, and then that's highly unusual.

Q. Okay.

A. It's highly irregular. And the, with experience, you know that, and so you can share that experience with other departments.

Q. Do you know regulation that is that NiSource has?

A. It's not a regulation. It's a, it's a gas standard. I don't know what gas standard it is, but they're, they had some, I mean the gas standards I became very fond of and very familiar with, and very -- I appreciated them, as do -- I did the same with the federal regulations and the state regulations. I know why they're in place, and they're in place to prevent things like this from happening.

Q. Okay.

A. But this is an event that's, I mean, there are so many unusual events that took place. I mean, the regulations that are in place are there to prevent this type of thing from happening, and this was just out of the box. Way out of the box, out of the ordinary, and just, the only thing that could've prevented it was experience.

MS. GARCIA: Thank you.

BY MS. GUNARATNAM:

Q. Can I just follow up on that gas standards you just state --

A. Um-hum.
Q. Gas standards, NiSource gas standards? Or --
A. Yes. Columbia Gas, there were then NiSource gas standards.
Q. Were there any industry standards you would refer to? Or were they all company?
A. No. There are no industry standards --
Q. There are none?
A. -- other than operator qualifications. I mean, I was on the operator qualification team that actually developed operator qualifications for measurement, and regulation, and propane plants.
Q. Okay. Just one or two follow-up. When you, so you left in July. Had you stayed on and you were, would you have been involved in the September, like if there was construction going on, would you --
A. Yes.
Q. You would have been there?
A. Yes.
Q. Okay.
A. Yes.
Q. You would have been involved?
A. Right.
Q. Okay.
A. I would have been able to identify prior to the execution of the project that this was a different set of circumstances, and,

you know, this station needs to be addressed before construction takes place on that piece of, piece of pipe.

Q. Okay. Because that, one thing I'm confused about is because you told me the split happened 2 years ago and you were focused on LNG plants and --

A. No. No I didn't say that. The split happened the day I left or the, 2 months before I left. They wanted it to happen --

Q. Oh, the split of the two, M&R?

A. Yeah. Oh yeah, no. M&R did not split until probably a month before I left. M&R and the plants did not --

Q. Oh.

A. -- officially split until maybe a month or less before I left.

Q. So in June? Or, you, oh, you left in May?

A. Right.

Q. So it would have been in April?

A. Um-hum.

Q. That's when it split?

A. Yeah.

Q. Okay. So sorry to ask you again then, because you were, you were saying your jobs were to focus on the LPG and LNG plants?

A. The day I left, my job was focused on the LPG and LNG plants.

Q. Oh, the day you left.

A. Two weeks before, I had everything.

Q. Okay. That was in 2018?

A. That's correct.
Q. Okay. All right.
A. And have financial records that can back that up. You can look into the financials and see when they took the technicians, because there are different department codes for the technicians.
Q. Okay. Thank you for clarifying.
A. Sorry for the confusion.
MR. EVANS: This is Roger.
MS. GUNARATNAM: Yeah.
MR. EVANS: Can I -- I'm going into an appointment, a doctor appointment. Can I ask just a few questions?
MS. GUNARATNAM: Yeah, go ahead. Roger Evens is the IC for this case.
MR. MADERIOS: Okay.
MS. GUNARATNAM: Yeah.
MS. GARCIA: Investigator in charge.
MS. GUNARATNAM: Sorry.
MR. MADERIOS: Okay.
MS. GUNARATNAM: Investigator in charge, yeah. Go ahead, Roger.
BY MR. EVANS:
Q. Okay. Well, thanks for agreeing to speak with us today. It's been great hearing what you have to say.
Just a few questions. When it comes to sensing lines, the -- would you ever involve in a constructability review where you knew

they were going to do a change to a main and that the sensing line location had to be determined, and, you know, someone would go out and walk down, perhaps? Is that typical?

A. Yes. I would be, I would have been involved in that.

Q. Okay. So when you did have a main that was going to be cut into, like in this case, they were doing cast iron replacement and putting plastic in place of cast iron, I think they took out a big chunk of the pipe, and they had a valve on one end of it and all that.

And that work order that was used to do that work, the work order was nicely done as was a step by step process. However, in that work order, there was no mention at all of sensing lines.

Would that be something that would be looked at prior to that, the step by step process being done? Or should, would we be able to find the document that says, you know, we've looked for the sensing lines, and here they are, and this is where they are, so let's attach this to the work, the project.

