UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	*	
	*	
THE EXPLOSION OF APARTMENT	*	
BUILDING 8701 OF FLOWER BRANCH	*	
APARTMENTS IN SILVER SPRING,	*	Accident No.: DCA16FP003
MARYLAND ON AUGUST 10, 2016	*	
	*	

Interview of: THOMAS McDOUGAL

Via Telephone

Thursday,
October 6, 2016

The above-captioned matter convened, pursuant to notice.

BEFORE: ROGER EVANS
Senior Pipeline Investigator

APPEARANCES:

ROGER EVANS, Senior Pipeline Investigator
National Transportation Safety Board

I N D E X

I N T E R V I E W

Roger Evans, Senior Pipeline Investigator, NTSB contacted Mr. Thomas McDougal of Linc Energy Systems at:

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Thomas McDougal currently manages the meter and regulator operations at Linc Energy Systems and is currently working on a flare gas measurement project. For over 15 years, he worked along with mechanical contractors and engineering firms to approve the use of gas regulators and gas meters in desired applications. Prior to this, he spent 28 years designing gas regulator and gas meter applications for Xcel Energy (formerly Public Service Company of Colorado) in the Gas Utilization & Testing Laboratory. Here, he was responsible for testing and designing two PSIG fuel line systems for converting propane customers to natural gas. With over 40 years of professional experience, Tom offers insight rarely found in the industry. Tom has a B.S. Degree in Electrical Engineering from the University of Denver.

The text that follows is the transcription of the telephone interview that was conducted on October 5, 2016. Those present

during the interview were only Roger Evans and Thomas McDougal. Mr. Evans did let Mr. McDougal know that the interview was to be recorded, whereby, Mr. McDougal granted permission verbally.

TELEPHONE INTERVIEW OF THOMAS MCDOUGAL

BY MR. EVANS:

Q. Okay. Just a second.

A. Question, when you look at the regulator, it has a valve body. And is the diaphragm above the body?

Q. Yes, it is.

A. Okay. So the diaphragm goes up and down while it works, correct?

Q. That is correct.

A. All right. This happen -- this is very typical of a balance valve monitor regulator set. We got rid of everyone of them in our system when we had one fail. What happens is the monitor sets open, and due to the gas flow coming down the string down the pipeline, it picks up what we're going to call particles of rust in the pipeline, okay?

Q. Okay.

A. Or dirt or whatever it happens to be. And what it does, it deposits on that shaft going up into the diaphragm case. And when that regulator hasn't been moved, it won't move when it's needed. And I'll bet you if you tear one of those apart, especially the monitor reg, you'll find that that shaft on -- that hooks to the diaphragm and the guides, it could be very, very rough to move.

Q. I see.
A. And I'll bet you that's where you were getting your intermittent smells of gas. And your fire department and the gas company were chasing all over looking for it and couldn't find it.
Q. That's correct.
A. That's what we ran into. And finally we had the reg downstream, which was the operating reg, it failed completely with a piece of junk in the valve seat. And so we got -- we finally found it and that's what was wrong, was the monitor was stuck in the open position and you couldn't even move it with a 4-pound hammer.
Q. Oh, wow.
A. Yeah.
Q. That makes sense.
A. But we got all -- those were Fishers, 133s, and they all disappeared out of our system almost overnight.
Q. Okay. The other question I have that -- we have witnesses saying this, that there -- you know, they heard this, this noise in the night. In fact, one gentleman was walking by the -- the regulator, by the way, was inside but it vented to the outside. And it vented in the area of three air conditioners and it had a -- probably like maybe a foot-long piece of pipe with an elbow in it. And they heard this noise as he was --
A. Kind of sounded like a whale?
Q. He didn't describe the noise. He just said he heard this

noise and he heard like a flow of air.
A. That's it. It was relieving. The operator was relieving.
Q. And it would make a noise? Does it -- would it see the line pressure at that point?
A. Yeah. It sounds like a whale.
Q. Oh, okay. And then could you have this happen to -- I mean, you were saying it could happen intermittently. You mean it could lift open, drop back down and close; lift open, drop down and close, and then all of a sudden one day it opens up and it doesn't close?
A. That's right.
Q. And then when that does that it makes a lot of noise; is that correct?
A. Oh, yes.
Q. And the design of this regulator, let's say, to modern regulators, is the amount of gas that could be released from this old one versus a new one, is the volume larger with the older ones?
A. No. It's all dependent on the inlet pressure and the orifice size in the regulator.
Q. But as far as the old ones, were the orifice sizes a lot smaller than they are now?
A. Yeah. It would -- it would be less than the new modern one.
Q. So the flow would be less than what you would have on a modern one?

