UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	*	
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ENBRIDGE - LINE 6B RUPTURE IN MARSHALL, MICHIGAN	*	Docket No.: DCA-10-MP-007
	*	

Interview of: KAREN BUTLER

Crowne Plaza Hotel
Edmonton, Alberta
Canada

Thursday,
November 17, 2011

The above-captioned matter convened, pursuant to notice.

BEFORE: MATTHEW NICHOLSON
Investigator-in-Charge

APPEARANCES:

MATTHEW NICHOLSON, Investigator-in-Charge
Office of Railroad, Pipeline, and
Hazardous Materials Investigations
N y Board
[redacted]

BARRY STRAUCH, Accident Investigator
National Transportation Safety Board
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BRIAN PIERZINA, Accident Investigator
Pipeline and Hazardous Materials Safety
ion (PHMSA)
[redacted]

JAY JOHNSON, Supervisor
Audits and Inspections
Enbridge Pipelines
[redacted]

I N D E X

I N T E R V I E W

MR. NICHOLSON: This is NTSB pipeline case number DCA-10-MP-007 Enbridge Energy, July 2010, crude oil release in Marshall, Michigan. These are the Human Factors Group interviews being conducted at the Crowne Plaza Hotel in Edmonton, Alberta, Canada.

Today is Thursday, November 17th, 2011. This interview is being recorded for transcription at a later date. Copies will be provided to the parties and witness for review once completed.

For the record, Karen, please state your full name with spelling, employer name and job title, please.

MS. BUTLER: Karen Butler, K-A-R-E-N, B-U-T-L-E-R, and the e-mail is [redacted] and my job title is supervisor of accident investigations for PHMSA, [redacted]

MR. NICHOLSON: Okay. We'll go around the room now and have each person introduce themselves. I'll start and we'll go clockwise from the left. Matthew Nicholson, M-A-T-T-H-E-W, N-I-C-H-O-L-S-O-N. I am NTSB, IIC, for this accident. My contact number is [redacted] I can be e-mailed at [redacted]

MR. PIERZINA: Brian Pierzina, B-R-I-A-N, P-I-E-R-Z-I-N-A. I'm an accident investigator with PHMSA. My e-mail is [redacted] and my phone number is [redacted]

MR. JOHNSON: Jay Johnson with Enbridge Pipelines,

Supervisor of Audits and Inspections; [redacted]
Cell: [redacted]

MR. STRAUCH: I'm Barry Strauch with the NTSB, B-A-R-R-Y, S-T-R-A-U-C-H. My e-mail address is [redacted] and my number is [redacted]

INTERVIEW OF KAREN BUTLER

BY MR. NICHOLSON:

Q. Okay. Karen, to start with maybe you can just give us a narrative on what it is -- what your responsibilities are at PHMSA, where you're located, your duties?

A. We're located in Kansas City. We cover the Central Region states in the United States. We have about five people in our staff on the accident investigation team. And basically I supervise, making sure that our paperwork is processed, that the information that we receive off of an accident investigation matches what we believe has happened. If not, we talk to the operator and try to work through any of those differences.

When we have an on-site investigation, we step through all the various phases of that accident investigation from determining who launches to making sure that we have safety on the job site, to verification that while they're out there, any support services that they may need are handled on site, and then we begin our own cause analysis in turn.

Q. So of the five people on staff, does that include auditors? Are you over auditors or --

A. Well, I guess, you mean auditors that they handle enforcement actions? Yes, we're all capable of handling enforcement actions. We don't do standard inspections as a general rule unless someone would ask us. We don't do integrity management inspections, for example, unless someone would ask us. However, we have been known to fill in on other teams. The accident investigation group is fairly new this year and has only been a little over a year in creation.

Q. So then there's another group that does the auditing?

A. There are -- we're all investigators, so I don't want to confuse the term auditing. But we would typically have two other teams of inspectors that would do the routine inspections. We handle only accidents.

Q. And of those, how many inspectors are there on those two other teams?

A. Well, we've oscillated between 17 and 20, in that neighborhood. We've just had a couple changes, so I'm sure I'm not up on the latest list.

Q. Now, there's a control room management audit going on, I believe, of Enbridge in December?

A. There is.

Q. Is that an inspection or is that related to the Marshall?

A. That is actually a control room management inspection.

Q. So was that -- that's actually an inspection similar to

like an integrity management --

A. Yes, it is.

Q. -- type of inspection? Okay.

A. As I probably alluded to, whenever there's a specialty on the team that is felt needed to help kick off new initiatives, they're pulled in whatever direction is necessary.

So in control room management that rule is new, so the people that helped with that regulation have been asked to go help teach that, as well as train crews. And so my particular role in the CRM inspection would be to help train those doing the work.

Q. Can you walk us through the CRM inspection and how that's going to be conducted and what you'll be looking for?

A. Basically we will follow the questions and answers that are laid out. Typically we refer to that as the protocol. We've been careful to call those questions now out on our control room management website. It's out there for any public member to view, including the operators. If you need that website it is primis.phmsa.dot.gov/crm, for control room management.

MR. STRAUCH: Could you spell primis?

MS. BUTLER: Primis is P-R-I-M-I-S. And we will follow that set of questions. We will look at the regulations that are found in 195.446(a) -- 195.446 clear through that and 192.631, if you were looking at gas.

BY MR. NICHOLSON:

Q. Okay. And this is the first -- I think you said this

first CRM audit conducted?

A. No. In Central Region it will be the second.

Q. But the first for Enbridge, right?

A. The first is Jayhawk.

Q. The first was Jayhawk, okay.

A. And it is not a "was". It will not happen until week after next.

Q. I'm sorry.

MR. NICHOLSON: Okay. Barry, do you want to go ahead?

MR. STRAUCH: Yeah, okay.

