UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of: *
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ENBRIDGE OIL SPILL * Docket No.: DCA-10-MP-007
MARSHALL, MICHIGAN *
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Interview of: AARON ZIMMEL

Crowne Plaza Hotel
Edmonton, Canada

Friday,
December 17, 2010

The above-captioned matter convened, pursuant to notice.

BEFORE: MATTHEW NICHOLSON
Investigator-in-Charge

APPEARANCES:

MATTHEW NICHOLSON, Investigator-in-Charge
National Transportation Safety Board
Office of Railroad, Pipeline, and
Hazardous Materials Investigations
[redacted]

RAVINDRA CHHATRE, Accident Investigator
National Transportation Safety Board
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KAREN BUTLER, Supervisor
A ons
[redacted]

JAY A. JOHNSON, Senior Compliance Specialist
Enbridge Energy Company, Inc.
[redacted]

I N D E X

I N T E R V I E W

MR. NICHOLSON: Good morning. Today is Friday, December 17th, 2010. My name is Matthew Nicholson. I am an investigator with the National Transportation Safety Board in Washington, D.C. We are currently in Edmonton, Canada at the Crowne Plaza Hotel. We are meeting in regards to the pipeline spill in Marshall, Michigan that occurred on July 25th, 2010. This is case number DCA-10-MP-007.

Before we begin, Aaron, I'd like you to please state your full name and whether we have permission to record this interview.

MR. ZIMMEL: Yep, my name's Aaron Zimmel, and I guess you have permission to record it.

MR. NICHOLSON: Thank you. And, if you could speak up a little bit? These -- we've had some soft talkers that don't pick up very well. Also, if you'd like, you're permitted to have one other person present during this interview. It could be friend, family, supervisor, or nobody at all. Can you confirm for me on record who it is you've chosen to be present during the interviews?

MR. ZIMMEL: Nobody.

MR. NICHOLSON: Nobody? Okay. All right. So, at this point we'll go around the room and each person introduce themselves. State your name, the spelling of your name, your organization you represent, your title, and business email or

phone number for contact.

I'll start and we'll go to my left. My name, again, is Matthew Nicholson. That's M-a-t-t-h-e-w, N-i-c-h-o-l-s-o-n. I'm the investigator in charge for Marshall, Michigan with the NTSB. My contact information is [redacted]

MR. CHHATRE: My name is R-a-v-i-n-d-r-a last name Chhatre, C-h-h-a-t-r-e. I'm accident investigator with National Transportation Safety Board. My contact email is [redacted] I'm here to assist ICC Matt Nicholson on this investigation.

MR. PIERZINA: I'm Brian Pierzina, an engineer with the [redacted], and that's B-r-i-a-n, P-i-e-r-z-i-n-a and my email's [redacted]

MR. ZIMMEL: Aaron Zimmel with Enbridge Pipelines. I'm a shift lead. That's A-a-r-o-n, Z-i-m-m-e-l and my email is [redacted]

MR. JOHNSON: I'm Jay Johnson, Senior Compliance Specialist with the Pipeline Safety Compliance Group for Enbridge in [redacted] My contact information is [redacted] That's j-a-y.j-o-h-n-s-o-n.

MS. BUTLER: I'm Karen Butler with the [redacted] I'm the supervisor over accident investigations in Kansas City. I can be contacted by email at [redacted]

MR. NICHOLSON: Okay. To get started, maybe we'll go

ahead and start with Karen. Each of us maybe take 30 minutes and we'll go around the room questioning Aaron, so Karen, you want to start it off?

MS. BUTLER: Sure.

INTERVIEW OF AARON ZIMMEL

BY MS. BUTLER:

Q. I'm going to start off with some questions regarding your supervision and some general leadership issues on authority and accountability in the control room and those types of related issues. If at any time you feel a little uncomfortable answering, you know, just indicate that.

A. Okay.

Q. Also, we wanted to make sure that you know in advance the way this procedure works, and that would be if you would say anything on the record regarding a supervisor's performance or some technical aspect that you -- is sensitive and, you know, reading the transcript it was obvious that it might cause you some problem with your current employer, then we would definitely retract that information. And by retract, I don't mean remove it from the record. We would just make it so that portion of the record isn't visible. Do you understand that?

A. Okay, yep.

Q. Okay. Also, please note for whatever it's worth that should anything occur to you, I think Matt has said this in one or two other interviews, and that is if anything should occur to you

after the fact in these discussions or something you wish you'd said, you have the freedom to contact us.

A. Okay.

Q. All right. So, with that, regarding your supervision and leadership, do you believe that they have the technical skills required to support you in your current role as a shift lead?

A. Does who? Who are your referring to?

Q. Your supervisor. I would assume --

A. Oh.

Q. -- you report directly to Curt.

A. Right. Yeah, no, I think so.

Q. Okay. And do you feel like there are times when you are technically more than capable, so to speak, of handling the shift lead role?

A. Yeah, I think I'm technically capable, yep.

Q. Okay. What is your technical background, Aaron?

A. Just as being an operator for eight years.

Q. Did you operate pipelines or terminals?

A. Both.

Q. And it's our understanding that you as a shift lead switch what part of the room or what type of aspects you're being a shift lead for; is that correct?

A. We switch position -- or do we switch spots, you mean, or?

MR. NICHOLSON: Like to feeder pipelines and the

mainline pipelines?

MR. ZIMMELL: Yeah. We kind of have the room broken in half, so one shift lead looks after one half and one the other. But, it doesn't always work that way. Like, if it's more busy on one side, we help each other.

BY MS. BUTLER:

Q. Okay. So the MBS Analysts, do you look at them as an expert hydraulically on the system?

A. I wouldn't call them an expert hydraulically. I'd call them an expert in how the model works.

Q. Okay. And forgive me, but I have to type here and take notes a little bit.

A. Yeah, okay.

Q. It takes me longer. Are you currently in the control room?

A. You mean --

Q. Actively rotating on shifts and --

A. No.

Q. Okay. How was it explained to you that you're not currently active or --

A. Just explained that I'm -- I've been reassigned until the investigation is completed.

Q. To your knowledge, was there any investigation or review of circumstances before they made that decision?

A. I don't know. I'm not sure how they come to that

decision.

Q. Okay. Did you ask any questions around that decision?

A. Yeah.

Q. What were the types of questions you asked?

A. Well, I just kind of wanted to know what, why I had been reassigned and kind of the time frame as to when it was going to be over and stuff like that.

Q. Did they give you a time frame?

A. No.

Q. And, who was it that informed you of this?

A. Curt Goeson.

Q. And, were you interviewed in the internal accident investigation process that's ongoing for Enbridge?

A. Yep.

Q. Was that interview on the record, meaning transcribed or recorded?

A. Yes.

Q. Was there ever a discussion around procedures in that interview?

A. Yep.

Q. Was that mainly the interview content?

A. Yeah, quite a bit of it, yeah.

Q. What else was in that interview that comes to mind?

A. I don't know. I guess they wanted to know kind of my -- what I seen that night and what happened.

Q. Okay. Was there anything surprising that came up to you in that interview or in the questioning set that was used?

A. No. I don't think so.

Q. All right. When it comes to alarms and the priority, meaning when you're looking at the alarm queue and you see something in the alarm description that has like an F4, an F6 or an F8, did you ever have any input into how those types of alarms were prioritized?

A. No. You know, like if we have an alarm that we think should be changed, then we bring it up and we maybe change the severity of it, but over -- like, at the start, no, I wasn't a part of that, no.

Q. If you had an alarm that you thought would be changed in priority, how do you do that?

A. Well, we make a SCADA report and then we're -- we'd have to escalate it through our pipeline coordinator.

Q. And who would the pipeline coordinator be?

A. Well, it -- right now it's James Sigurdson.

Q. Okay. Does he report to Curt?

A. He reports to Kevin Hebert (ph.) right now. But, at the time, it was Blaine Reinbolt that he reported to.

Q. Okay. Have there been some recent changes that would have changed who he reports to, then?

A. Yeah. I think Kevin -- well, he reports to Kevin now, so that's the change. They added a new position there, I think.

Q. Okay, so it was a new position under Blaine they added?
A. Yeah. I don't -- I'm not sure who Kevin reports to, actually.
Q. That's --
A. I don't know if it's (indiscernible) but --
Q. That's fine. But in any event, you would make out -- fill out a SCADA report and then escalate that to a pipeline coordinator?
A. Yep.
Q. Is James the pipeline coordinator for all the pipelines in the control room or does each like console or environment have a specific pipeline coordinator?
A. No -- well, actually we have two pipeline coordinators and two terminal coordinators, so yeah, he'd be -- the two pipeline guys would be for all the pipelines, yeah.
Q. And, who would be the other one, then?
A. Kemeil Shank.
Q. And, do these guys ever get involved in specifics other than like requests for enhancements or -- do they get involved in, say, day-to-day operations?
A. Yeah, I think they get involved in day-to-day, yeah.
Q. Were they involved at all in the Marshall 6B -- line 6B event that you're aware of?
A. Not that I know of, no.
Q. So, what would their involvement be that you've seen

happen?

A. Like any technical issues that we have we get them involved.

Q. So, give me an example of one.

A. I guess like the best example is if we're having any SCADA issue and we need to get SCADA to fix it, we'd get them to help us do that. Or any -- we're not sure about the spec brakes on a -- in a terminal or something, we'd get them to help us.

Q. Okay. Are they on days only or do they rotate shift as well?

A. No, they're just day staff. Yeah, they work Monday to Friday. Yeah.

Q. Okay.

A. Yeah.

Q. So, basically on your day shifts as a shift lead, they would be available as an additional resource?

A. Yep.

Q. Okay. All right. Thank you for that. Okay. Is -- when we get to the alarm logs again and we're talking about the words that print out when a certain event has happened or a certain alarm has happened, I call that the descriptor. Have you ever had any input into the texturing or the words that are used in a descriptor for an alarm event?

A. No, not usually, no. Like, kind of the same as the last one. If we had one that we thought was wrong or needed to be

changed we would --

Q. Okay.

A. -- bring it up, yeah.

Q. So, talk to me a little bit about you, I think, give performance reviews on operators in the room as a shift lead; is that correct?

A. Yep.

Q. Okay. Talk to me about how you work through that process or what's involved in that process.

A. Well, at the start of the year we sit down with each of the operators and kind of get a feel for, you know, where they want to improve, kind of their -- where they're strong and kind of maybe their interests and kind of help them come up with an objective to help improve themselves throughout the year and then you kind of check in throughout the year and see how they're doing and support them in any way they need or answer questions and stuff like that.

Q. Do you have any specific metrics that you try to use as a measurement tool for how they're performing?

A. Yeah. We have -- kind of have a chart that goes by years of service and kind of how and what they're doing to kind of help us give them a rating. Or to show areas of improvement.