A. And that --

Q. Can you kind of go into that a little bit?

A. Sure. And that's why I said this is totally out of the box. It's out of the ordinary. It's highly unusual for a regulator station control lines to be this far away from the station. That's just not a normal business practice. It's an usual business practice, but it made sense at the time that that was done.

And that's why, you know, the recommendation of having a professional engineer, a professional engineer could very well have missed this very thing. There's no, nothing that tells me that a professional engineer would have picked this up.

Q. Okay. But as far as the process itself, when you have a work package that involves sensing lines, is there always a, some, a sideline document that says these sensing lines have been located and they're from this regulator and to this piping? Is that a standard document that one would have when the work gets planned?

A. No. And it depends on, you know, again, this situation, the control lines probably were not even thought about. They didn't need to locate them because they were on another street. But when they do have a location, we do have locate technicians that go out and locate pipe.

They actually document what they located, and those documents will provide documentation that they located control lines or sensing lines for a regulator station.

Q. Okay. So if, do they, do they put that on some type of a form that they've located them and this locate is required for this project ID? Is that something that if we requested we could get that document?

A. I'm hoping. I'm not, I assume that that takes place on the work order. WMS, Work Management System work order is a separate job order for locates, the locate person would complete that. I don't know how much detail they put in those work orders, but I

would assume that those would be on that work order.
Q. I see. And can your, in the last 5 or 6 years, did you do any upgrades or relocation of sensing lines?
A. No. Not in the last 5 years, but, not that I can recall.
Q. Okay. So what about in the last 10 years?
A. No, in the last 10 years, yes.
Q. Okay. The, whenever they're going to plan a project and they're going to tie into a main, and they have a, we have a document that we found that's called a constructability review. When that review was conducted, was the M&R department included as a pertinent reviewer of that document?
A. Not to my knowledge.
Q. So you don't typically see constructability review documents in you, in the M&R department?
A. That's correct.
Q. Oh, okay. Interesting. By the way, Richard Wallace says hello.
A. Oh, tell him I say hello. How's his heath?
Q. Yeah, I'll tell him that. He's, he knows I'm speaking with you today and he said just tell him hello. I think that's all I had. I'm, I do want to mention something, that, you know, and this is a pertinent detail to the case, so I don't think it's going to hurt anything if you know, because I want to, I want to see what your reaction is. The sensing lines for the project that was going on were located about 2,330 feet away from where the

line was cut.
A. 2330 feet?
Q. Can you talk to that?
A. No way. No way. No way. Absolutely no way.
Q. So can you, can you explain how that could have happened?
A. It didn't happen. There is no, there is no way you can have a control line that long. Sorry, it can't happen.
Q. No. I meant, I meant the control lines themselves were attached to a header right out in front of the regulator station.
A. Okay. I guess I'm confused. You just --
Q. But the lines --
MS. GUNARATNAM: The work itself was, you're saying the work itself was 2,300 feet away?
MR. MADERIOS: Oh.
MR. EVANS: Yes.
MR. MADERIOS: Now that I can understand. Absolutely. That I can understand, sure.
MS. GUNARATNAM: So how would it --
MR. EVANS: Okay. Well, that was the case, that was the case in this particular accident.
MR. MADERIOS: Yep.
BY MR. EVANS:
Q. The control lines were 2,330 feet from the regulator itself.
A. No.
Q. Somehow they all, they tied that in adjacent to the street

there, into the headers, but the actual line that was cut, the location where the line was cut was 2,330 feet north.
A. Okay. So the control lines were not, you just said it again. The control lines were 2,300 feet long. That's not the case. They were attached to a main that was --
Q. No.
A. -- 2,300 feet long. I can understand that.
Q. That's right. Yeah. I'm sorry.
A. But they cut, they had to, they had to cut that main in two spots?
Q. Yes.
A. They cut that main in two spots. I can, and yes, that happened.
Q. Okay. So no issues in understanding how that happened?
A. Yep. I fully understand that. That, it may not be the location that I thought.
Q. Okay. My next question for you is, had we had a technician, and had they known that that regulator was located wherever it was located for this project work they were doing, and with the fact that they, you know, they had an overpressurization fairly quickly, do you have an opinion as to whether or not the person, a person local to that with meters, with gauges, and radio could have done something to prevent this? Because the person I would think would have a bit of time before the pressure came up on it.
A. Absolutely. Yes. My answer is yes.