BY MR. STRAUCH:

Q. How long have you been in the position of supervisor of accident investigations?

A. Just a little over a year.

Q. Okay. And, what were you doing before that?

A. When I first started with PHMSA, which is roughly 8 years ago, I was a community assistance and technical services representative for 5 years.

And then I moved to a group -- performance evaluation group, and then I moved to accident investigations. All of those moves were my choice. I tend to get bored after about 5 years of doing something and want something new.

Q. I'm sorry. What did you do after you were in community assistance?

A. I was in program evaluation group. It's called PEG. It

was a new team put together to look at metrics for the entire organization. It has since been disbanded or incorporated into other teams.

Q. And by organization, you mean PHMSA?

A. Yes. And we were initially concentrating on pipeline metrics. The overall goal was to also look at our sister part of the agency, which would be hazardous materials, but that never came to volition.

Q. Okay. How many accidents have you investigated in your current position?

A. To be on site, not too many; but to read accident reports, to follow up on metallurgical analysis and -- we're currently looking at somewhere in the neighborhood of 60.

Q. Okay. The initiative to create an accident investigation group, that took -- that would have took place a year ago. Is that strictly in the Kansas City region or other aspects of the region and PHMSA as well?

A. Actually Southwest Region was set up that way and found success with it, and so we thought we'd give it a try.

Q. Okay. So right now there's two regions that do that?

A. Yes. The other regions, as a general rule, are smaller in the numbers, and so it might not be as feasible.

Q. What was the reason for creating an accident investigation group?

A. Central Region has a lot of vintage pipe and a lot of

pipe, and so we spend a lot of our time doing accident investigations. And I believe they felt that a team focused on that could help crank those out to speed up how they would be processed.

Q. And could you describe the kind of training you've taken in accident investigation methodology?

A. There has been -- methodology, I've taken re-class, failure analysis. Specifically we've gone through the MORT chart. That seems to be one of the things that we believe has great value because it also looks at management systems.

Prior to that I had -- I've also had a TSI class. So before I forget that, that would be our internal training that's on accident investigations.

Q. Oklahoma City?

A. Yes. Prior to that I worked in industry for many years and I had experience both in the control room and preparing controllers for what they would be doing, as well as following up on events. And so I couldn't begin to tell you the classes that I took in industry; it's been too long ago.

Q. And if you've run into an accident where it looks like human factors may have been a role, can you describe the kind of training you've had to look at the human factors aspects of accident investigation?

A. Human factors training has really come from being connected with our particular consultant, which happens to be

Miller Ergonomics. Jay Miller is a Ph.D. And basically when we go into an accident investigation where we believe a couple of the key questions are initially answered in such a way that fatigue could have been a component, we usually call in an expert. In addition to that, we also have access to the fast software, so we do some modeling on scheduling in-house.

Q. Uh-hum. Okay. We had kind of thought that the focus of this interview would on audits, but it sounds like you're not involved in audits?

A. We do. I don't mean to say that we don't issue enforcement actions; we do.

Q. Um-hum.

A. Frequently on the accident investigation team, we will be connected with CAOs or safety orders. Safety orders are the initial negotiations that we put in place if we -- either the result of an accident or if we view through some means that a facility is hazardous. Or a corrective action order after a breach has happened. And we don't always get involved with that because sometimes that's handled by other people. But there are cases where we do, yes.

Q. Okay. Is there someone at PHMSA who's responsible for auditing in the oversight of Enbridge or is that defused among other people?

A. If you're talking inspections --

Q. Yes.

A. -- it's defused among other people. If you're talking accident investigations, primarily we let Brian handle those because he's had so much experience with Enbridge.

Q. Okay. I'm talking now about the inspections, the oversight part. That's shared among a group of people?

A. Yes. It's not just -- it wouldn't -- for example, if we were to put together, as a result of Marshall -- can we step through that as an example?

Q. Um-hum.

A. We had a release. There were some -- I personally was not in the accident team at the time of the release. I was working in the PEG group and was asked to come help with the interview process because of my control room background.

During that time I had already sent in my application for the supervisor's position of accident investigations, but it had not been filled at that time. I was then -- received the information that Dave wanted me to work in that capacity for him, which I was thrilled about, and transferred over sometime in August. So the initial CAO I had nothing to do with. That was done by Dave Barrett and a combination of people that's in the staff that would support his efforts. They would review it, provide input, and then it would go to D.C., and legal counsel would review it and legal counsel would approve it. And then Jeff Wiese and other people like Alan Mayberry would put their insight into it as well.

Q. Okay.

A. So when you look at the history of Marshall, there was also revised CAO.

Q. What is a CAO?

A. Corrective action order. All right.

Q. Okay.

A. So it went through a couple of phases. And in that revised CAO, legal was even more involved than the region. Region had input, and I don't mean to imply that they didn't.

Q. Um-hum.

A. But legal did many of the negotiations in that regard.

Q. Okay. Okay. You said you helped out on audits as needed?

A. Yes. When -- for example, my background allows me to be a specialist in control rooms. Brian's background would give him an expertise in ILI. So, if there is a particular element that comes along, when they think, gosh, could you look at this -- even if it's not in our own region -- sometimes we are asked to assist.

Q. I see. So when you're going out in 2 weeks to look at the control room, what would be the purpose of that visit?

A. We will be doing an inspection. There will be follow-up activities that will be viewed as auditing activities. I will not be writing that enforcement. Someone else in the team will be assigned to write that. My main function there is to help train them through the process.

Q. Okay. Well, then could you walk us through what you -- how you expect an audit of an operations center to be conducted?

A. Sure. There are small operator control rooms and there's large.

Q. Okay.

A. Those that are small may only take one particular inspector from our staff or from the region. There are some control rooms that handle multiple regions, in which case we would invite other region inspectors to attend with us. There are some control rooms that handle intrastate facilities and we would invite our state partners to attend in that case.