Q. Do you ever assign them additional duties or responsibilities besides monitoring and operating a console?

A. Yep. We have some things that -- some extra stuff

that's kind of -- it's still day-to-day stuff but it kind of helps the room operate or maybe helps the shift leads in their role. We give some of that to them, yep.

Q. Can you give me some examples of that?

A. Like, one example would be every day we print off a terminal balance sheet and any tank that's out of balance by more than a hundred cubes shows up on this report. So, we get them to print that off and make sure there's the right comments in there. And, we have one for pipelines too where if it shows that if they're out of balance or not there's a -- it's kind of like if it shows up a lot of mistakes that might -- CMT and errors and stuff like that, so they print that off and make sure that's all correct and give it to us, so there's a couple examples.

Q. Okay. Is that particular piece, those two reports, are those exchanged with the next shift lead when they come in?

A. Those ones are -- we put them in a binder and keep them. Like, it's like socks (ph.) audit. It's for socks.

Q. Okay.

A. So, we just, now, we don't -- I guess we don't pass them to the next guy, but we keep them at the shift lead desk in a binder.

Q. So they are available as a resource should anybody want to look?

A. Yep.

Q. So, if -- did you ever look at the report regarding the

CMT issues or what may have going on on 6B the -- for the shift before you?

A. No. That report, it's just a batch over (indiscernible) report. It's not a -- it's maybe not what you're thinking of, a (indiscernible), yeah.

Q. Okay. Okay. So, what types of mistakes would be evident on it, then?

A. It would just be clerical errors, like BAT (ph.) -- incorrect BAT size at a terminal or something like that.

Q. So, what do you think, as a shift lead, is basically your function in the control room?

A. Well, the way I look at it is we're the operators performance manager and we're there for emergency response. You got emergency one call response, and then we're the one that write any emails and letting everybody know about what's happening, like shipper services, our manager group. So, we're kind of liaison between the control center and outside departments.

Q. So, other people that have been shift have kind of described your function as a life coach. Do you feel that same sense of role?

A. Yeah, that's part of it, yeah. That'd be the -- our performance management. If -- we're the guys they come to when they have problems, and we try to help them.

Q. So, since this change on Marshall has affected the control room, have you had a life coach?

A. Have I had a life coach?

Q. Yeah, or have you had somebody that's fulfilling that same type of role with you in this precarious or uncertain period of time?

A. Well, my -- I report to Curt, so --

Q. Okay. What about the operators that are in a similar position in that they're not in the control room; do you know? Are they receiving some life coaching through this or some assistance?

A. I'm not sure what they -- I'm not sure about each individual. I don't know.

Q. Okay. When you, as a shift lead, it's my understanding that one of the duties you performed is that you go in and enter pressure-allowable limits; is that correct?

A. Yep.

Q. Is there any particular time that you do that?

A. No. It's just kind of whenever they need -- whenever they're sent out by the engineers.

Q. So, do you feel that you're overloaded as a shift lead?

A. Sometimes. Some days are busy. Like, something like pressure allowables, that's -- usually there's an end date of it, like at the end of the day, so it doesn't have to be done at that minute, but --

Q. Okay. So, when you do, say, have to input pressure-allowable limits that are changing, what's your standard process

regarding (indiscernible)?

A. Well, our control center engineers will send out like a work request to have them changed, so we print it off and we can change them in SCADA, so the process is to make sure we got the right numbers and we look up in the -- on the SCADA screen to make sure all the right numbers are in there and --

Q. Do you notify the operator at the console?

A. If the line is running and it's going to affect what he's doing, then yeah.

Q. Okay. If it's not going to affect what he's doing at that particular moment as you're entering them, what do you do for their notification?

A. Usually what we'll do is we'll just -- I'll call them after and let them know.

Q. Okay. Do you keep track of the fact that you've notified them?

A. Not the phone calls, no.

Q. Okay. Regarding the Marshall event, for just a second, do you believe that there's anything, looking back now, that could have been implemented in the control room that could have been helpful to detect that leak? And let me clarify why we're asking first, and that would be because, you know, our whole goal in an investigation is to make sure that we find out what happened, the factual piece of that for sure, but then that we also become aware of things that could have been done differently to improve the

situation so that the public is safer in the end as well as you as the controller or a shift lead are -- have more tools or are not put in the same position as well.

So, having that to reflect on, is there anything that comes to mind that could have been helpful in this event?

A. I don't know. I guess -- it's a tough question to answer. It's easy to look back and do -- and second-guess yourself and do things different, but as to what you -- like, you're kind of asking what tools we could have had or what -- is that what -- kind of what you're asking, or --

Q. Yes, yes. I'm thinking more along the lines of tools or changes to the system or something being improved. At this particular point in -- I'm not thinking about your specifically actions and you questioning or second-guessing yourself. I'm just speaking of things that could be helpful to you or others in the control room to catch this quicker the next time.

A. Well, I don't know, I'm just -- the -- we do have MBS model to detect leaks, and if we could have some kind of tool to detect them, I guess that would help.

Q. Does the -- has the MBS model helped you detect leaks in the past?

A. No. Not me personally, no.

Q. Has it helped you detect anything else, specifically?

A. No. It's -- we do get alarms, but usually it's some -- there's something else wrong, like a flow meter isn't working or

transmitter's out or something like that.

Q. So, would it be fair to say that it helps you detect equipment malfunctions?

A. Yep.

Q. Is there anything else besides equipment malfunctions and reflecting back on it that it does help you do?

A. No.

Q. Are you aware of what an abnormal pressure would be various stations on line 6B?

A. Abnormal pressure during a startup or?

Q. At -- just, I would say, it's abnormally low regardless of what you're doing?

A. Well, I did operate that line, but it was quite a few years ago, so I don't know if I would know that or not.

Q. Okay.

MR. NICHOLSON: I want to break in. Brian Pierzina has left the interview. He's gone to catch his plane. Go ahead.

MS. BUTLER: Thank you.

BY MS. BUTLER:

Q. So, on -- you've operated line 6B, you said, right before the break in there; is that correct? In the past?

A. In the past, yep.

Q. So, are you familiar with ever having seen a zero pressure at Marshall?

A. Not that I can remember.

Q. Is that anything that you saw on your shift regarding this event?

A. Did you say anything that I seen on my shift?

Q. Yes.

A. Yeah, that's what we seen that night, yep.

Q. So, you did check pressures and flows; is that --

A. Yep.

Q. Okay. But, at the time, nothing stood out to you as abnormal in that pressure and flow review?

A. Oh, yeah, something -- yeah, it -- we thought something was abnormal, yep.

Q. Okay, what did you think was abnormal, in reflection? What do you remember running through your though process?

A. Well, we weren't sure what the problem was.

Q. Okay. So, you just knew something was wrong?

A. Yep.

Q. And, are you saying that because your pressure profile didn't look right or your flows with your pressures didn't look right, or was it really the pressures and flows didn't tip you off; it was other things?

A. No, it was the pressure at Marshall.

Q. Okay. Did you (indiscernible) at all during that time?

A. Well, later. Later on, after we shut down, we -- I -- we -- I think we thought about it.

Q. All right. Have you ever noticed in the SCADA system,

well, let me start over. Do you frequently review alarm logs as a shift lead or not?

A. No, not -- only when there's a problem.

Q. And, so when it's a problem, you mean like an operator has identified that he has a problem in the line, or she, and they need your help or --

A. Yeah, that would be one example, yep.

Q. What else would be a time you would review it?

A. Yeah, definitely when an operator keys us on something or if we're investigating something; maybe something happened two days before and some outside source has maybe keyed that there -- something may have happened or -- so we might investigate it then.

Q. Okay. When you do those types of investigations, do you keep track of what the outcome was?

A. Usually, yeah.

Q. What -- where do you keep track of that? What do you call that?

A. Incident forms.

Q. Okay. All right. Is that part of any specific procedure or that's just the form you use when you're doing it?

A. Yeah, that's just the form we use for incident analysis.

Q. Is there any forms you've used traditionally in the shift lead today?

A. Yeah, I guess, like, yeah, we do another incident form like in our procedures it tells us when we need to fill one out.

Q. Okay. Is it the same type of form or is it a -- it's similar in title and -- but different in focus?

A. Yeah, it's similar -- same title but different form.

Q. Okay. Is it mainly just those two that you interface with a lot or are there any others?

A. I'm trying to think. It's been a few months since I've actually worked in there, so --

Q. That's fine.

A. Yeah.

Q. You're fine. Don't -- take your time.

A. I guess nothing's coming to my head.

Q. Okay. All right. Have you ever noticed when you did have to do, say, a historical review of an incident or you're looking at alarm logs versus, say, command logs, have you ever noticed when it appeared like by a time and date stamp in the alarm log queue that it looks like something came in at a certain time but maybe they didn't actually see it at that time because there's a command that got issued either as a result of being late after that or didn't look like the timing was right in those comparisons?

A. Like, I guess I have noticed sometimes that maybe we thought an alarm was there and we couldn't find it or --

Q. Okay.

A. -- stuff like that, but yeah, the circumstances were, yeah, I don't know, like it's -- I don't know if it should have

been there or not or if we were just looking at the wrong thing or --

Q. When something like that happens and you're not sure, is that anything that you typically write up for somebody to check into?

A. Yeah. Normally, we would get SCADA involved in something like that.

Q. Would you call them or would you just write it up, or does it depend on when it happens?

A. Yeah, it probably depend on when and how serious it was.

Q. Do you get quite a few MBS alarms?

A. Yeah, quite a few.

Q. Do you get complaints about the number of MBS alarms from the operators?

A. Well, some people complain about everything, but --

Q. Okay.

A. -- but yeah, for the most part, it's not like abnormal, like it's not that many, I don't think. It's quite a few, but it's not where it's taking away from everything else.

Q. Okay. If an MBS analyst told you that an alarm was false, would you question that?

A. No. I wouldn't.

Q. If an MBS analyst told you that you had a column separation, would you question that?

A. Yep.

Q. And, in that process of questioning that, what would you look at?

A. Well, I don't think that an MBS alarm could -- or an MBS analyst could say that. I don't believe that they know that.

Q. Okay, so if they told you column separation you were to question it, what would you do next?

A. I would -- I'd basically ask them if the model was working correctly or not.

Q. Okay. And then, let's say that they say it is working correctly. Have they ever told you it was working correctly when you had a column sep?

A. Yep.

Q. Okay. And, let's do some -- go on a little bit from there. So, let's say that we have a column separation and you and the analyst are having a discussion and you hang up, understanding what they think's going on. What's your next step with that piece of information?

A. Well, we have to figure out where -- why the column separation is there or if it is one. It's either a column separation or a leak, one of the two.