MR. EVANS: Okay. Thank you so much. That's all I have and now I have to go to the doctor appointment. So I really appreciate it. And thank you again for agreeing to talk to us.

MR. MADERIOS: All right. Tell Richard --

MR. EVANS: It's very interesting.

MR. MADERIOS: I've got great respect for Richard, and we have a mutual respect for each other. So I miss working with him.

MR. EVANS: Okay. Well, okay well I'll see you guys and we'll talk to you on Monday.

MS. GUNARATNAM: Okay. By, Roger.

MS. GARCIA: Thanks, Roger.

MS. GUNARATNAM: Steve? Steve, do you have any questions? Steve is --

DR. JENNER: Yeah, I have a few. Thank you. This is Steve Jenner with the NTSB. Thank you for your insights so far. We do appreciate that.

BY DR. JENNER:

Q. I just would like to get some clarification for some areas that we're discussing. It sounded like most of the time that a technician would have been at the regulator is when work was being performed within 50 feet of the regulator. Is that correct?

A. If the resources were available.

Q. Right. Now it's, now what you just heard from Roger, this work was being done, you know, in the area of a half mile away. Is there any reason per, you know, company policy that there would

have been someone at the regulator with the work that was being done so far away?
A. No.
Q. Okay. I was a little unclear about, we had mentioned the timeframe 4 to 5 years, the last 4 to 5 years. Just to be clear, in the last 4 to 5 years, was that practice being done of having a technician when work is done within 50 feet? Was that still being practiced?
A. When resources were available, yes.
Q. Right. Okay. And along those lines, you'd mentioned when you first started there, about 8 to 10 people available in the M&R department. Was that a sufficient number at the time?
A. Yes. And again, you know, let me clarify that. There were two key pressure control people, but the other people were capable of making safe a pressure control anomaly if that makes sense.
Q. It does. What do you think was the minimum number of personnel that you would have felt comfortable with in the department? The number went down from between 8 and 10, started to decrease. What number do you think you could still operate and felt that it was sufficient?
A. And my argument was that we needed six people if the M&R and the plants stayed together. And if they didn't, we needed at least four people for just the plants.
Q. And at the end, when you left, there was just one person?
A. That's correct.

Q. Okay.
A. And there was another person --
Q. So what we were --
A. There was another person that --
Q. Oh, go ahead.
A. -- bid into the department, but as soon as he found out I was retiring, he withdrew his bid and went back to the job he was doing.
Q. Okay. Now the M&R is on occasion involved in reviewing project plans, is that correct?
A. On occasion, not common practice. Depending on the magnitude and the location of the project.
Q. Can you, can you elaborate on that a little? The, what are your, what are your criteria for the magnitude and the location? What, I want to understand that.
A. And again, you know, I have no problem clarifying that. If they're working in a reasonable proximity to a regulator station, or the plants, then they would, they would consult me and ask me my opinion. Or if they, if I thought that we needed to be involved.

But a small segment of pipe, if they're replacing 2,300 feet of pipe and it was between point A and point B, and nothing unusual, I wouldn't even know about it necessarily.
Q. Okay. So on occasion, am I to interpret that it was sort of, it was pretty rare that a project would end up on your desk?

A. Yes. And no so much on my desk, but the engineers, they, whether it be the field engineer or the, or the junior engineer would often, you know, come and consult me. And, because I was, had no problems sharing the experience that I had and giving them guidance on how to make some of their decisions.

And so they ask me about these projects. And if it flipped a light on, I'd say yeah, we need to take a look at that one, or no, that one's going to be fine.

Q. Okay. So in the occasions that you were asked to, or agreed to review the project, can you walk me through that? What does that involve? How detailed of a review are you, are you giving?

A. We'd sit and we'd look at a map, and discuss the work of what was going to take place, and where were they, where they were going to cut, and how they were going to tie over the different mains.

And if they had a written procedure, I would review the written procedure to make sure that they had pressure gauges in the right places so that they wouldn't be dealing with an underpressure or an overpressure situation.