So as we begin the process, we will notify the operator in advance, try to pick out a suitable date. Then we set up -- based on the size of the control room -- how long we think it will take and how many people we think it will take.

In the Enbridge upcoming situation, it's one of our largest control rooms with, I think, 23 consoles. I may be wrong about that because I haven't seen the new one. Based on the number of consoles, we will -- I determine that we need at least four to five people to accomplish a review in a somewhat reasonable time frame, meaning 2 weeks.

So in the Enbridge case we will schedule two separate weeks of a team of four to five people, and we will come up here and begin our day 1 activities. Our day 1 activities will start out with a tour of the control room. The second day's activities

will begin with an understanding of the applicability section of the rule, which is Section (a), and we will start to understand what all the assets are that are actually ran out of that particular control room. After that, we will step into roles and responsibilities, which is Section (b) of the rule, and then (c) will begin inadequate information. For the size of the control room of Enbridge, we'll be lucky if we get through (a) and (b) within that day. We would hope to, but that's ambitious at best.

Q. Um-hum.

A. Then that following day we would continue through. We would hit inadequate information, which generally takes quite a while. We will then move into fatigue and then we'll follow up with where fatigue splits off. The following day move into alarm management. Go into operating experience and management of change. And then hit training usually towards the end and validation and compliance.

Now, the reason that Enbridge will take 2 weeks is because we will also be reviewing paperwork in an effort to determine whether or not they have complied with those sections of the rules, and that will take longer because of the size of the controller.

Q. Okay. Now, so it's -- what is (a) -- is?

A. (a) is applicability.

Q. Okay. And (b) is rules and responsibilities?

A. Responsibilities, yes.

Q. (c) is inadequate information?

A. Or adequate information.

Q. I'm not sure what that means?

A. Well, (c) has a whole section on like, for example, shift change and communication, making sure that displays are set up in such a way that they're -- it's easy to determine when alarm or color changes; looking at what their training program does. So there's some cross-connections between Sections (c) and (h).

Q. Okay, okay. (d) is fatigue?

A. (d) is fatigue, yes.

Q. And what is (e)?

A. (e) is alarm management.

Q. Okay. Is there an (f)?

A. (f) is management of change. (g) is operating experience.

Q. (g) is operating experience?

A. Right.

Q. Okay.

A. (h) is training; (i) is compliance, and (j) is deviations. And I think I hit them all from memory.

Q. Okay. Wow. And that's the first week or this is both weeks?

A. We will attempt to cover as much as we can the first week.

Q. Um-hum.

A. But because of travel times and when we will get here and the size of the control room, I do not expect us to get through all of that the first week.

Q. Okay.

MR. JOHNSON: Why would you envision, if we had 2 consoles or 40 consoles why that would take more time?

MS. BUTLER: Because the hours worked for the controllers are not the same, because the alarm -- it may even be on two separate SCADA servers because no two control rooms are configured the same. So there may be totally differences between how the consoles are set up.

The console workload is definitely specific to a console. The difficulty assigned with that, which can mean that they have additional work activities that they're required to do, that creates different paperwork trails. One may run in a slack line condition and another one not, which can induce a whole different series of typical things you would expect in AOCs, for example. So each console is unique, plus the shift exchange should be unique to each console. So, I think I said that though. Forgive me.

BY MR. STRAUCH:

Q. I'm not sure if you did or not. Okay. Well, let's look at fatigue. What are you going to look for when you look at fatigue?

A. Well, the first thing is that you need to have a plan.

Q. Okay.

A. There are two sections, two time, basically, elements in the rule. One doesn't come into play until next year, 2012, and one is already in play. The amount of work hours and tracking will be done according to their plan, which should be in place now, but won't be implemented until later.

Q. Um-hum.

A. So we're going to be looking along the lines of fatigue regarding what they've done in their plan that would both train supervisors and the controllers to understand some basic factors about fatigue and what they can do conceivably to minimize it.

Q. Okay. But what they could do is pretty much under the rubric of the rule there that requires limited to 12 hours of work per day, correct?

A. No. In our particular rule, we state in the fatigue section that the operator has to sponsor them the capability of getting 8 hours of sleep continuously. So what that means to us is approximately a 10-hour window where they can't have been scheduled to work, right, because they've got to have commute time in there and some time to get in the house. Nobody falls asleep immediately. So our thought process then would move to their scheduling.

Q. Um-hum.

A. So we know that there's inherent risk that changes with 2 a.m. to 6, or dawn; I should say dawn is more appropriate. We

know that risk increases from the 9th hour of the shift to the 12th hour of the shift. We know that working three consecutive nights begins to cause a potential for fatigue.

So we will look at their shift schedule and rotations, the number of crews that they have. Because obviously if they're trying to work a 24-hour a day, 7-day a week control room, without a sufficient amount of resources, then people are working extended hours. So we will look at the crew and resourcing ratio.

Q. Um-hum.

A. Make some basic observations about that.

Q. What about medical causes of fatigue, such as sleep disorders?

A. We will look through their particular program to verify that they are doing a couple things. One is that they are making sure that there's a system by which in-house controllers can report when they've been put on a prescription. We will also be looking to verify that in their accident investigations -- if you look on our form that the operator submits if they meet a release criteria, there's a section that asks whether or not they looked at the control room, then there's a section that asks below that, if they did, whether or not they considered the fatigue elements.

Q. Um-hum.

A. We have a white paper out on our website that we refer operators to that has a series of beginning questions associated with an accident, and we would look to see that they've actually

been implementing those questions.

Q. Okay. Is there a requirement that companies screen operators for sleep apnea?

A. No.

Q. Okay. Is there a requirement that people diagnosed with sleep apnea get treated?

A. No.

Q. So assuming an operator has undiagnosed and untreated sleep apnea, there's nothing to stop him from reporting for work in a state of -- what would be a subsequent fatigued state?