Q. So, is that something you think that the shift lead would typically be involved with?

A. Yeah, I think so, yeah.

Q. Okay. And, so would you look at the liquid fraction display or would you go somewhere else to look for a column sep?

A. Well, in the model, you mean?
Q. At your screen. What would you do?
A. Oh.
Q. What type of thing would you look at to determine a column separation?
A. Well, the model does have a page, yeah, the liquid fraction page to show a column separation. So, I guess I might go there, but I would -- I guess that's more the MBS analyst's job.
Q. Okay.
A. So, what I would be doing is trying to figure out the volume drain on the pipeline. If there was a shutdown earlier and the line had drained?
Q. Right.
A. That would be something I would look -- be looking into to figure out how much oil needs to be put back in.
Q. And, how would you go about doing that? Just step me through that process.
A. You'd have to go look at the CMT where it keeps track of the batches.
Q. Okay.
A. And, that's the line fill, so that would tell you how much oil was drained on the shutdown.
Q. And, then would you look for something particular like tank levels or would you --
A. Yeah, I guess this does have tank levels on it, but it's

kind of -- it just shows a volume in, volume out.

Q. Okay. So, would you just be looking strictly, then, at a volume imbalance?

A. Yeah. Yeah, volume in versus volume out.

Q. Okay. Now, I know that we're going to try and rotate who's asking you questions on this, so I've just got one or two more and I'll let somebody else jump in here.

A. Okay.

Q. And that would be on -- have you ever seen something in your historical alarm reviews or you're trying to diagnose an incident and what happened regarding a system alarm and it might say something like RTAP too busy to process. Have you ever seen that?

A. Like when we're -- like when you're trying to operate, you mean, or when --

Q. Just -- you might be trying to operate, or you might be doing an investigation like you previously mentioned into something that happened two or three days before and as you're looking at the alarm logs, this is something you see?

A. Well, I don't -- like, I guess the historical alarm viewer sometimes gets hung up, like, when we try to bring up the alarms, but I don't know -- I guess I don't know.

Q. Okay. That's fine. Have you ever seen anything get, like, hung up when you're trying to pull historical trend data?

A. Yeah, that happens sometimes, yep.

Q. Okay. What about when you're having it build a trend? You're telling it you want to trend a specific pressure or flow and you're inputting that tag name and you tell it to build a trend. Have you --

A. Yeah, I have seen it happen, yeah, but it's pretty rare.

Q. Okay.

MS. HUNTER: I'll let somebody else ask some (indiscernible).

MR. NICHOLSON: Okay. Well, we lost Brian, so we'll go to Ravi for third.

MR. CHHATRE: Okay.

BY MR. CHHATRE:

Q. On the day of the -- this --

MR. NICHOLSON: Ravi? Why don't you wait just -- just that -- (indiscernible).

MR. CHHATRE: You're fine.

MR. NICHOLSON: All right.

MR. CHHATRE: Also --

MR. NICHOLSON: I thought you were going to be overshadowed by that.

MR. JOHNSON: I hope it's not that close.

MR. CHHATRE: Oh, well.

BY MR. CHHATRE:

Q. During the shift change, were you informed anything about the earlier column separation --

A. No.

Q. -- and did you shut down?

A. No.

Q. Now, when you first learn about exceeding the 10-minute rule, did the operator tell you there was a earlier column separation on that line, did you shut down?

A. No. Well, he -- no, he just told (indiscernible).

Q. Okay.

A. Yeah.

Q. Now, I guess I need to clarify in my mind. Initially the operator went to Darin when he mentioned he passed 10 minutes, or he came to you?

A. He phoned Darin.

Q. He phoned Darin?

A. Yeah.

Q. You overheard that conversation? How did you -- I'm trying to find out, how did you get involved in the situation?

A. Oh, he had him on speaker phone.

Q. Okay, so you heard that?

A. Yeah.

Q. And, did he tell you to take care of it or you kind of on your own decided --

A. No, I decided to go back and talk to him.

Q. And did Darin know that you were kind of taking over that aspect?

A. Yeah, he knew I was going back there, yep.
Q. Okay.
A. Yep.
Q. So, as a lead, what are your expectation from your analysts or specialists, whatever you want to call them, (indiscernible) analysts?
A. Oh, the MBS analysts?
Q. Yeah. What do you expect from -- in this case, what (indiscernible) expect from Jim Callupson (ph.)?
A. Oh, the MBS analyst is -- every time we get an alarm, an MBS alarm, we let them know and then it's up to them to investigate the alarm and tell us if it's real or not.
Q. What does real mean? I'm sorry.
A. Well, an MBS alarm could be a leak, so, if they look at it and tell us no, it's -- the model is incorrect or whatever --
Q. Okay.
A. -- then, that tells us that the alarm was caused by whatever was incorrect.
Q. So, you expect them to investigate and find out the cause for the alarm, or you only expect them to tell you the model's working or not working?
A. Well, if -- I expect them to look into the cause of it and if they can't -- if they say everything looks good in the model, then I have to assume that it's a leak.
Q. So in this case, did Mr. Callupson told you that the

model is working?

A. Yeah. He said it was -- well, he said there was a column separation, that's what he said, and that's what was causing the alarm.

Q. But, is that, in your opinion, adequate investigation for you? That you can take from that point on, or --

A. Well, that's, like I was saying before, it's hard to -- for them to say that. That it's a column separation.

Q. So they wouldn't --

A. I don't know the ins and out of the model, right --

Q. I understand, but, so you are saying they don't generally come out and say it's column separation?

A. Well, sometimes they do. Some do and some --

Q. But is that adequate for you as far as the alarm concern or do you expect them to tell you where the column separation is or what's causing it or what -- I'm just trying to find out, I mean, you said you expect them to investigate?

A. Yeah.

Q. And -- as a lead, are you okay with the explanation you got? Is that adequate explanation for you or you expected them to dig further in?

A. Well, yeah, I expect them to dig in as much as they can, yeah. But I -- as far as the column separation, I don't know if they can -- the model can say what's causing it.

Q. Okay.

A. I don't know if the model can do that.

Q. So, at that time, what other reaction once you hear column separation and what was going on in your mind as to what the next step should be?

A. Well, in my head, it was figure out what's causing the column separation, so that was our next steps, and that's -- we looked at our CMT to calculate how much oil was drained and that's how much oil we figured we had to put in to get the column together.

Q. Okay. And, you guys figured that out -- you guys figured out -- did you figure out how long it would take you --

A. Yep.

Q. -- to get that filled?

A. Yep.

Q. And, do you recall what time that was?

A. I --

Q. I mean, not the clock time, but how long it would take you to do that?

A. Oh, it was -- well, it was quite a few minutes. I don't remember the exact time, but it was quite a few minutes.

Q. So, the first 10 minutes, you know, you didn't get the pressure up at Marshall, that was the first phone call that you had heard --

A. Right.

Q. -- on speaker phone?

A. Yeah.
Q. And that is the time the specialist went (indiscernible)?
A. The specialist what?
Q. Is that the time when the -- your mass balance specialist was contacted?
A. Oh, I don't know when the first MBS alarm came in for sure.
Q. Okay.
A. So, I don't know when he was contacted the first time, but it was around the same time.
Q. Okay, so --
A. So, within a few minutes, probably.
Q. Okay.
MR. NICHOLSON: And, I'm sorry, within a few minutes of what?
MR. ZIMMELL: Of us getting contacted of the 10 minutes. I don't know when the first alarm came in, but --
BY MR. CHHATRE:
Q. That would be still before the 10 minutes window is over or it would be after the 10-minute window is over?
A. Well, it was some time between the startup and --
Q. Ten-minute window?
A. Yeah.
Q. So at that -- by that time you haven't exceeded 10-

minute?

A. No.

Q. Okay. And, with your calculation, I guess, the reason you and the lead decided to go 10 minutes more or 12 minutes more --

A. Yeah?

Q. -- what are the bases for that?

A. The basis was we drained so many cubes on the shutdown and initially when I first got involved, we were landing into Marysville, and that PCV was open. So, we were landing as we were starting up so we calculated how much oil we were landing plus the oil that was landed on the shutdown, and that's how much oil we put in.

Q. So, landing meaning delivered to somebody?

A. Yep.

Q. Or -- okay.

A. Yep.

Q. And, that calculation told you that you needed additional 10 or 12 minutes or what time was it?

A. Yeah, whatever -- I don't remember the time, but --

Q. Okay. And the information that -- you still didn't get the pressure you wanted --

A. Right.

Q. -- at Marshall?

A. Right.

Q. I think (indiscernible) by only a couple of three, four pops?

A. Right.

Q. Correct?

A. Yep.

Q. Then what happened in --

A. Then we shut down the line.

Q. But that -- after that -- you shut down the line, then what happened? Did you guys had any post mortem or any analysis as to why it happened or --

A. Yeah, we tried to figure out what happened. We thought maybe we did our calculations wrong, and we redid them. We couldn't find -- we -- and then, yeah, we didn't know what --

Q. Was the analyst contacted at that time also?

A. Yep.

Q. And what was his, I guess, digging in and investigating the cause?

A. Yeah, he figured it was a column separation and it wasn't a leak. That's what he told us.

Q. So, he did say it was not a leak?

A. Yep.

Q. That is the first time I ever heard that, so that's why I ask again.

A. Okay.

Q. Okay. He told you that that was not a leak.

A. Well, in his opinion, yeah, it wasn't --
Q. Okay. Yeah, I mean, of course.
A. Yeah.
Q. Based on his opinion and the calculations, and whatever he has done?
A. Yep.
MR. NICHOLSON: Well, wait. What was it he had done? Did he specify why it was not a leak to you?
MR. ZIMMELL: He -- whatever he looks at in the model. I'm not sure the ins and out of what he --
MR. NICHOLSON: So, he --
MR. ZIMMELL: -- looked at.
MR. NICHOLSON: -- you didn't ask?
MR. ZIMMELL: No.
MR. NICHOLSON: Okay. And he didn't offer what drove that --
MR. ZIMMELL: Yeah, not that I recall. If he did say, I don't remember --
MR. NICHOLSON: Okay.
MR. ZIMMELL: -- what it was.
BY MR. CHHATRE:
Q. And, then in your mind as a lead, what other -- what did you think of the next step? What, I mean, it's not a leak and you cannot -- you are not segregating pressure?
A. Yeah.

Q. So, what are the other possibilities, besides calculations being wrong?

A. Well, we didn't know, so we called -- that's when we called the on-call, our supervisor.

Q. And, that person would be?

A. Blaine Reinbolt.

Q. Blaine?

A. Yep.

Q. Okay. Now, are you familiar with -- what are you -- I keep forgetting, ownership or the custodian? Custodian. Do you know that each line of this has a custodian assigned to them?

A. Oh, for MBS?

Q. Correct.

A. Yeah, no, I don't know who's assigned to what.

Q. No, do you know, there is a custodian for this line 6B, or you do not know that?

A. For MBS?

Q. Yeah, for these --

A. Yeah, I knew that there was those guys, yeah.

Q. Okay. Did a thought come to your mind maybe we need additional help from your analyst or --

A. Right, well, that's -- our procedure is to get the analyst involved and if he needs to phone other people, that's up to him.