A. Right. It's all a function of the orifice.
Q. Okay, yeah. So --
A. And the inlet pressure.
Q. Okay. I think they had 20 pounds on the line. The line pressure was 20 pounds, so --
A. Okay. And once you -- if you go to the -- Part 192, the *Federal Register*, the Office of Pipeline Safety, it says in there once you go over 15 pounds you've got to put in overpressure protection devices on your regulators, so that's where they did it with the monitor.
Q. I see. Okay. Now when you had this problem -- you said back in your history you have seen this and you got rid of it, but did that actually find an ignition source and did it cause an accident?
A. No, we caught it before it did that.
Q. Okay. And do you have any knowledge of any previous accidents that occurred as a result of venting gas through a regulator?
A. No. I will say Public Service, who is now Xcel Energy, they've been very, very prudent in regulator sizing and design and standards. Before we would ever put a regulator into service, we would test the living hell out of it in all types of situations, snow, rain, mud, you name it.
I started in the gas plant and tested regulators. I know what we did to them. I mean, we would -- you know, we wanted to

be sure the product was going to work in any conditions that we have here in Colorado, which is -- you know, we go clear up to up in the snow line all the way to the -- you know, Leadville, 11,000, 12,000 feet, where you get snow 3 months out of the year that completely cover the regulator. And so we put them in there and checked to see if they would function on test sets.

I mean, we did our homework. We were very fortunate, except for a couple of cases where we -- an employee did something in error.

Q. Right. Okay. So another question that we all have. We're a team; there's like six or seven investigators on this case, and I'm -- I work out of my house in Lake Charles, Louisiana, that's where I'm calling from. And, you know, we have these meetings as a team and we come up with these questions. And, you know, one of the questions that we had yesterday was -- you know, we all know that regulators, these old ones have the leather -- the ones that have leather, that there's a possibility of dry rot.

A. Yes.

Q. And we're wondering if possibly, if it weren't a piece of debris, if it could have been something like a dry-rotted diaphragm that finally failed?

A. It could have been.

Q. So have you seen that before?

A. Oh, yeah. I haven't ever seen it, but I've been told about it. Because we got rid of all of ours in the late '40s, early

'50s, and put -- even though those lead-weighted regs were still in service until the '60s, when they would come in from a house remodel or additions or whatever, or a meter routine, the fitters would bring the reg back in and we would put a new diaphragm in it. The diaphragm was a butadiene rubber.

Q. Oh, okay.

A. So we got -- you know, when one of our -- you know, we started -- they started that in the '30s. And the reason the leather was there was, again, (indiscernible) was not in existence. In most cases, the reason for the -- was manufactured gas. And out of the manufactured gas was -- from coal, they would put fogging oil in to keep the gas in the pipes, back in the dark ages of this business.

Q. Oh yeah.

A. And that would keep the oakum seals in the cast iron pipe from leaking.

Q. Oh, I see.

A. And so -- and the second thing that the fogging oil did was kept the leather diaphragms in the regulators very pliable.

Q. Oh, that make sense.

A. And so when they did away with manufactured gas, so went the fogging.

Q. Okay. Now the other thing --

A. And we got -- we got rid of manufactured gas from Public Service history in 1929, so --

Q. A long time ago.
A. We had experience, let me tell you.
Q. Yeah. The other thing that we've noticed is that the new installations of regulators, they use a Y strainer. In these types of devices, in these leather, you know, lead and mercury-filled, the technology of using a strainer was not thought of then or was there an integral screen or something inside the strainer that would stop some debris?
A. Well, take Xcel, the only place Xcel puts in strainers is on meter sets larger than 2,000 cubic feet. The small residentials, the building codes have debris legs before the appliances and --
Q. And that's all?
A. -- it just wasn't -- that's it.
Q. Okay. That makes sense. I would like to ask you, and the next question has nothing to do with this, with this -- the technology of this. This case may go before the Board in Washington D.C. We have a five-member board at the NTSB. And we usually bring in experts, and we pay all their expenses, but it may be that we would ask you -- there's no obligation -- but we might ask you to come in and be a speaker or a technical expert for us at our Board meeting. And I'm wondering if you'd be willing to do that?
A. Yeah, I think so.
Q. Okay. And we would give you plenty of notice. I mean, we would give you like probably 60 or 70 days notice of when the

event would take place.
A. Okay. I'd bring my wife along just to see it.
Q. Okay. Yes, D.C., it's Washington D.C.
A. Yeah.
Q. So as far as you're concerned, I guess shame on the utility for still having these regulators in place; that's an obvious one, right?
A. Well, obviously my first question is who owns those regulators, the utility or does the property owner?
Q. Oh, you know, I don't actually know the answer to that question. I know it's Washington Gas, but I don't know if Washington Gas owns those. I mean --
A. Are these meters set -- these regulators downstream of the meter?
Q. Upstream.
A. They're upstream of the meter?
Q. Yes.
A. Then I would, I would assume -- and of course you know what that word means -- that the utility owns those regulators.
Q. Okay. So it's shame on the utility then?
A. Yeah.
Q. Okay.
A. Shame -- obviously they haven't read 192.
Q. Yeah, I know they're --
A. They never read B31.8, haven't seen B31.8. You know, 192 is

almost identical to B31.8, and that's what I grew up with before 192 came along.