A. That's correct.

Q. Okay. Is there a requirement that control rooms have MBS analysts?

A. No.

Q. Okay. So therefore what Enbridge does in terms of training MBS analysts or testing MBS analysts, there's no -- that wouldn't fall under your oversight?

A. I would disagree slightly with that, because if you do have a leak detection system on the liquid side of the regulations, which would fall into Enbridge's category, it is required to be API 1130 and meet that standard. And there's conditions within that that we would have permission then to review.

Q. Okay.

A. Regarding training, if in fact that's one of the duties

that a particular controller has to perform or understand, then that would fall under the training section of the controller management rule. Just because it's an MBS alarm and comes from an auxiliary system doesn't mean that the controller doesn't have to have adequate training on how to respond to that as well as other conditions.

Q. And since I'm not familiar with the API rule, could you just kind of --

A. API 1130, it talks to a lot of the specifics about if you have a leak detection system you choose a method by which you're going to do it. We know that Enbridge chose mass balance, right? And it talks about the fact that you can have real-time monitoring or not. Theirs is real-time monitoring in transient. It talks to sensitivity, meaning how you perceive your -- not how you perceive, but how you test your instrumentation, how you develop your thresholds. There's a series of things that that particular standard covers. I'd be glad to get you a copy of what's in that.

Q. Well, no, I can --

A. Okay.

Q. How do other companies comply with that standard, companies that don't use MBS analysts?

A. If you -- okay, if you don't have a leak detection system you are not required to have one.

Q. Okay.

A. So other companies may or may not have one. If there is a leak detection system in a company it is expected to be compliant with that same document.

Q. Okay.

A. Leak detection -- just for the purpose of creating some understanding -- regarding an industry term, can point to all different types of facets and not necessarily an MBS system or an analyst. So, for example, if you were to talk to a gas controller and you said, do you have leak detection? They would say, yes, because they might be doing a lost and unaccounted for balance. Okay. That isn't necessarily the same thing as a true leak detection system.

Q. Okay. And what other types of approaches would liquid pipelines take if they don't use the MBS alarms or analysts?

A. Some may just look at total volume in, total volume out, such as this CMT system only, and not have an additional leak detection running real-time and creating transients. Some may just do what they would consider a leak detection program as flying the line.

Q. Flying the line, like in an airplane or helicopter?

A. Patrolling it, yes, looking for leaks. They would consider that one of the initial phases of a leak detection program.

Q. Okay. And that would satisfy the rules, because you said there is no rule requiring a leak detection system?

A. There is no rule requiring a computerized leak detection system.

Q. All right. So aerial patrol would satisfy the rules?

A. Yes.

Q. Okay.

A. In some cases. I want to be clear about the fact that -- because in their operation and maintenance manual they may have certain procedures and certain requirements that then bring those systems into a code compliance issue.

Q. Okay. What's the frequency of these control room audits?

A. What is the frequency of --

Q. The control room audits? In other words, you --

A. There hasn't been a standard set of frequencies. It's a new program, so I'm sure the initial plan is to get through the control rooms at least once. Standard inspection intervals can be between 3 and 5 years. Doesn't mean that if you have, say, a large operator like -- we'll talk Enterprise for a minute instead of Enbridge -- that you wouldn't schedule to go to several control rooms within a year and then follow up with other control rooms another year.

Q. Okay. And let's, let's say as a result of this 2-week audit you find certain things aren't up to the level that you would expect them to be. Could you walk us through what happens then, the follow-up to the results of the audit?

A. Well, since it's a new process, we're figuring out whether or not the rule has been written well, and we will attempt to go through and identify whether certain things meet a criteria to issue a notice of amendment or to issue an NOPV, a probable violation, notice of probable violation.

But I think I was clear in the beginning, my role in this will be to train them what to look for. Others will make the decision as to what goes in what category.

Q. I see. So, is it correct to say that part of the results of this audit will be to look at the adequacy of the rules themselves and the applicability of those rules?

A. When you first begin inspections there's typically a process period by which you review the rule and your guidance and you come back together for what we call a reset meeting. There will be a reset meeting for this scheduled in January.

Q. And that will be an internal meeting or a meeting --

A. That will be an internal meeting.

Q. Okay. And let's say that you find that some of the rules need some work, i.e., need some modification work, what would happen then?

A. Well, basically the reset -- the team that gets together looks at what the various investigators or inspectors have found. We review what has been done. We try to develop some standard enforcement guidance. And then if we think that there's certain sections of the rule that either are not meeting our guidance

well, we modify our guidance or we request a rule revision.

Q. Okay. Now, are your inspections conducted in coordination with the Canadian NEB?

A. We do invite them, yes --

Q. Okay.

A. -- to our inspections.

Q. And will they be there in 2 weeks?

A. I don't have an answer to that yet.

Q. Okay. Do they invite you to their audits as well?

A. I have not personally been invited but that doesn't mean other people have not.

Q. Okay. Are you familiar with the NEB rules of oversight of control rooms?

A. I have not looked at them in quite a while. So I would say, no, not at this time.

Q. Okay. What's PHMSA's role with regard to the safety culture of the companies they oversee?

A. Could you repeat that?

Q. What is PHMSA's role with regard to the safety culture of the companies they oversee?

A. From my prospective, we have a mission and our mission is totally about safety. And some operators have an easier time implementing a safety culture than others, and we do our best to make sure that the safety history of that operator improves over time.

Q. So is this like a PHMSA mission or this is your interpretation of the PHMSA mission?

A. I believe if you look at our mission, which is out on our website, we're clearly all about protecting the public. We're clearly all about protecting environmental resource damage. And I think we go one step further than that; we're clearly about trying to be a good steward to these United States.

Q. So what would you expect a company that embraces a safety culture, what would you expect them to do to embrace that culture?