Q. But it would be up to him?

A. Yeah.

Q. You couldn't -- but if you are not happy with the information you have so far --

A. Yeah?

Q. -- and the reason I say unhappy, meaning you still cannot figure it out what's causing it --

A. Yeah?

Q. -- could you have asked the analyst to go for -- to the custodian?

A. We could. Well, if we're not happy, we just shut the line down.

Q. Okay.

A. Right. That's what we do.

Q. Okay. But, is that where, I guess, your responsibility stops, or -- I'm trying to find out if the line is shut down, it's supposed to come back on line, you've made by this time two attempts at least and it's still not coming back?

A. Well, at this time we had made one attempt to restart, right?

Q. Okay.

A. And we pump --

Q. The second --

A. -- for so much time --

Q. Okay.

A. -- and then now we're calling our supervisor.

Q. Okay.

A. Yep.

Q. Now, if analyst says there is no leak, would you take that word as kind of a gospel truth or would you do your own investigation to figure it out?

A. Yeah, no, I wouldn't take it as gospel, no.

Q. So what -- what do you guys do to figure out how to conclude that it was not a leak?

A. Well, we -- yeah, at that point we -- we need to -- we did our calculations and trying to look at trends and alarms to see if we can see anything, and we couldn't find anything, so that's why we didn't know what to do next. So, that's when we got our --

Q. So when you went to the supervisor or on-call --

A. Yeah?

Q. -- was there -- did he -- as a group, did he even mention leak as a possibility (indiscernible)?

A. I wasn't part of that conversation, so --

Q. Oh, you were not?

A. I wasn't, so I'm not sure.

Q. So, did you then -- how -- did you ever get back into this course of action again for line 6B or that was pretty much the end of it after (indiscernible)?

A. Well, I got back involved on the next startup again. I was watching the line to see --

Q. What's happening?

A. -- what's happening.

Q. And then do they shut that down, the pressure still didn't go up, I guess?

A. Yep.

Q. Then what was your reaction at that time? What -- did you suggest any course of action or did you do any --

A. Yeah, we didn't know what the problem was. We were looking at trends and looking at stuff to try to figure out, but we couldn't figure anything out. Couldn't figure out what was wrong.

Q. But, even at that time, the possibility of a leak was not discussed?

A. Well, I don't know. I can't remember if we actually talked about it or not.

Q. Okay.

A. It might have came up, but it wasn't -- we --

Q. Let me see if you would decide that --

A. -- we --

Q. -- it's a possibility that it would be -- one of your actions would have been?

A. Well, our actions are just to get our supervisors involved.

Q. Okay.

A. And call the field.

Q. After the 10-minute shutdown, was the supervisor involved in the discussion? After the second 10-minute shutdown? Or startup, rather, and then shut down?

A. After the second one?

Q. Yeah.

A. Yeah, I think we called him again, yep.

Q. And what did your supervisor tell you as a -- he --

A. Well, I think that's when the shift change was, so we started up, (indiscernible) pressure shutdown. We called the supervisor, or Derek did. We restarted and then we shut down again and then it was getting close to shift change. I can't remember the time, but --

Q. So, it was Darin's decision, I guess?

A. Darin's? Well, in conjunction with the supervisor. Because he called the supervisor too.

Q. Okay.

A. Before we restarted the second time.

Q. Right, so I mean, after the second time you couldn't get the pressure, and you shut the line down?

A. Yep.

Q. Then you informed the supervisor?

A. Yep.

Q. And, what was his recommendation then at that time? Knowing it's the shift change? I mean, did he say anything to you guys or --

A. I don't know what they talked about. I wasn't part of that conversation.

Q. Okay.

A. So --

Q. So you weren't involved in that second startup and shutdown and then you --

A. I was there, but I wasn't involved in that conversation.

Q. Right, okay. And, so then from that point on, your -- there was no involvement on yourself into this 6B line?

A. No.

Q. Okay. I think I'm just two, three short questions. In our opinion, what does the mass balance analysis of information tells you?

A. It's a material balance system, so it's a -- like a volume imbalance, so it measures volume imbalance of a certain section of pipeline.

Q. Okay. Do you -- in your mind there's any other use for the mass balance?

A. Well, the operators use it as a tool.

Q. But a tool for what?

A. Just to help them -- it's got like a -- got like your elevation profile and then it has your head pressure on it, and then it has a flow line, so the operators use it to kind of balance their line because if the flow line's like this, they know that your line's unbalanced, so the operators use it for that.

Q. Okay.

A. But it's not -- it's two or three minutes later than real time, so you just have to be aware of that.

Q. Okay. So, do you as a lead and the operators, do they consider this as a leak detection tool at all?

A. Yeah. Yeah. I consider it a tool, yeah.

Q. And, what other leak detection tools you guys consider that are available to you to figure out if there is or there is not a leak?

A. Pressures.

Q. Meaning, discharge or which pressures are you talking about?

A. All of them.

Q. Just like -- okay.

A. Yeah.

Q. Now, in this case, did any of you guys looked at the pressure, light pressure, after the second shutdown?

A. Yeah, well, we definitely did after the first one. I know all I did. I looked at the pressures during his startup to see if I could see anything that was abnormal.

Q. So, do you go back from that point before -- I mean, apparently there was -- by that time did you know that there was a column separation alarm during the shutdown? By that, I don't want any past history discussed after the first or second shutdown?

A. Past history, like?
Q. The column separation during shutdown.
A. Like the day before?
Q. The first one, yeah.
A. No, I wasn't aware of that, no.
Q. Yeah, but it was -- I understand you were not, but --
A. Yeah.
Q. -- during your huddle or discussion as to what's happening, what -- did anybody mention that; that there was a column separation during the shutdown on the line?
A. No, I don't recall anybody talking about that.
Q. So, when you look at the pressure, how far back do you typically go? You just really look at the pressure that you had of the startup or you that look --
A. Yeah, I looked at his startup, because it started up in the middle of the night, so we looked at the pressures during his startup.
Q. And, did you see a sharp pressure drop that, I guess, Matt had (indiscernible).
MR. NICHOLSON: These are the trends here, for the 26th?
MR. JOHNSON: You didn't go back --
MR. ZIMMELL: That's the day before. I --
BY MR. CHHATRE:
Q. But, I'm not asking -- yeah.
A. That's the day before, right? That's the day before,

no.

Q. No, you did not? Okay.

MR. NICHOLSON: Now, you're asking about the 25th, right?

BY MR. CHHATRE:

Q. You did not?

A. No, not that far back.

Q. Now, column separation; are you familiar with column separation on 6B at Marshall? In the past?

A. Am I familiar with it?

Q. Had it ever occurred in the past?

A. What's that, sorry?

Q. Has a column separation occurred at the Marshall location? I think earlier you answered the question saying that typically column separation would be at the Healy -- Healy Terrain (ph.) or something to that effect?

A. Well, yeah. Normally they would be at the top of a hill.

Q. The reason I asked you, the Marshall -- when looking at the topography, it looks like a pretty flat --

A. Yeah, it's fairly flat, yeah.

Q. So, did -- was that discussed during the first or second shutdown, 10-minute and -- 15-minute and 10-minute, between the two?

A. Was --

Q. As --

A. -- what discussed? The --

Q. The column separation on mass balance? See, apparently after the first shutdown, the specialist told you that -- he said the (indiscernible) not working any more because of column separation. Or am I wrong on that one?

A. I don't know. What -- you -- you're asking me if he said that the model was --

Q. No, I guess you guys -- okay, let me back up. After that first 20 -- 10-minute shutdown, you decided to extend that promptly 20 minutes?

A. Right.

Q. That didn't work?

A. Uh-huh.

Q. So I understand either you, the operator, or both of you went to the mass balance specialist?

A. Yeah.

Q. And then he confirmed that there is no leak?

A. Well, yeah, he just said it's column separation. That's what he said. Yeah.

Q. Okay.

A. And then -- so that's when we pumped that extra time and we put that volume in. It still didn't come, so we shut down.

Q. Okay.

A. I probably didn't answer your question, hey?

Q. Okay, I'm -- no, you didn't. That's okay. I think I'll stop at this point and let Matt continue it. Thanks.

MR. NICHOLSON: Okay. I've got questions.

BY MR. NICHOLSON:

Q. And really, I need to just piece together this time line a little more from your previous interviews, make sure I understand. Yeah, I'll be referring, probably, to some of the -- but my page numbers might not match up very well, so we've got a copy here. And, in your first interview it's mentioned that the phone call from Tim Chubb to the shift leads --

A. Uh-huh?

Q. -- comes in to Darin; is that right?

A. Yep.

Q. Okay. But, yet you're the one that goes over to the console, that's correct?

A. Yep.

Q. Okay. I -- can you just explain to me why that would be?

A. I guess I'm not sure I'm the one -- why I went back there, but I -- Darin had the call on speaker phone and I heard what was going on, so it was -- when we get to 10 minutes, there's -- we need to have a reason to go past 10, that's what I was thinking.

Q. Uh-huh.

A. And he never had one. So, I was going back there to

figure out what was going on.

Q. He didn't -- so, when you say he needs a reason to go past 10, that reason could be column break, though, right?

A. Right.

Q. Okay.

A. But --

Q. But he didn't say I've got column break; wouldn't that be a reason?

A. Yeah. He didn't say that. He just said I'm at my 10 minutes --

Q. Oh, okay.

A. -- or I haven't got pressure.

Q. So it's just -- you weren't doing anything, so you went over to the console?

A. Yep.

Q. Darin was involved, maybe, with something else? It's not because you have a better understanding of call set-up than Darin, or --

A. No, I'm not, no. There's -- I'm not saying that, no. I'm just --

Q. Okay.

A. I wasn't going to say hey, Darin, you should go back there.

Q. Okay.

A. I just did it myself.

Q. All right. I wanted to talk, because we've heard quite a bit about this, the 10-minute rule?

A. Yep.

Q. And, can you just explain that to me? Is it -- is there a procedure called the 10-minute rule or? It's -- okay. There's a actual procedure I'll find that says --

A. Yeah, there's -- well --

Q. -- 10-minute rule?

A. It's like if you have a active MBS alarm for 10 minutes and you can't explain it, you shut down. If you have three --

Q. So --

A. -- three leak triggers or, same when we're starting up. If you can't get pressure within 10 minutes, that's our trigger to shut down.

Q. So, it's a startup procedure. Is that where it's at in the manual?

A. It would be in the area. It would be in -- probably in a lot of places.

Q. Okay, so it shows up.

A. Yeah.

Q. Is there a col sep procedure?

A. Col?

Q. Column separation?

A. Column separation procedure?

Q. Uh-huh.

A. Yeah, I, well, I think so. I'd have to look in the data base to see for sure, but --

Q. Well, I'm trying to figure out which procedure were you guys using on that day for the 10-minute part.

A. Yeah, that's kind of the confusion. We were -- the procedure we followed was -- it -- it's not -- it was in review. It was being updated. So it actually wasn't --

Q. Okay, so there was a procedure available that you went to?

A. Yeah.

Q. It wasn't a --

A. It wasn't in production yet.

Q. -- a released -- okay.

A. Yeah. It wasn't in production yet. It was still being reviewed.

Q. Okay.

A. So, that's why it was fresh in my head, because we were talking about reviewing this procedure and that's the thinking of going past 10 minutes.