Q. Okay. How long would that take for you to go through this review as you just described?

A. Thirty minutes, 45 minutes.

Q. Okay. And if you were to just give a rough estimate, we've, you're, you've used this term on occasion. In a given week, would you see one or more of given --

A. Maybe --
Q. If you can quantify in numbers.
A. -- one a month.
Q. One a month? Okay.
A. One a month.
Q. So it didn't take up a ton of your time?
A. No.
Q. Okay. Hypothetically speaking from what we've made public about the, about the incident and from questions here, that the work was being done about 2,300 feet away, and nowhere in the work packet was sensing lines discussed.

If this packet came across you, across your desk, and you sat down and reviewed it with a junior engineer, what are the odds of you, or someone in your position picking up that sensing lines weren't discussed?
A. I mean, I would have identified it. Probably 95 percent sure I would have identified it.
Q. And what, why are you so confident?
A. Because you know where the control lines are for your stations. I knew were the control lines were for all 60 stations. I knew what mains they were tied to, and if they were cutting off that segment of main, I'd make sure that either there was a duplicate main there, and they were cutting off the non-affected pressure control main, or that we'd relocate, we'd actually dig a test hole and make sure that the main wasn't attached to the main

they were cutting off.
Q. Okay. So what I'm hearing is by part of this procedure involving cutting off the main line, that sort of lights a lightbulb for you?
A. Yes.
Q. That process of cutting off the main is significant?
A. Yes it, yes it is.
Q. And it makes you, an experienced person, think if they're cutting off mains, this has consequences, and it makes you think of sensing lines. Is that fair?
A. Yes.
Q. Now, you bring 42 years of experience into this. If someone had, was after review, and you had 5 years' experience, would that be clear to them, what you're telling me now?
A. I'm just thinking, you know, it, 5 years possibly. It depends on how much time they spent in the field at the station. I mean, you know, my experience was I was the nuts and bolts guy from '81 to '88.

So I actually tore this, tore this equipment down, and made repairs, and did the required inspections for 7 years. And then I oversaw that, those inspections take place by people that I worked with for the next 30 years. So I was intimately involved. I knew these stations very well.
Q. Okay. So experience is a big factor here from what you're telling me in terms of detecting that something is not being

discussed in this packet that should be discussed?
A. Correct.
Q. I'm sorry, looking through notes.
A. But this, I mean, what you're describing to me now, it, a cut a had to take place in close proximity to a regulator station for it to overpressure the entire system. So --
Q. I'm sorry, I missed that, sir. If you could just repeat that.
A. The cuts, the cuts that they made in that segment of main, they had to make two cuts on that main. One of the cuts, or one of the --
Q. Yeah.
A. -- stops in that main had to be in fairly close proximity to that regulation station.
Q. I mean, close proximity, what are you, what are you talking about in terms of --
A. Within 100 yards. Within 100 yards.
Q. Okay.
MS. GUNARATNAM: But we understand this work to be being done 2,300 feet away.
MR. MADERIOS: No.
MS. GUNARATNAM: So it couldn't have?
MR. MADERIOS: Couldn't have.
MS. GUNARATNAM: Okay.
MR. MADERIOS: Couldn't have. And that's my fear of, just, I

don't know. I don't, people just don't know what, I don't know. I can't, I can't, for construction not to take place in close proximity, and yet you lose the controls, the control line for a regulator, and yet the regulator opens up and feeds the entire district, it just doesn't make sense. And no professional engineer is going to pick it up. Sorry. It's not going to happen.

MS. GARCIA: A question, this is Anne. Is it possible, if this work was going on about 2,300 feet away from the regulator station, is it possible that another piece of work was being done right close to the regulator station?

MR. MADERIOS: That's the only way they could, the only it could take place. The only way it could take place.

MS. GARCIA: So a completely separate work crew --

MR. MADERIOS: Well, it doesn't have to be a separate work crew. They could, and that's what I'm saying. If they're taking on a segment of pipe, they're, the, they're taking a piece where the outlet of the regulator is attached to the rest of the system. And the piece they're taking out of service has the control lines attached to them. So that has to, that's the only way that that can happen for that amount of gas to get dumped into that system.

MS. GUNARATNAM: Okay. And it has to be within close proximity?

MR. MADERIOS: Exactly.

MS. GUNARATNAM: Yeah. Okay.

MS. GARCIA: Because the sensing lines wouldn't be any longer than that?

MR. MADERIOS: That's correct.

MS. GARCIA: Okay. What's the maximum length for a sensing line?