A. I would expect them to have a pretty detailed lessons learned environment where they look at any releases they have pretty closely. Try to identify every conceivable contributory element into that release potential, and then put hazard barriers in each -- in way of each one of those, so that you can never again have that perfect storm, so to speak.

I would expect the executives to take a conservative approach to a lot of different programs. I would expect executives to look at the age of their infrastructure and make decisions along replacement of that infrastructure. I would personally expect them to communicate well within their organization, across different teams, but also with us as regulators.

Q. So is it fair to say that these parameters that you've set forth are not part of the rules, but those would be things

you'd expect to see of a well-run company that takes its safety responsibility seriously?

A. I can't think of a portion of our rules that are not in place without safety being in mind. I can't think of a portion of our rules that specifically apply to an executive's desire to replace pipe as opposed to take the life of the asset out as long as humanly possible, I guess, or as long as physically possible, would have been the more appropriate term to use.

Q. Well, is there a rule that requires the pipe to be changed after a period of time?

A. No.

Q. But -- so, therefore when you say that, you're talking about something that's your own vision rather than with the rules you're stating?

A. Yes.

Q. Okay. Okay. We just have a couple minutes so I'm going to hold off further questions for a minute.

MR. NICHOLSON: No, we've got time. Brian, if you want to go ahead.

MR. PIERZINA: I yield to Jay.

BY MR. JOHNSON:

Q. So you talked about in PHMSA's mission, you know -- and, you know, I can't stay that I've read it recently. You talked about the public and the environment. Do you feel as though the rules in 195 look out for worker safety?

A. I do. I believe every single second of every day that I get up, that my job and commitment -- when I take my oath to protect this nation against all enemies, foreign and domestic, that that protects the worker as well. They're a member of the public. Because, to me, we can be our own worst enemy internally just by not communicating, and I take that very seriously.

Q. But, specifically, do you see 195 spelling out worker safety as much as what I would call pipeline safety?

A. I believe that the rules are put in place to protect all members of the public, and workers are clearly one of them.

Q. Okay. Under leak detection, you talked about what the rules require, and certainly in 452 if you have high consequence areas you have to have leak detection. Now, Enbridge certainly does have leak detection. You know, we do have aerial patrol, we have CMT, we have MBS, and we're piloting the ETMA (ph.) system. So as an inspector or regulator, do you look more positively at an operator who has multiple leak detection systems?

A. As an accident investigator I look at what is working well within what they have and I look at what is not working well within what they have. And so even if they have 5 or 10 different methods of looking at it, if none of those are functioning well or identifying areas of potential release prior to having a release, then I wouldn't necessarily call them good.

Q. You're going to have a reset meeting essentially after our inspection?

A. We will be having a reset meeting after a series of inspections.

Q. And I know you're going to do Jayhawk and then you do Enbridge.

A. Well, other regions are doing them also.

Q. Okay.

A. So it is not unique. That reset meeting was meant to imply all of PHMSA, if I was not clear about that.

Q. Okay. Do you have any operators come in for that? Do you get input from operators on that?

A. We don't typically sit down and ask operators, no. I think there will be input from operators through the sheer inspection process.

Q. So in things that we question you on that you would take back, or how would you get our input as to how applicable the rule is or the protocols that you inspect the rule to?

A. I think, as we go through inspections, there'll be times when, say, an operator will make a comment, this is not clear to me or why is this bullet in here or what did you intend through this phrase? And it would be our goal to capture those types of things and bring them back to the team. That can also apply to, say, FAQs that are out there, where people say, why was this FAQ in place, what did you mean in that phrase? So we go back and discuss those findings, I guess you'd say.

MR. JOHNSON: I don't know how close we're getting here

for Matt to have to leave?

MR. STRAUCH: Do you have the time?

MR. NICHOLSON: Well, I'm going to go down to meet Ghazal, but you guys can continue to talk. We're off the record.

(Off the record.)

(On the record.)

MR. NICHOLSON: Karen Butler interview Part 2.

MR. STRAUCH: This is Barry Strauch, and we're continuing the interview with Karen Butler from PHMSA.

BY MR. STRAUCH:

Q. We've covered -- let me see -- PHMSA oversight of training, OQs, frequency of inspections, nature of inspections and rules that apply to your job. We discussed the upcoming inspection of the control room, what your role in that is. We discussed the emphasis on safety culture. We discussed some of the rules governing pipe -- changing pipes.

I'd like to talk now about PHMSA's oversight of operator teams and what PHMSA expects of the elements that make an effective operator team in a control room.

A. So I think what you just asked me is, in a control room what do -- what does PHMSA believe would be an effective team?

Q. And how does PHMSA apply that in its inspections?

A. I can't say that there's any one thing that I would point to that's specific along a team culture or team training. I will say that communication comes into play repeatedly throughout

how controllers relay changes that would go into management of change reviews, what has been communicated between groups on shift exchange, so there would be some element there. But as far as specifically targeting team dynamics, I don't believe we've done that.

Q. Are there any requirements on information exchanges during shift handoffs?

A. There are. It references -- for the liquid side of the house, the specifics are found in 1168. It's a standard. And there are specifics associated with -- I'm going to attempt to do this from memory with a little note juggling -- which is emergency procedures, AOCs, an alarm review. There's a detail associated with any changes that have been upcoming associated with maintenance that might be going on their line. Any operating characteristics of the line. The status of various scheduled elements. And there's some additional elements on how third-party needs might be -- meaning if they have a terminal that's involved and that specific terminal needs two hours ahead of time notice to close valves because that terminal isn't owned by the same company, then there's some elements in shift exchange associated with that.

Q. Um-hum.

A. So I think those are the major topics. Another one would be if there's been any incidents related to safety.

Q. Okay. If a situation such as the Marshall incident

occurred tomorrow and the same information exchange occurred, would that be -- would that information exchange, that would take place, be consistent with the rules on the information exchanges during shift handoffs?