Q. Okay.

A. So, you need to have a reason, okay, why are you going past 10 minutes? Well, it's because the line drained on the shutdown and we figured out the volume and that's how many minutes to go past it.

Q. Okay, so you're on the committee that's developed --

A. Well, it's --
Q. -- maybe it's procedure and --
A. -- it's all the shift leads and management and --
Q. Okay.
A. -- our tactical group. We're all part of that.
Q. Okay.
A. Yeah. But, it has to be approved by management before it gets in production.
Q. Well with -- so if you're on the group, what's the -- what is the title of that procedure? If I want to request that procedure, I have to tell Jay.
A. I don't know.
Q. Okay.
A. I -- I'd have to look it up.
MR. JOHNSON: We're going to talk to Jim Johnson, and will he be able to tell us yet today?
MR. ZIMMELL: I don't know off the top of his head if he would or not, maybe.
MR. JOHNSON: Okay.
MR. ZIMMELL: Maybe.
BY MR. NICHOLSON:
Q. He would have been in the group too, right?
A. Yeah.
Q. Yeah?
A. Yeah.

Q. Okay. So, we're moving on. So, you went over to the console. Okay. So, on page -- I think it was on page 10 of the transcripts. It's my page 10, by the way. I don't know (indiscernible), but basically in -- on that page you discuss that you calculated the time it would take to fill in the column and then add 10 minutes to that. So, I think you calculated 10 minutes and then you added 10 minutes to the 20 minutes. So --

A. Right.

Q. -- I'm trying to understand this rule, then. So, the --

A. Right.

Q. -- he had already hit 10 minutes, though, right?

A. Right.

Q. So, you can tack on another 20?

A. So, yeah, the 20 -- the 20 minutes was how many cubes we had figured on the drain.

Q. Right.

A. It's --

Q. Divided by the flow rate?

A. Right.

Q. Okay.

A. So, that, added to our 10 minutes. Because normally if you're starting up a line from scratch, you got your 10 minutes to fill in (indiscernible).

Q. So, did the first 10 minutes count against the 10-minute rule or --

A. Yeah, it was --
Q. -- does the clock reset when you calculate a line fill?
A. No, it doesn't reset.
Q. Okay.
A. So, it's the line fill plus the 10 minutes.
Q. Okay. So, when you said you added 10 minutes, you were just adding on the 10 minutes that had already occurred?
A. Well, yeah, that was part of the -- yeah, I didn't add it again.
Q. Okay.
A. It was still part of --
Q. So you really just added 20 minutes?
A. Right.
Q. Okay.
MR. JOHNSON: Just -- so the 20 minutes, did that include the first 10 minutes as part of your line pack?
MR. ZIMMELL: No.
MR. JOHNSON: Or, we had shut down or we went 10 minutes, you did calculations, you added 20?
MR. ZIMMELL: Yeah. The 20 minutes was the volume drained --
MR. JOHNSON: Okay.
MR. ZIMMELL: -- added to the 10 minutes.
BY MR. NICHOLSON:
Q. Right. So, over all, I think it was close to 30 minutes

was what we had talked --

A. Right, yeah, that sounds --

MR. CHHATRE: Thirty-two, I think.

MR. ZIMMELL: Right.

BY MR. NICHOLSON:

Q. I just wanted to understand that (indiscernible).

A. Right.

Q. And then this 10-minute rule isn't 10 minutes from the time you start the line; it's not when you hit start on (indiscernible)?

A. Right.

Q. It's 10 minutes from the next station?

A. Right.

Q. To build pressure?

A. That's right.

Q. Okay.

A. Yep.

Q. When you were at Tim Chubb's desk, how did you identify that there was column separation?

A. Low pressure on his pipeline. Low pressure at Marshall.

Q. Low pressure at Marshall and then changes in colors, or?

A. Yeah, when it -- it is blue on the line display too. When it gets below a certain number, it turns blue from the --

Q. Okay, but you didn't even need that, you -- because it was at zero?

A. Yeah, we knew it was low. Yeah.

Q. So, you didn't pull -- did you look at that MBS display that's got -- you were just talking about with the hydraulic profile and the elevation?

A. Yeah. No, I didn't look at that at that point.

Q. Okay.

A. No. I was looking at other things.

Q. And the col seps at that point were on either side of Marshall, if you recall?

A. Well, yeah. The model -- I think the model showed, well, yeah, the -- yeah, it was at Marshall, yeah.

MR. JOHNSON: You said either side, Matt. I mean, was there two column seps?

MR. NICHOLSON: Yeah.

MR. JOHNSON: Did I misunderstand that?

BY MR. NICHOLSON:

Q. Were there two? Let's ask him.

A. I was only aware of the one.

Q. When was that?

A. At Marshall.

Q. Upstream, downstream?

A. Well, it was between Mendon where we had a pump on and the next place we can see pressure is Marshall, which is zero. So, I knew it was downstream of there.

Q. Okay. Okay, downstream of Mendon?

A. Right.

Q. Okay. And so at some point you get in touch with Jim. Was that after you'd done the volume calcs?

A. Yeah, I didn't -- I -- yeah, that's right.

Q. Or, did Jim come find you, or how did that transpire?

A. No, I think I talked to him once during that part and then again after.

Q. Well, I guess he would have called -- did he call you with the determination that it was col sec or did he get back to you with the MBS findings?

A. I think the first time he came back, yeah.

Q. Okay.

A. So, I -- we told him that we had an alarm, and he looked at it and he come back and said it's column sep.

Q. He called you and not Darin?

A. Actually I think he might have even came -- walked up to me and told me when I was --

Q. Okay.

A. -- back there.

Q. But, the conversation about pump power hadn't happened yet, right?

A. No.

Q. Okay. And, the line is still running at this point, right, while you're doing these volume calcs?

A. Yep.

Q. Okay. And, when you're doing the volume calcs, were you at -- is it Gazelle? Were you working with Gazelle?

A. Well, I was at Tim Chubb's' desk.

Q. Okay.

A. So, Gazelle was just right beside me. They're right side by side.

Q. Okay. And what was she offering? I mean, was she a technical expert or just --

A. From what I remember she's -- she had that new procedure on her screen.

Q. Oh, okay.

A. She said, hey, this new procedure, or whatever, so we talked about it.

Q. Okay.

A. And it was -- it --

Q. So, she brought the new procedure up, not you?

A. Right.

Q. Okay. You didn't have any reservations about using a procedure that hadn't been released yet?

A. Well, I didn't know that at the time. It was my understanding --

Q. But you just said you were on the board that reviewed it, though, right?

A. Right, but I didn't know it wasn't approved yet.

Q. Oh. And -- but it doesn't say anything on it, like --

A. Well, it -- yeah, it does.
Q. It does? Big watermark or just at the top?
A. Yeah, I don't know, but I know it said in draft.
Q. Oh.
A. I didn't actually go over to her desk and look at it.
Q. Okay.
A. But --
Q. She kind of read it to you? Is that what was going on?
A. Yeah. Yeah.
Q. Okay.
A. Well, and I'm familiar with that procedure, and so I knew it.
Q. You knew right away?
A. Yeah.
Q. Yeah, you could walk yourself through. Okay, so I think earlier when you were talking to Ravi just now, you said if the model is working, meaning, I think, if the MBS analyst gets back to you and says the model is working and you have col sep, then you assume it's a leak?
A. Right.
Q. Did I paraphrase that okay?
A. Yeah.
Q. But yet in this instance, it seems like you were chasing (indiscernible)?
A. Right.

Q. Right? That was -- so the instinct or the procedure didn't tell you to go look for a leak; you started looking for how to fill in a column, right?

A. Right. That was our thinking is that we had a column to fill.

Q. Okay.

A. And we had this in our head, we needed this many cubes to fill it in.

Q. Well, so I'm trying to figure out how did you get -- so, any time there's a col sep it must be ingrained in you guys that it's most likely a -- an unfilled line and less likely a leak?

A. Yeah, that's probably --

Q. Is that kind of how --

A. That's probably true.

Q. -- that works?

A. Yeah.

Q. So, it's not natural to link to a conclusion of a leak?

A. Yeah, I've --

Q. Even though you talked about it?

A. Yeah, like, you definitely have to have a reason as to why you're -- you keep pumping, right?

Q. Sure.

A. Yeah. You just can't automatically think there must be something wrong. You better make sure you have a reason. That's the way I look at it.

Q. But it -- it's almost like path of least resistance, it sounds like. It's just easier to do the volume calcs and pump a little more than to have to stop and find leak triggers? Is that --

A. Well, I don't know if it's --

Q. -- unfair?

A. I don't know if that's easier.

Q. Okay. Okay. But, we'll stick with it, it's as an operator or a shift lead, it's just -- that's kind of where you go to first is filling in a line?

A. Yeah.

Q. Okay.

A. Well, in this case that's what we did.

Q. But, is this case really any different than any -- I mean -- any time you see a col sep --

A. Yeah.

Q. -- that's probably your first --

A. Yeah. Well, yeah, the one thing that triggered me was Marysville, where we were landing?

Q. Yeah.

A. Was flowing at 700 cubes an hour.

Q. Okay.

A. So, I knew that we were draining the line at the bottom.

Q. Okay. How far is Marysville from Marshall, though?

A. I don't know the exact numbers.

MR. JOHNSON: You've got Stockbridge and Howell, and then Marysville, so it'd be over a hundred miles.

MR. NICHOLSON: It could not be over?

MR. JOHNSON: It could be.

MR. NICHOLSON: Over a hundred miles?

MR. JOHNSON: So, it's about 40 miles maybe to Stockbridge.

MR. ZIMMELL: Right.

MR. JOHNSON: Another 40 to Howell, and then --

MR. NICHOLSON: Well, that's quite a bit of volume, though, to drain.

BY MR. NICHOLSON:

Q. Is that -- would you see it all the way back at Marshall that --

A. Yeah.

Q. -- quickly? Okay.

A. Well, if you've been (indiscernible) that much for the whole time you're starting off at the 10 minutes --

Q. For that 30 minutes?

A. -- or whatever, that's --

Q. For 10 minutes, even, you said?

A. Well, that's when I got involved.

Q. Okay.

A. At the start, right. So --

Q. All right. Okay. I'll jump ahead here now. It was

Darin that called Blaine, right?