MR. MADERIOS: There's no, there's no requirement for the maximum length, but I mean, I don't think there's a regulator sensing line that's over 100 feet long. One hundred feet would be crazy long.

DR. JENNER: Okay. That's all of the questions that I have. So thank you very much.

MR. MADERIOS: You're welcome.

MS. GUNARATNAM: I just had one last with, regarding emergency response.

BY MS. GUNARATNAM:

Q. Is this a procedure you've seen? It's by NiSource, called Response to Overpressure?

A. That's a gas standard. That's --

Q. That's a gas standard.

A. -- what I was referring to. It's --

Q. Okay.

A. This is a gas standard.

Q. Right. Okay. It's the one --

A. Yes.

Q. That's the one you're familiar with?

A. Yes.
Q. And what would have applied -- I think it's -- could you, yeah -- in this situation with the systemwide, it would have been from section 3? Or --
A. Three is if a meter has a service regulator.
DR. JENNER: This is Steve Jenner. Can I ask one more question, please?
MR. MADERIOS: You sure can.
MS. GUNARATNAM: Yeah. Hold one second. He's just looking over a document for me.
DR. JENNER: Okay.
MS. GUNARATNAM: Yeah. I'll let -- he's just confirming something and then I'll turn it over.
MR. MADERIOS: So it starts with number 5 --
MS. GUNARATNAM: Okay.
MR. MADERIOS: -- would be where the regulator station is involved.
MS. GUNARATNAM: Oh okay. All right. Thanks. And, but would this also apply? Is that everything for 5 beyond?
MR. MADERIOS: Yep.
MS. GUNARATNAM: Okay.
MR. MADERIOS: Yeah. Yes. Those --
MS. GUNARATNAM: Okay. All right. Okay.
MR. MADERIOS: Those would apply.
MS. GUNARATNAM: Thanks. All right. Thank you. Okay,

Steve. Go ahead.

BY DR. JENNER:

Q. Okay. What we understand is that a project, a big project will go through different levels of review. That'd include like a peer review, and a constructability, and on some occasions M&R, and the engineer supervisor, and then it moves on. We saw, from our discussion, that M&R would have been one possibility that would have picked up that sensing lines were overlooked. Do you think there were, there's, that the other levels of review had an opportunity, a realistic opportunity to pick up that sensing lines weren't addressed in the packet?

A. It's possible. I mean, again, a seasoned engineer that was familiar with the infrastructure may have, may have identified it. But not a lot of people, M&R would certainly have known. If they contacted anybody from, well, any experienced person from M&R, they would have known. You know, they, the supervisor that was in charge of M&R, Jeff Croke, when I left, he would not have been able to identify. I don't, again, my, it's my opinion he would not have been able to identify that that segment of pipe was going to be an issue.

Q. Why is that?

A. Because if he's not familiar --

Q. Oh.

A. -- with, if he's not, if he is not familiar with the hydraulics of the system, the flows of the natural gas pipeline

infrastructure, then you're not going to pick it up.
Q. So this is really relying very heavily on people's, you know, valuable experience to pick it up. And it doesn't sound like it's a matter of like, a checklist items, are sensing lines involved, yes or no? It's something a little more abstract --
A. You're correct.
Q. -- relying on who's --
A. You're correct. The only thing that regulations may be able to set forth so that they actually identify any pressure control stations within, you know, a certain area of a construction site.
I think this has been an eye opener for all utilities across the country because this happened in Massachusetts. It could have happened in Pennsylvania, Kentucky, you know, anywhere in the United States. And I think this is, has opened people's eyes that okay, we need to take a little bit better look at the really critical segments of distribution system.
DR. JENNER: Understood. Thank you. That's all, Rachael.
MS. GUNARATNAM: All right. Thanks, Steve. Okay. Anymore follow, okay.
MS. GARCIA: No.
MS. GUNARATNAM: All right. This has been really good. Thank you so much for taking the time and coming to meet with us. We really appreciate it.
MR. MADERIOS: Okay. Again, I hope, I want to make sure this doesn't happen again. And anything we can do to make sure it

doesn't happen again because I'm still not right. I won't be right because it impacted way too many people, and I'm still just devastated by this whole situation.

And I have been one in, emergency response will tell you that regulations, whether they're federal regulations or state regulations, they're extremely important. And they are only enacted because someone got hurt or someone lost a life, and the government's trying to make sure that that doesn't happen a second time. And that's why I appreciate what you guys do and why you're here. And that's why I'm here. Because I want to help prevent that from happening again.