A. During the shift handoff at Marshall, I believe there was more than one. And I think in both cases we saw that there was not a formal shift exchange procedure, nor necessarily a formal form by which information was relayed. That would not be okay under the current CRM regulations.

Q. Okay. Under the CRM regulations, there must be a standardized form that's used?

A. There needs to be a procedure and then there should be a standardized approach to it, and that form may have the latitude to grow or shrink based on the information provided. So some people may say that's not a standardized form but it covers standard topics.

Q. Okay. Now, one of the things that we saw in the control room was that the SCADA displays basically are in different columns and the owners and operators are expected to interpret them. I'm sure you're aware that technology is such today that we do a lot better.

So what are the rules governing the displays and why are such displays consistent with PHMSA rules? Shouldn't the rules encourage better displays?

A. Well, there is a standard RP 1165, that's referenced in

the rule, that's to be given as guidance associated with displays, but it really reflects upon added, changed or otherwise modified screens. The idea being that some of the older technologies that are out there, especially I would say on smaller operators on the gas side do not necessarily have the capability of some of the newer requirements within RP 1165. An example might be color use. They may only have two color choices. And as a result of that we didn't feel -- since we can't mandate that standard equipment be used, we did not feel that we could mandate that 1165 be required now.

So the element was that if you were going to go through any of these modifications that it would be required that it be up to RP 1165. So I would hope that over the long run there would be display changes. However, I will tell you that tabular displays are used by a lot of control room operations in our industry.

Q. Of course, that does not -- should not serve as an endorsement to the quality of those displays?

A. No. Just telling you that it is more a standard operating condition than having graphical display or depictions are.

Q. Okay. Another thing that we saw here was the alarms that occurred at the control room station were all the same. It was up to the controller then to interpret the severity of the alarm, which I guess occurs by looking at the screen.

That's kind of counter to human factors principles that

calls for alarms to differ -- to sound different based on the severity of the alarm. So how was this current alarm system that's used in the control room consistent with the rules?

A. The rule allows an alarm to be audio or visual. It does not have to be both. And as a result of that the operator has flexibility in whether they choose to use both. Many do choose to use both.

I would say that Enbridge is not necessarily typical in our industry because most control rooms I've gone into do have different auditory tones for different priorities. Now, I have not seen all the control rooms in the industry, so I wouldn't -- that is a paraphrase based on my experience.

I've also seen where alarms take on a more visible cue than what we saw on low pressure in the control room as a sample demo, meaning that there was more of a color difference or more of a line change or more -- something that was more visible than that.

Q. Now, the new rules that have taken place for CRM that will impact your inspections, before those rules were implemented -- well, let me rephrase the question. How will control room inspections be different as a result of these new rules?

A. Well, previously really the only thing that would have covered control rooms would have been if they used pressure trending capabilities and they actually used some of those controls out of that control room to be part of their over

pressure protection or their pressure indications, and if they used their SCADA system to log their pressure values, then that would have brought certain things into our purview in the control room. So prior to that I can't say that there was anything specific regarding control room other than that, and we had issued three advisories that had relevance to control rooms or controller fatigue.

Q. And now, as a result of these new rules, there will be regular inspections of control rooms that was not --

A. That's correct.

Q. -- the case before?

A. That is correct.

Q. Okay. And you'll be -- and what kinds of things will you be looking at that were not looked at before when you do the control room inspections?

A. There will be sections looking at color use displays, how the operator confirms that the controller can hear and see their indications that are relevant on that console. There will be reviews of alarms, the amount of alarms, the amount of the alarms per hour, the amount of alarms per day, per shift. Look for whether there's false alarms, whether there's inhibited alarms, whether there's indications on the screens to indicate if there's a communication outage or a false alarm, or an inhibited alarm.

There will be training elements reviewed. There's going

to be specific written role and responsibility requirements that were not written before, specific shift change procedures. Adequate information really covers a variety of topics including point to point verifications for screen shuts, for safety related points.

There will be operating experience requirements, meaning that if they've had a release that they have to cover that with their controllers, and if they have near misses that are not necessarily a reportable release, that there be some type of program that's a lessons learned program within the control room.

There's a management of change process that would be specific to all of those different aspects of the control room. And it is specifically geared to require field and control room and supervisory communications, because that was not happening regularly in the past.

Q. Okay. But some of the things that you're looking at, there are no rules governing them such as colors or alarms and so on and so forth, so how will you be able to judge them -- that they're effective in the absence of specific rules?

A. Well, there are some rules that require that. So when it comes to colors, the issue would be what has the operator done to confirm that those colors are seen by the controller? What is in their process that tests that? Okay?

Q. Uh-huh.

A. So that will be one element. We will look for that in

their process. In alarm management it will be what in your process looks for the following things and identifies that? There's also a requirement in alarm management to look at total workload. So the operator is required to analyze that workload per console.

Q. Now, are you aware of any efforts on the part of PHMSA, in the application of these rules, to look at other regulatory agencies to see how they have looked at similar display issues and interface issues with the operator, such as the nuclear regulatory commission or the military?

A. Yes. We visited -- prior to writing the first MPRM associated with control room management, we visited federal rail, we visited a nuclear facility and talked to them about their regulations. We went to the FAA and went through air traffic control, and then also talked to their pilot group, as well as CAMI, which spoke to us on various human factors.

Q. CAMI being the FAAs air medical center in Oklahoma City?

A. Marine, we invited them to a human factors review regarding -- prior to an advisory, and they sat in on a workshop.

Q. Is this the Coast Guard?

A. Yes. I apologize for not clarifying that more succinctly regarding -- and we specifically talked about colors on screens, lighting with them, discussed hours of service.