A. Yep.

Q. And, the -- he called Blaine -- he called Blaine at around 3:30, right?

A. Yeah, I don't know the time --

Q. That's what the records show.

A. I don't know the time, but --

Q. But the launch had done around 2:00, right?

A. Yeah, somewheres (sic) in there.

Q. So, there was an hour and a half gap before a manager was called?

A. Yep.

Q. And I'm wondering, is there a procedure that says, I mean, if you happen to shut the line down because you've passed your 10 or your 20, you don't have to call your manager immediately; you can --

A. Well, I guess it doesn't say the time frame you should use.

Q. Okay.

A. The reason we didn't call him is because we were investigating it ourselves.

Q. Right.

A. And trying to find some answers.

Q. So, in that hour and a half, what kind of things were you guys doing?

A. Well, I looked at some trends, some pressure trends of the startup.

Q. Going back how far?

A. Well, I know for sure I looked at the startup to --

Q. The first start -- yeah, okay.

A. And then the --

Q. Yeah, startup, right.

A. On our shift, like --

Q. Right.

A. -- that part, I was looking at that, and I was looking at CMT. Like, I thought maybe something happened during the day that they drained it out -- drained the line off really bad or something.

Q. Okay.

A. You know? So, we were looking at that. And, yeah, we were just -- we couldn't find anything that helped us, so --

Q. So at what point did -- so, this whole thing about not having enough pump power, did that -- was that suggested by Jim or did you come to that conclusion independently?

A. Yeah, Jim kind of came up with that from (indiscernible).

Q. Okay.

MR. JOHNSON: By your request, or did he come to you with --

MR. ZIMMELL: He came to us, yeah.

MR. JOHNSON: Okay.

BY MR. NICHOLSON:

Q. Did he come over the console or did -- were you now back at your office?

A. I --

Q. The line -- did he come to you after the line was shut down?

A. Yeah.

Q. Okay. So, that would have been after 2:00. Okay.

A. Our desks are kind of close together.

Q. Yeah, I've seen the layout, right.

A. Yeah, it's -- so --

Q. Okay. So, he came to you and he had done this hydraulic calc?

A. Yeah.

Q. Okay. And --

A. And when he did it, like -- I did that too.

Q. You --

A. Like, he --

Q. -- double-checked his work?

A. His -- those numbers or whatever.

Q. Right, okay.

A. Yeah.

Q. And you bought into the explanation?

A. Yeah. Right.

Q. Okay. But that -- so that was pretty early on, then, if he came over right after shutdown, that was 2:00?

A. Well, the -- I think that was the second shutdown that happened -- that stuff happened.

Q. What do you mean the second?

A. When he came up with that -- the pump power and all that.

Q. Well, it had to be after the first shutdown, right?

A. I don't -- I think that was after the second.

Q. Because it was before you called -- before Darin called Blaine? Because it was part of the conversation with Blaine.

A. Okay. I thought it was -- I remember it as being after talking about it, but if it was before, then I guess that was a part of that discussion.

Q. Okay, well, let's -- I won't get into that, but there -- it sounds like it came -- it was initiated by Jim is really what I was trying to get.

A. Right.

Q. You've already talked about this, but I'll -- I want to ask it again, though. At 1:57 when column wasn't brought back together, you were working with Tim Chubb at that time, right? Or actually that should be a -- were you working with Darin after the line shut down or Tim Chubb?

A. Probably both.

Q. Oh, so Tim was involved?

A. Yeah. I remember talking to him, yeah.
Q. Okay.
A. Yeah.
MR. JOHNSON: Well, Tim would have been on -- he was the operator.
MR. NICHOLSON: Yeah, but I thought he had other things to do. I thought it kind of got handed off to Darin and Aaron.
MR. ZIMMELL: Yeah, well, I still think that he was, yeah, he was still involved. Like he -- me and Darin maybe did most of the work, but it's not like he was just out there and we never ever talked to him again.
BY MR. NICHOLSON:
Q. Well, this is how I kind of pictured it is he calls you up with the 10-minute issue --
A. Yep.
Q. -- and you went to his desk, you did the volume calcs?
A. Yep.
Q. Maybe you went through the procedure, and when you had to shut the line down again at 1:57, I kind of thought you had headed back to your office with Darin and Tim just went on doing his thing.
A. Yeah, that's how it worked.
Q. Is that accurate?
A. Yeah, that's accurate.
Q. Okay.

A. Yeah.

Q. I just want to be sure I'm picturing this right. And at that point, in your earlier interview you mentioned -- you say -- you mention being at a loss at that point for an explanation, I guess?

A. Yep.

Q. And, I guess I'm trying to get a feel for -- I mean, it almost sounds like you didn't know where else to go at that point to find answers.

A. Uh-huh.

Q. Okay. And in that respect, then, there was no other technical expert in the room you could have pulled them in or there's no other analysis to have performed?

A. Yeah, not that we thought of --

Q. Okay.

A. -- at the time.

Q. Would Tim Chubb have been the right guy to go back to and say -- or -- on --

A. I don't know. I think he was -- he probably done what he could do.

Q. Okay. So, the call to Blaine actually is initiated by Darin?

A. Yep.

Q. And it -- I'm wondering after an hour and a half why it was Darin that called Blaine and not you, because you had -- well,

it sounded like you were kind of the primary party at that point?

A. I don't know why he was the one. I don't remember --

Q. Did you ask him to call Blaine?

A. No, I never asked him.

Q. Okay. He just said hey, I'm calling Blaine?

A. Yeah.

Q. Okay.

A. Well, we had talked about what we were going to do next and talked about can't -- we couldn't find anything, or -- so we just said --

Q. Kind of a joint decision then?

A. Yeah, I think so.

Q. I mean, if Darin hadn't called Blaine, were you ever going to --

A. Oh --

Q. -- call Blaine or you just keep analyzing?

A. Oh, no, I wouldn't have went on forever. I'd eventually -- I just kind of wanted to have some answers before I called, that's all.

Q. Yeah, because Blaine's going to ask questions, right?

A. Yeah. Yeah.

Q. And, about that, the call, I thought earlier you had said you didn't know anything about the call; you don't know what was said, but in -- I thought Darin's interview, I thought someone said it was on a speaker phone and you were in the office?

A. Yeah, it would have been at the next desk. So, I --
Q. That -- oh, that's right.
A. I wasn't --
Q. There's no office at this time?
A. Yeah.
Q. There's only an office now?
A. Yeah.
Q. Okay. So, you're at a separate desk, and he's got his conference call going on at his desk?
A. Yeah.
Q. So, you could hear it?
A. Like, I heard bits and pieces of it, but I wasn't sitting there concentrating on the call.
Q. Okay.
A. Because there was other things -- I was on the phone, I know, for a while, doing some other stuff, so --
Q. Okay.
A. -- I wasn't concentrating on the call. That's why I don't want to say what happened in that conversation, because I didn't hear it all. So, I -- I'd be speculating, so I can't --
Q. Right.
A. -- say what they were talking about.
Q. Okay.
A. I don't want to say.
Q. That's fair.

MR. JOHNSON: Was Jim on that call, do you know?

MR. ZIMMELL: Yeah, he was sitting beside Darin.

MR. JOHNSON: Okay.

MR. ZIMMELL: For part of it, anyway. I don't know about the whole thing, but --

MR. JOHNSON: That was my understanding. I just wanted to clarify.

MR. NICHOLSON: Yeah, Jim's on record in the call. In the transcript.

BY MR. NICHOLSON:

Q. So, do you know if Darin told Blaine about having exceeded the 10-minute rule in that conversation? You don't know? Did you tell -- did Darin know from you that you had exceeded the 10-minute rule?

A. Yeah, I think Darin knew that.

Q. Okay.

A. We talked about it.

Q. (Indiscernible.)

A. Yeah.

Q. So, going back, at 1:57 when you said you're at a loss, there was no other procedure or checklist you could have gone through to help you walk through things?

A. I don't think so. No.

Q. And, even then, you didn't want to say leak? You just --

A. Yeah, we didn't. We didn't know.
Q. Okay.
A. We didn't know.
Q. In your interview before, you mentioned that Darin didn't explain the reasoning for restarting the line, and this, I think, is after the call with Blaine. And, I'm curious. I mean, with as much communication going on beforehand, why wouldn't he have told you what the outcome of that phone call was? Is that a true statement? You didn't really understand the outcome?
A. Well, I think it's true that I didn't understand why we were restarting. I didn't know what reasoning we had to do that.
Q. So, when Darin got off the phone, he never explained to you what was discussed or --
A. Well --
Q. -- how they arrived at their --
A. -- we, yeah, that he talked to Blaine, he gave him all the information that he had and we were -- we decided to restart. So, but there was no this is why or -- yeah, I was --
Q. But you knew -- you knew as much about why that it involved not enough pump power, right?
A. Right.
Q. Okay. So, you knew that much? And, you didn't question it, right? I mean, it made sense to you?
A. Yeah, I didn't see any --
Q. Okay.

A. I didn't see any other avenues to go down or any other --

Q. On page 18 of my transcript it says you -- I think you talk about closing the (indiscernible) valves to help stop drainage?

A. Yeah.

Q. Was that on the first or second start?

A. The first one.

Q. Okay. So, at some point early on you recognized, like you were saying before, there was --

A. Yeah.

Q. -- that 700 cubes going out?

A. Right. So, yeah, like at the 10 minutes when he got me involved, that's the first thing I seen.

Q. Okay.

A. So, I -- we closed that PCV to get -- stop that, to stop the draining.

Q. Okay. But it didn't -- you see any rise at all when you did that?

A. No.

Q. No?

A. But, if -- but I know that if you're taking out 700 cubes an hour of oil, it's going to harder to fill in your column.

Q. Sure.

A. If you're taking it out.

Q. That makes sense.

MR. JOHNSON: And that pressure control valve at Marysville doesn't close 100 percent either.

MR. ZIMMELL: No, none of them do, I don' think. Yeah. But it's -- you still shouldn't have that much flow on a startup. That's not normal. You shouldn't --

BY MR. NICHOLSON:

Q. You should not have 700 cubes per hour?

A. No. You shouldn't have -- basically have very little trickling in on a startup.

Q. So, Chubb wasn't starting up right, or what?

A. Well, he doesn't operate that part.

Q. Oh, Marysville is someone else?

A. That's a terminal.

Q. But he would have -- Chubb would have been following some startup procedure and said hey, Marysville, open up?

A. That's what he does, yeah, he'll tell the terminal operator open up, and then it's up to the terminal operator to control that PCV.