MS. GUNARATNAM: Yeah.

DR. JENNER: If I may insert myself here. We, after we end our interviews and piggybacking on that, if you have any thoughts about what could make the system safer, then we'd welcome them at this time.

MR. MADERIOS: The, again, the only thing that I just can't grasp is the noise of the station that opened up had to get somebody's attention. Because that station had to scream for an extended period of time. I mean, the noise level had to be extremely high in order for that to take place. And why that didn't get picked up, I just, I can't fathom.

DR. JENNER: Right.

MS. GARCIA: This is Anne. Just to make sure I understand. The noise would be at the regulator station?

MR. MADERIOS: Yes.

MS. GARCIA: Okay.

MR. MADERIOS: And most of the regulator stations in the Lawrence territory are underground, and they have a metal cover, whether it be aluminum or steel. And that would just magnify the sound. And I don't, I don't understand.

MS. GUNARATNAM: So you're saying the noise would have alerted someone, who then would have shut it off?

MR. MADERIOS: Um-hum.

MS. GUNARATNAM: Okay.

MR. MADERIOS: And I don't think, in my opinion, I don't believe the existing supervisor took the notification from gas control serious enough to act according.

MS. GARCIA: What position was that?

MR. MADERIOS: The, I don't know what his official position was, but he was, I don't know, supervisor of M&R, or I don't know what his title was.

BY MS. GUNARATNAM:

Q. But he was someone in the field who would have been contacted by --

A. Yeah. He was, he was --

Q. -- control?

A. Gas control would have contacted him, and or they would have contacted me I'm sure. I'm sure my old cell phone number and old pager number were going crazy that day.

Q. Yeah.
A. You know, between the fire departments and gas control.
Q. Well, so this was in our public document on recommendations where SCADA did contact them at like 4:05. They had two alarms, 4:04 and 4:05. The first 911 call was at 4:11. So that's a very short timeframe to try to do anything. So what do you think, what's your thoughts on that?
A. Again, that, I'm not surprised that it only took, in all my training, I taught, I taught emergency responders within minutes you're going to see fires and explosions all around you. That's exactly what happened.
Q. So you're saying between that time period, they could have maybe --
A. No. Not, in that 4 to 5 minutes, no.
Q. No?
A. But I think once gas control made the first call, if you start rolling a crew, and again, the time of day was unfortunate because I'm sure the technicians had gone home and they had to them back in. But for that widespread impact, that station had to be on for longer than 45 minutes.
Q. Really? Okay.
MS. GARCIA: Longer than 45 minutes?
MR. MADERIOS: Yeah.
BY MS. GUNARATNAM:
Q. Even though the high-high alarm came in just 10 minutes --

A. And when --
Q. -- 6 minutes before?
A. Yeah. But the, again, in a high-high alarm, you know, somebody interpreted that, well that was an equipment failure, so we're not going to respond. Then you get multiple high-high alarms, that's when, oh, that's an oh shit moment. So --
Q. So you think --
A. -- it's like we better, we better be smart. But --
Q. would they have gotten another alarm before that, before the high-high?
A. No.
Q. Oh, okay.
A. No. But they would have got many more after the high-high.
Q. I'm sure. Because I'm just thinking in the 6 minutes that they, before the first 911 call, what could they have done? Because it seemed like it was just, bam.
A. They could have stopped the construction procedure.
Q. Okay.
A. They could have stopped blowing down the main.
Q. Okay.
A. They were blowing down the main when that took place. If they had stopped blowing down the main and kept that pressure in the pipe, then the regulator would have seen it, and get adequate pressure, and now the regulator can close.
Q. Okay. And they could have done that within a few minutes?

A. Yeah.

MS. GARCIA: Yeah?

MR. MADERIOS: Yeah.

MS. GARCIA: Okay. All right.

MS. GUNARATNAM: Okay.

MS. GARCIA: Good.

MS. GUNARATNAM: Thank you very much. So we'll end the interview.

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:	MERRIMACK VALLEY RESIDENTIAL GAS FIRES AND EXPLOSIONS SEPTEMBER 13, 2018 Interview of Dana Argo
ACCIDENT NUMBER:	PLD18MR003
PLACE:	Lawrence, Massachusetts
DATE:	February 28, 2018

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.

Christy Wilson
Transcriber