So we tried to talk to every single mode that we could think of to gain our experience. Our specific discussions were

along one concept and that was that whatever they had done and had success with, we gained that benefit, but also if they'd had trouble with it. So it was both in the hours of service requirements and in certification requirements, because the original charge behind the rule was to check into whether or not there was -- and let me clarify. There was a congressional mandate in 2002 that required us to look at whether or not controllers needed to be certified to have an official certification process, and that would be established one certification process for everything.

And so we set about making that determination and that study by going to various modes and determining their lessons learned on that aspect. We also had -- went and toured various operators to look at diversity of size, locations in the United States, systems, diversity of systems, and what that might entail in controller certification.

Basically what happened, as a result of that review, is we came out with a series of fairly simplistic recommendations. And then the rule fouled up, because we saw many inconsistencies or things that were not being addressed that we felt could be safety factors.

Q. Okay. Were you part of this review team?

A. Yes.

Q. So you personally visited the Coast Guard or the FAA or FRA?

A. Yes. And I might also add, we studied -- we went to hydraulic specialists that modeled pipelines and asked them specifics and we went to SCADA vendors and asked them specifics.

Q. Is there any kind of documentation that exists on these visits and the results of these studies?

A. There was the report to Congress, which is just one page regarding our recommendations. There are probably some notes that may or may not be stored from each of those visits. There may be some documentation that actually other modes gave us to take with us that may exist. I'm not sure.

Q. When did these visits and discussions take place with the regulators and other people?

A. I would say between 2004 and 2007, somewhere in that timeframe -- possibly 2003 to start.

Q. Okay. How many PHMSA people participated in this?

A. Well, there was three to start out with: Byron Coy (ph.), Charlie Helm and myself.

Q. And how many finished?

A. The three, but we've now expanded the group. When it went from the controller certification study to the control room management rule, we were given more resources to put that rule language together, so the team grew at that point.

Q. Okay. Okay. And the final topic is -- in your current position of supervisor of accident investigations, what will happen with the -- your conclusions that follow investigations, in

other words, things that you see that worked and didn't work -- what will happen with those in the PHMSA structure?

A. Well, it depends on the circumstance. There can be a variety of things happen. So I'll go through what I think is the variety of those things.

Q. Um-hum.

A. The first one would be, if we go through the investigation and the operator sits with us and discusses what happened, and they go ahead and voluntarily make some changes, then there may be nothing else but the report that happens.

There may be discovery during the accident investigation that results in a regulatory note, that our regulation needs shored up or something needs to be cleaned up. And sometimes that's just forwarded through an e-mail to a supervisor. And then sometimes that makes what we call our recommendations page.

So off of -- it used to be that off of every accident investigation there were conclusions and recommendations, and the recommendations would float in a memo form up the chain within the agency. That may or may not happen with some of our current accident reports. Not all of them have a recommendation.

And then there are the other side. The other side of the house would be where if we actually have gone into a formal investigation and as a result of that formal investigation we determine that rules have not been complied with, we may issue an enforcement action. Enforcement actions do not happen in every

case.

Q. Okay. Will there be a report of the results of the investigation of this accident that PHMSA will produce?

A. I would think that that has yet to be seen and here's why. If we all have input into how the final NTSB report reads and we don't disagree with comments in there, as a party of the investigation, this will serve as our report.

Q. Okay.

A. So, I think the only exception to that would be if there's some point that we can't come to an agreement on regarding a contributory factor or something, then there may be a separate issue that covers that contributory factor.

Q. Now, under our rules, the parties don't have a role in the analysis that we come up with --

A. Okay.

Q. -- just the facts.

A. So I believe that in most of these that we've done jointly your report has become a report.

Q. Okay. No further questions at this time.

MR. NICHOLSON: Brian? Jay?

MR. JOHNSON: Here I had this big list.

MS. BUTLER: Oh, gosh, go right ahead.

BY MR. JOHNSON:

Q. Just a general question. I'll start with that one. How do you feel your communication timing is to operators when you do

the inspections? And I know you're more on the investigation side now.

A. I can -- yeah. I can't speak to inspection but I can speak -- because I've never really inspected. I want to be clear about that. I can speak to delay in accident investigations, if that's what you mean, that there's a delay in the findings? Getting back to the operator, is that what you mean?

Q. Yeah. Let's go there.

A. Okay. I think that there is rather lengthy delays in some of our reports. I think some of that's due to lack of resources.

Q. Okay.

MR. PIERZINA: If I could just add. You know, we have standards of rules and objectives, you know, whether it's inspections or investigations. However, you know, if it comes down to getting an inspection report out or investigation report out, or investigating the next accident, we're going to investigate the next accident.

MS. BUTLER: The same resources are used to investigate that are also used to report, and so we are at the mercy, at any given time, as to how many on the ground events we have going on.

BY MR. JOHNSON:

Q. And I'll ask you this -- and Brian can step in or maybe it's neither of you. One of the things that operators always want to know is where do we fall in the big picture of operators.

When we finished up the public awareness audit with Harold. Harold did 3 full days, very extensive, a very good working inspection. He didn't -- you know, because he worked with us to make the program better, which he told us upfront that's what he wanted to do. Afterwards he had some recommendations that he was going -- or he was going to take back. So, you know, you just want to say, oh, okay, you know.

Another operator that same week had a public awareness audit that took a day. You know, ours took 3 days. So then we come back and said, you know, where do we fall in the big picture? You know, on a scale of 1 to 10 or -- of the operators? We don't -- and maybe you can't give it, but we don't get that feedback. Any thoughts on that?

A. Meaning -- so, Jay, what is your question to me? How would you --

Q. So, maybe I'll put it -- from an integrity management standpoint --

A. Okay.

Q. -- which certainly our integrity management program is very much in tune with this Marshall investigation. We've had -- well, let's just say, before Marshall we had three integrity management plan inspections, four if you count the one on our vector pipeline, which is very similar. It's the same integrity group.