Q. Oh, okay. I see. So, what's going on. Was this some new operator, or just not the intention?

A. The -- yeah, I don't know. I don't know why it was like that, but I phoned the terminal operator myself and said hey --

Q. Straightened him out?

A. -- and said close that up.

Q. If it's not 700, what would you expect to see?
A. Close to nothing.
Q. Oh, it should actually be shut, then?
A. Like he was saying, pressure control valves don't close all the way.
Q. Right, that makes sense.
A. There's some --
Q. Sure.
A. So, you probably were going to have some trickle in there. So, all lines are different depending on your profile and stuff. But normally you would have, I would expect, some.
Q. Who's that -- who was the Maryville operator at that time?
A. I think it was Darcy Vanderwolf.
Q. Can you, I'm sorry, spell that?
A. V-a-n-d-e-r-w-o-l-f.
Q. Okay, because I think Darcy actually -- I see that name in the transcripts, so that's the Marysville operator.
A. Yeah.
Q. Okay. So, that compounded things, it sounds like?
A. Well, that's what led me to the --
Q. That's what --
A. -- believe the --
Q. -- put you down the path of --
A. Yeah.

Q. Okay. That would be an abnormal --
A. Yes.
Q. -- abnormal startup, maybe?
A. Well, in my eyes at the time it was. Like, I don't know how --
Q. How -- why wouldn't Tim have recognized that, though? That --
A. I don't know. But, like I said, maybe -- I don't start up that line every day, so maybe that is normal. I don't know. But to me, it really looked abnormal that --
Q. Well, what did Tim say when you said to shut it down? Did he say anything? This is normal?
A. Oh, after the shut -- no, he didn't say that.
Q. No, when you were -- okay.
A. Like --
Q. About the Marysville valve?
A. Yeah, he -- I don't know if he --
Q. Did he say anything?
A. He didn't really say anything.
Q. You mentioned that talk of a leak came up after not having built pressure after your calculated time on the first startup. Can you elaborate for me? There was -- so there was talk of a leak, it sounds like, after you went your 30 minutes. This is from your first interview.
A. Right.

Q. Do you remember that? Can you elaborate? Who did you talk to about this? What made you abandon the idea of a leak?

A. Well, I guess just -- probably just to Darin.

Q. Okay.

A. Us talking about it.

Q. So, it was you talking to Darin?

A. Like -- yeah. It's not like we, yeah, this is a leak. We -- like, it came up, right, but --

Q. It was an indirect conversation, kind of like, so many cubes have gone in but only so many have gone out?

A. Right. Where is it going kind of thing. Where's that volume going.

Q. Okay. Did -- was Jim Knudson throwing out words like line pack and was he talking --

A. Yeah, he -- yeah. He thought it was the -- we hadn't had enough pressure at the upstream station to overcome the hill. So, it does go uphill from Mendon to Marshall a little bit. It's not a lot.

Q. Yeah.

A. It's not a lot.

Q. What is it, a hundred feet?

A. Yeah, I don't --

Q. Okay.

A. It's like -- but, just out of calculation of that hill, right?

Q. Right. Well, I -- actually, I thought I saw numbers -- I thought he quoted numbers of like 135 miles of pipe or something.

A. And that would be the -- the length of pipe would be your friction losses. So, the more pipe you have, the more friction losses you can --

Q. Yeah, but where was there 135 miles of pipe? That's not from (indiscernible) to Mendon.

A. Yeah, I don't know what that is.

Q. Okay.

A. Yeah, he --

Q. Because it's really just 60 miles of pipe.

A. Between one station to the next.

Q. Between (indiscernible) to Mendon, right? Aren't you skipping one station, Niles?

A. Niles, right, because --

Q. So that'd be --

A. -- it was bypassed.

Q. -- (indiscernible); is that right?

A. Yeah.

Q. Sixty? Okay.

A. Yeah, something like that.

Q. When you looked at the pressure trends, it -- you weren't looking at the shutdown trends for the 25th, though, right?

A. No.

Q. Excuse me. And did -- you didn't look at any pump data either to see if there was a increased throttle or where the pump might be operated on its curve?

A. Oh, like pump drifts?

Q. Yeah. Yeah.

A. No, I didn't.

Q. Okay. Is that typical? Is that something you'd do ever?

A. No.

Q. Okay. Do you think you had enough training and technical knowledge to have asked all the right questions of the operator?

A. I think so.

Q. How about the MBS analyst?

A. Do you think -- do I think he's had enough training?

Q. Do you think you've had enough training to --

A. Oh.

Q. -- to have asked better questions or more questions?

A. Yeah, well, obviously I probably, looking back, I probably could have asked more or better, but I think I've, yeah, I think so.

Q. Yeah?

A. Yeah.

Q. Do you think you had enough resources at your disposal

to thoroughly research failed startups? Meaning SCADA data? Do you think it -- think all the data's in there somewhere that would have explained what was going on?

A. Yeah. I guess I can't think of anything that would have helped or I can't say something that I should have had.

Q. Okay.

A. I guess I can't -- I don't know.

Q. Yeah. Well, if you don't know, then I guess you don't know what you're missing either.

A. Yeah.

Q. Did the procedures fail you on that day?

A. Well, obviously that -- I looked at the wrong procedure, right?

Q. Yeah.

A. So, whether that's failing or not, that's kind of me, I guess, but that --

Q. But that procedure really -- that procedure in itself didn't fail, right?

A. No. It --

Q. MBS alarm procedures; did they get executed correctly? Was there anything in an MBS alarm procedure that might have got missed that could have stopped this?

A. I don't think so, because we got him involved and he didn't think it was an issue, so --

Q. Okay.

A. -- from our perspective, anyways.

Q. What about leak triggers? I know there's a procedure on leak triggers. Was there anything that was overlooked on a -- that should have been part of that?

A. Yeah, on -- we did look for leak triggers on the startup. We didn't see any.

Q. Oh, okay.

A. Like, during our startup in the middle of the night.

Q. Right. Yeah, that 1:00 a.m. startup?

A. Right.

Q. So, you were looking for leak triggers?

A. Yep.

Q. But you didn't see them?

A. No.

Q. Which ones were you looking? What would that be? That'd be like a --

A. A leak would be --

Q. -- throttle up of a (indiscernible)?

A. Yeah, a drop in pressure.

Q. Okay. But, previously I thought you said you weren't looking at throttle pumps.

A. Well, you mean, all I do is look at a pump (indiscernible).

Q. Okay.

A. That's what I said.

Q. But you did look at the throttles to see?
A. Yeah, because our trend has got it all in --
Q. Yeah, (indiscernible), right.
A. -- one trend. It's got suction, discharge, throttle. That's all in the same trend. Pump status, all that.
Q. Okay. But, those leak triggers are really -- are they written around a steady state operation or are they even addressing a startup/shutdown?
A. Well, that's the thing. They're way easier to see in steady state, for sure.
Q. Would knowing that the MBS alarms that come in on the 25th have made a difference on any of the actions you guys took?
A. Probably not. I don't know. It's hard to say. I don't think so.
MR. JOHNSON: Okay. Is it fair to say because so many MBS alarm comes in that are com separation and then clear?
MR. ZIMMELL: Yep.
MR. JOHNSON: So, knowing there was one the day before, is almost a given?
MR. ZIMMELL: Yeah. I guess it's not every shutdown, but if they clear, that kind of tells us that it's not an issue.
MR. NICHOLSON: Yeah.
BY MR. NICHOLSON:
Q. What about col sep? You could have col sep sitting there, right?

A. Yeah, and that's pretty normal on a shutdown, especially if it's been -- the -- sometimes the line's been down for half a day that slowly drains over time.

Q. Drains?

A. Cools. Or whenever -- if it cools, the pressure goes down.

Q. Okay. This was July in Michigan. Okay. Well, I guess it would be cool from the station, right? I mean, do you get some temperature rise at the pump station?

A. The -- actually, the oil gets pretty warm when it's running.

Q. Oh, just the friction? Yeah, you're right.

A. Yeah.

Q. Okay.

MR. CHHATRE: Do you need a few minute break? I mean, we've been here almost hour and a half or more.

MR. NICHOLSON: I'm just about -- I think I'm done here.

BY MR. NICHOLSON:

Q. Do the SCADA screens allow the operator or shift leads to get to fresher trends easily?

A. It's -- it could be easier, but it -- we can get to it. You got to go through a couple of menus to get it.

Q. Yeah, okay.

A. It's not like right on the screen.

Q. Yeah, you can't right click on a point or a --

A. Right.
Q. -- station and just --
A. That would be ideal, yeah.
Q. And then --
A. Yeah. But it's not like we can't get them. Like, they're there. It's just --
Q. Okay. And that wasn't an issue that day. You guys -- everyone's capable of building the trends they would have needed --
A. I think so. Yeah, I don't think that's an issue.
Q. If you had to have gone back 24 hours to see the shutdown from a previous shift, you could have?
A. Yeah, I like to think so, yeah.
Q. Because that's just a matter of taking your little slider bar, right and just (makes noise) moving it? Or is it not that easy?
A. Yeah, on that -- well, it's not hard.
Q. Okay.
A. It's just a matter of doing it.
Q. It has to be a conscious decision, then, you can't just -- once you have the trend in front of you, can you change the span at the bottom without leaving it and rebuilding it?
A. No, I -- the time frame is picked at the start.
Q. Yeah.
A. Yeah.

Q. So you're stuck with whatever you selected?
A. Yep.
Q. Okay.
A. Yeah, so if you pick a -- whatever four-hour time frame, you got to rebuild another one to get the --
Q. Yeah, you got to rebuild it? Yeah.
A. Yeah.
Q. You can't just go hey, I wonder what happened four hours before that?
A. Right.
Q. And slide over?
A. Right.
Q. When you make the alarm changes that you were talking to Karen about, the set point changes, does anyone QC your work or are you the final step?
A. What, my work?
Q. Yeah. You --
A. Well, I --
Q. You put in the limit changes, right?
A. Oh, that --
Q. From integrity management?
A. Oh, right.
Q. Just curious how that works.
A. No, nobody would. It's up to us to make sure that they're right.

Q. That's it. You're it. Okay.

A. Yeah. So we, you know, we should check our SCADA screen. There's an allowables page.

Q. Right.

A. We can check to make sure that it -- the right numbers are on there after we hit the button.

Q. Okay. All right. That's all I've got.

MR. NICHOLSON: Karen, you want to --

MS. BUTLER: I do have a few, but do you need a break?

MR. ZIMMELL: Sure.

MR. NICHOLSON: Yeah. Why don't we -- I don't know how long we've been at this, but we can take a break.

MR. ZIMMELL: Just a quick break.

MR. CHHATRE: Almost two hours.

MR. ZIMMELL: Almost two hours? Yeah.

MR. NICHOLSON: Going on two. Okay. Let's go off record here and we'll take a --

(Off the record.)

(On the record.)

MR. NICHOLSON: All right. We're back with Aaron Zimmel, part 2. Okay, Karen, I think you were up for questioning if you have anything.

MS. BUTLER: Okay.

BY MS. BUTLER:

Q. Can we go back to just this -- you were gracious enough

to explain to us a little bit about Marysville, Aaron, and you mentioned that they were draining too much; that the valve timing looked suspicious or -- I'm paraphrasing. Do you believe that this is something that Tim would have seen as well? I believe it was Tim?