Q. And I guess this type of device would be grandfathered so that they would have to replace them?

A. Well, yeah, but I wonder if they can even get any parts for the thing.

Q. I mean, I guess what we're advocating is that they replace everyone of these with modern regulators.

A. Absolutely.

Q. Yeah, that's what we're advocating.

A. They should have done that 20 years ago.

Q. Right, right. So anything else that you could add as far as, you know -- have you seen the mercury-filled before? Have you ever heard of the company called Reynolds?

A. I've heard of Reynolds. And I think when I worked in the lab one of my functions was -- my supervisor/manager, he was a brilliant man. I learned a lot from him. I just never knew how much I learned from him. But I had to clean out the old files, and as I'd come across some of these old regulator files and stuff like that, he'd say, read them.

Q. Okay.

A. And so I read some of them, you know, and just because I've read them, you know, I know some of the old names. So, like, have you ever heard of a Mitford regulator?

Q. No.

A. Well, that became Rockwell, then it became Sensus and then it became Invensys, and I don't know what it is now.
Q. Yeah. This --
A. But these -- go ahead.
Q. Yeah, the Reynolds actually went under the name of Cleveland Reynolds for a while. And the patent for this mercury-filled regulator is 1921 or '24, I forget. It's been around for a long time. And I think the version that they have in this particular apartment complex is the most modern version of that patent, which we think was 1945. And, you know, still installed at -- somewhere around there. Don't quote me on those numbers, but -- those years, but that's -- around that era, so --
A. Was that bought out -- Cleveland, was that bought out by Hays Republic?
Q. Oh, I don't know. I couldn't tell you.
A. Well, I can remember when I retired from Public Service in '95, I got bored and I went to work for an outfit called Joy and Cox, and they were Hays Cleveland's representative. And they had some old mercury controls. And they stopped making those mercury controls in the late '70s. And I can remember Stan Joy sending his service technician out to get all those old pressure recorders that were mercury filled out of service. And we collected all that mercury and then had it properly disposed of.
Q. I see, yeah.
A. And that took place about '97, '98, somewhere in there.

Q. And just so I have it on the recording, I would like to just ask you a question here. In your own -- in your professional opinion, these regulators can't get out of that service quick enough?
A. Well, if I was running the show, that department in that service territory like I used -- when I worked for Xcel up in the mountains, if I had a problem child regulator and I knew it wasn't working correctly, and I had others in, I would do my best to get them out of service. And then I would keep my management informed that I had removed X number of them because of whatever reason. And, you know, that's just good prudent management.
Q. Right.
A. You know, you find a unit that's, you know, old and failed, one has failed, you know the probability of others coming to failure is pretty high.
Q. Okay, yeah.
A. You know, it would be prudent management to get them out of the system as soon as possible if you have one failure.
Q. Okay. That's great.
A. And find out why you had that failure. And being lead diaphragms in them things, that's prudent to get rid of them.
Q. Okay. Just a few more questions. Can I get the full spelling of your name?
A. Yeah, my first name is Thomas, middle initial E, last name M-c-D-o-u-g-a-l.

Q. Douglas?
A. And I will tell you, I am not a registered engineer.
Q. Oh, okay. That's okay.
A. I am not.
Q. Yeah. So is it Thomas E, as in echo?
A. Yes.
Q. And Mc- --
A. And the last name is -- I'll do out the last name: Mary-Charlie-Dog-Oscar-Uncle-George-Alpha-Love.
Q. Okay, I had that wrong. Okay, good. McDougal, okay.
And do you have an email?
A. My work email --
Q. Yes.
A. -- or my home?
Q. No, your work email.
A. Work? Yeah, oh, yeah. T., same last name, @linc, l-i-n-c, energy systems -- that's plural. That's all one word, lincenergysystems is one word, .com.
Q. Okay. So what I'm --
(Whereupon, the interview was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: THE EXPLOSION OF APARTMENT BUILDING 8701 OF FLOWER BRANCH APARTMENTS IN SILVER SPRING, MARYLAND ON AUGUST 10, 2016
Telephone Interview of Thomas McDougal

DOCKET NUMBER: DCA16FP003

PLACE: Via Telephone

DATE: October 6, 2016

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.

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Elizabeth M. Cochran
Transcriber