Through that we received NOAs and/or no comments, if you

will. So to us that would mean we would have an excellent program. And so then I would -- you know, I would say to Matt, you know, we were judged by PHMSA through three audits, three inspections, with a minimal of comments or no violation letter whatsoever. So we think we have a good program and it appears that PHMSA feels we have a good program. So, I mean, that -- to me that's a message, you know, we want to give, you know, our shippers, certainly our board of directors. And I would certainly want to, you know, tell that to Matt. It's like, you know, we've got a very good program, but --

A. Well, I've made some observations about the program and I would share my observations with you on the record if -- but they would be viewed as my observations, because I am not clear --

BY MR. NICHOLSON:

Q. Well, I had a similar question actually that I was curious about and maybe phrasing it my way would help. I was going to ask you, does PHMSA do benchmarking amongst the various companies and then share that benchmarking information or best practices back out to industry?

A. There's not an official benchmarking practice. What we do is obviously go through and do our inspection plan every year. And in our inspection planning we do look at elements that have surfaced that we believe to be known risks.

There is a specific model in revision that looks at risk based off of certain elements and generates that summary to us as

a region. It would be close to an indexing model but not exactly. Okay? So, from that standpoint, we do have that.

We also do -- once we decide that there are certain drivers to go look at a particular operator, we do have II inspections, which cover a little bit of everything. And based on that inspection we do a very detailed profile of the operator prior to starting that in many cases -- not all, but in many. And in that we do look at things like the number of accidents and the cause of accidents within that -- how many miles they operate versus the number of accidents. We look at other things like compliance actions. How many repeat compliance actions for the same section have occurred? We look at a variety of different topics. There are integrity management report summaries, that are submitted on behalf of the operators to PHMSA, that we do review and look at that have their own indicators in them.

But I would say to you that not all operators function the same. Clearly there's no requirement that operation and maintenance manuals be exactly the same. There's no requirement that the equipment they deal with be exactly the same or the systems be exactly the same. And so we have to understand that there can be certain depictions of an operator and you have to take those things into account. Meaning you can't just look at the total number of accidents. If they operate five miles that's significantly different than 10,000 miles. So its things like that that have to be taken into account.

Q. So this internal -- this indexing model, it's only used -- it's used internally, it's not shared?

A. That's correct.

Q. Okay.

A. And it's -- there was a previous one. There's been modifications to it recently. I believe it's in the interim state. There'll probably be another one coming in another couple of years.

Q. So Joe Q. Public has no way of going in and finding out whether Enbridge is a top performer or mid-level performer?

A. Joe Q. Public does have two things on our website. They can look for any operator at their accident history and they can look at -- for any operator at their enforcement history.

MR. STRAUCH: Is the semi-annual integrity management reporting information -- is that public information?

MR. BUTLER: I don't believe it is out there.

MR. STRAUCH: Okay. I wasn't sure.

MS. BUTLER: Now, I could stand corrected, because there's been changes to the website. And I'm going to be honest when I was at CAT I kept up with that regularly. Since I've moved to my current position, I have not kept as familiar with it.

BY MR. JOHNSON:

Q. Maybe I'll put it in your words.

A. Okay.

Q. Performance management. You wonder how we do

performance management, how we tell people how they're doing in their jobs, how we find out if they need more. I don't feel as though we get performance management from PHMSA.

A. Okay. I hear an expression and the best that I can offer you is that I would be more than willing to take that back and encourage it. That's the best that I can offer you.

Q. That's fair.

MR. PIERZINA: Well, and I don't know. I'm not, if I understood what that meant, but -- I don't know if it's -- I don't know if I want to have that conversation.

MS. BUTLER: That's okay.

MR. JOHNSON: Well, are you -- actually let me be very clear, because I get that when I -- you know, I am in a compliance group and I go out and I prepare operations for PHMSA inspections and fairly detailed. And the people work very hard to get their house in order, if it wasn't, for inspection. And then we -- an inspection will come out, and it's not uncommon, like for Brian or any of the other inspectors to make a comment to the people, well, your station or your terminal look great.

But at the end of the day, we get a -- or the week -- you get a closing meeting with some comments and it's always -- then it ends and everyone's like, well, how did we do? How did we do? And, you know, I don't really have a method other than my perception to tell operations how they did, because you -- you may give us six or eight things that you've cited, but you didn't say

that but these other 120 are outstanding. So maybe that explains a little better, Brian.

MR. PIERZINA: Yeah.

MS. BUTLER: I believe that there's a hesitancy on behalf of inspectors to provide a lot of positive feedback because they don't want to be accused of playing favorites. And positive feedback can be twisted that way.

MR. PIERZINA: You know, can I suggest that maybe this conversation be done off the record?

MR. NICHOLSON: Yeah, I agree with you on that.

MR. JOHNSON: Oh, all right, that's fine.

MR. NICHOLSON: We're on an interview here and we're kind of debating policy.

MR. PIERZINA: It's not really -- yeah, it's not really relevant to --

MR. JOHNSON: Well, you know, I'm certainly okay with it off record. And kind of questioned myself if --

MS. BUTLER: Are you done?

MR. NICHOLSON: I'm finished. Barry did -- Barry wanted --

MR. PIERZINA: I'm done.

MR. STRAUCH: I'll go to you if you wanted to?

MR. JOHNSON: No, I'm good.

MR. PIERZINA: I'm done.

MS. BUTLER: So if you don't have any more questions, we

will go off the record --

MR. NICHOLSON: Yeah.

MS. BUTLER: -- and I'll be glad to --

MR. NICHOLSON: Let's conclude this interview then now.

(Whereupon, the interview was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	ENBRIDGE - LINE 6B RUPTURE IN MARSHALL, MICHIGAN Interview of Karen Butler
DOCKET NUMBER:	DCA-10-MP-007
PLACE:	Edmonton, Alberta, Canada
DATE:	November 17, 2011

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

_____
Cheryl Farner Donovan
Transcriber