A. That -- well, he -- it's on his line display, so --

Q. Yeah.

A. So --

Q. Did he say anything about it at all?

A. No, he didn't say anything, no.

MR. JOHNSON: When you say it's on his line display, does it show the percentage open or --

MR. ZIMMELL: It just --

MR. JOHNSON: -- I mean, how would he know the status or how open that valve was?

MR. ZIMMELL: He wouldn't see that; he would just see a flow rate.

MR. JOHNSON: Okay.

MR. ZIMMELL: So, that's what I seen was the flow rate at Marysville.

MR. JOHNSON: All right.

BY MS. BUTLER:

Q. Okay. So, it's just the fact that the flow rate was up, there was nothing else that would have tipped him off to that other than his hydraulics were probably looking crazy?

A. Yeah, that, you know, he probably might -- probably wouldn't notice that either, but --

Q. Okay.

A. Yeah.

Q. Okay. I'm going to shift gears a little bit on you regarding the LPM system. Are you familiar with that system?

A. Yep.

Q. And, so what do you think the whole purpose of that system is?

A. Protect the pipeline from over pressure.

Q. Does it do anything with low pressure?

A. Well, it would -- the line pressure monitor, no, I don't think it does anything with low pressure. We do have some places that it closes valves or shuts pumps off, but I think for the most part it's protect from over pressure.

Q. Are you familiar with alarms coming in that say something like LPM invalid calculations, or unable to calculate? Anything like that?

A. Yeah. When it gets to -- it gets low, it does that.

Q. Okay. Is that always a sign of low pressure?

A. No. I think it -- I don't know if -- that's all that I know of, anyway, yep.

Q. Do you get any training on that specific module or --

A. Yeah, we have a training module on LPM.

Q. Is that something that the shift leads go through or

just the operators?

A. As an operator you'd go through that.

Q. Okay. So, if you were an operator, you would have gone through it, right?

A. Yep.

Q. Okay. And, is it something that's really clear as to how it works and what can cause it to not work? If you don't remember, you can --

A. Well, I guess it's -- I'm clear -- I think I'm pretty clear on how it works, and if I'm not sure, I'll just go in the manual and read.

Q. Okay, so there's also a manual that goes --

A. Yep.

Q. Is there any other software system option or automatic programming that automatically changes some discharge pressure set points or can impact section pressure set points that you're aware of?

A. Well, on line 5 we can change, because we have NGL on that line.

Q. Okay.

A. So, it has two -- dual limits.

Q. Okay.

A. That the operator can change. But, other than that, I'm not aware of any.

Q. Is -- I'm just going to ask about a particular element,

because I don't know how that works, but does a column alarm do that over time or something?

A. Like what do you mean, com out?

Q. Yeah.

A. Well, yeah, the com out limit is a different discharge limit.

Q. Okay. Is it only discharge?

A. No, there's com outs for suctions too.

Q. Okay. Anything else that might change the limits on suction or discharge pressure?

A. No, not that I can think of.

Q. Okay. All right. Do you know what a normal flow would look like at Marysville since you mentioned it was high?

A. Well, I would think it would be close to zero or zero.

Q. Oh, okay, I see what you're saying.

A. That's just while we're starting to operate.

Q. Yeah, yeah, yeah, yeah, yeah.

A. Yeah.

Q. Got you. I got you. When there's a column separation, have you ever been told that that makes the leak detection system invalid?

MR. JOHNSON: The leak detection or MBS, Karen?

MS. BUTLER: Yeah -- okay.

BY MS. BUTLER:

Q. The MBS is the system that does enable one aspect of

your leak detection options, right?

A. Well, yeah, column.

Q. Okay, so when you have a column separation, have you ever been told that it makes the MBS system invalid and therefore one of your leak detection tools is suspect?

A. Yeah. I know that, yep.

Q. Okay. Is that something that you think is routinely understood through the control room?

A. I don't know. I think for the most part I think people know that.

Q. Okay, so are you aware on 6B that frequently we seen a column separation on shutdown at Leonard?

A. Yeah, I guess that's not -- that's -- that happens quite often, yeah.

Q. Okay. And, so does that in effect mean that your MBS system is suspect any time you're shut down on line 6B in your mind, or just for a portion of 6B?

A. In that section, yeah.

Q. And, how would you describe that section so that I have a better feel for that?

A. Describe that section?

Q. Like starting and ending point.

A. Oh, like when you're starting a line?

Q. Well, when we talk about a column separation occurring frequently on shutdown at Leonard station and that would mean that

a portion of the MBS system is probably invalid and we're talking about in that section, what does that mean? Does that mean to the nearest pump station on one side and then everything downstream of it after that?

A. Oh.

Q. What does that mean to you?

A. Oh. Well, when we get MBS alarms, they're -- the model calculates in certain sections.

Q. Right.

A. So, there's an alarm for lots of times it's the whole line, and then there's like maybe two or three stations in a section, so there's --

Q. Okay, so would that in fact be like flow meter to flow meter, then?

A. Well, it might be a flow meter, or it might just be -- because the model also uses pressures and everything --

Q. Okay.

A. -- to calculate, so --

Q. So it's, okay, it's whatever section that would flag in the model?

A. Right, yep.

Q. All right. Okay. Are you familiar at all with the term called "span of control?"

A. Fan of control?

Q. Right.

MR. NICHOLSON: Span.

MR. ZIMMELL: Span of control? No, I've never heard that.

BY MS. BUTLER:

Q. Okay, that's fine. When you do assume you have a leak, meaning that there's something that's happened in the control room and you have determined we have a leak, what do you do then?

A. If we have a confirmed leak?

Q. Yes.

A. I would -- we'd shut down the line, sectionalize, and we'd call -- we have a whole bunch of calls to make.

Q. Okay. And, do you use a certain procedure, then?

A. Yep.

Q. And what's that procedure called?

A. Confirmed leak, I think.

Q. All right. And, is that considered your emergency procedure?

A. Yep.

Q. Okay. Do you train on that regularly?

A. I guess we don't have -- no, we don't have training, no.

Q. Okay. Do you review that?

A. Yep.

Q. Okay. How often do you review that?

A. Oh, quite often.

Q. Like, what's quite mean?

A. Oh.
Q. Quite often mean?
A. I'm --
Q. Like once a year, once every two years?
A. Like, we have emergency response training once a year.
Q. Okay.
A. And we talk about stuff like that.
Q. Okay. All right. Do you frequently rely on other technical people in the control room?
A. Sometimes.
Q. Okay. And, when you do that, are some of those people operators?
A. Yep.
Q. So, who would you say is one of the operators you would go to or some of the operators you would go to for technical support?
A. Do you want names?
Q. Yes.
MR. NICHOLSON: The spellings too, please.
MR. ZIMMELL: Well, I guess it might depend on what I'm looking for.
BY MS. BUTLER:
Q. Okay. If you're uncomfortable naming names, I can shift to this next question, and that would be when you think about people that you would typically go to for technical support, do

they seem in your mind to have a common trait?

A. Yeah. They're probably experienced and knowledgeable.

Q. Okay. When you say experienced and knowledgeable, does that mean they've trained on a lot of different consoles or they've been through leaks before, or what does that mean?

A. Yeah, it could be all of that. It could be just guys that are -- have seen a lot of things before and are able to help you.

Q. Were any of them on shift at the time that 6B happened?

A. No, not that I can remember, no. There was no one that I thought of to go to.

Q. Okay. So, you pretty much just stuck with your opposite shift lead and the people that were working on it already; is that fair?

A. Yep.

Q. Okay. Were -- I'm going to shift gears to some equipment issues, and that would be pressure control valves. Sometimes they malfunction and you've already kind of discussed lines at Marysville. Does 6B have pressure control valves that malfunction frequently?

A. Not to my knowledge, no.

Q. Okay. What about other lines in the control room?

A. Well, they, yeah, there -- you have one that fails once in a while.

Q. Okay.

A. Some are more problematic than others.
Q. Do you usually write that up?
A. I wouldn't, no.
Q. Do some people write that up?
A. The operator would make a fact matter report or maximal report to tell the field about it.
Q. Do they have to make a Facman before they make a Maxima or can they go straight into Maxima?
A. Yeah, you can do it all together.
Q. Okay. So, what -- would their process just be one thing?
A. Yep.
Q. Okay. So, they would like be in fact man, but it's put at maximal; is that how it works?
A. Yeah, it's like you make a fact man entry and there's a button there to --
Q. Okay.
A. -- to click on that automatically makes a maximal report.
Q. All right. So, are you capable of rebooting the system from your console?
A. Rebooting the SCADA system?
Q. Yeah.
A. Well, I can -- you can reboot -- like, you can reboot the console from each console.

Q. Okay. So, without going to the console, though, are you capable of doing a similar action for your environment?

A. You know, I don't know. You can only do each console at each console. I can't reboot somebody else's from mine. Is that what you're asking?

Q. Yeah, or -- okay. Do you know if operators reboot very often?

A. No, I don't think that happens very often.

Q. Is that anything that's tracked?

A. No.

Q. Okay. When a pressure locks up and doesn't update for a period of time, tell me how somebody would know that.

A. I guess if your pressure is not changing, that's how you'd notice it.

Q. So you're just saying you'd have to be aware of it?

A. Yeah.

Q. Is there anything that happens on a screen to indicate that?

A. Anything that happens on a stream?

Q. On a screen?

A. Oh.

Q. Like a change in color or --

A. If it locks up?

Q. Yeah.

A. Well, if you lose communication at one station, you

know, we get a com out bar on it.

Q. Okay. What's the com out bar look like?

A. It's just like a gray bar --

Q. Okay.

A. -- going across the screen.

Q. Okay, so what if -- if you've been communicating with it, but it just isn't changing, is there anything that notes that by a different color in the control room?

A. No.

Q. Okay. I want to go back just a little bit to your role as a shift lead, and we've talked a little bit I think about performance reviews. We did hit a few of those questions, right?

A. Yep.

Q. Okay. Do you know whether or not the performance reviews feed into a bonus program?

A. Yeah, that -- yeah, they do. Yep.

Q. And, are there weightings in that bonus program?

A. Yep.

Q. Okay. Can you describe a little bit of that for me? Or does that change every year?

A. Well, the process is the same.

Q. Okay.

A. It's -- there's three areas that go into a operator's performance or his bonus, and his performance rating is one of them.

Q. Okay.

A. So, the company has their numbers depending on how they do in the year, so there's kind of three things. There's the Enbridge one and then our -- Enbridge Liquid Pipeline's number and then his rating number. And all those calculate to get a bonus.

Q. Okay. And, so what are some of the factors that would come off of a performance review for an individual but would get rolled into the total bonus incentive under the individual portion?

A. So, you're asking what would lower his rating, or --

Q. What would get fed into that portion of the individual bonus?

A. Oh. Well, we rate them on their job profile and then a development objective. So, each operator has to have a development objective that's worth 10 percent of his rating. And then there -- they can also have other objectives that are weighted for 10 or 20 or whatever we decide.

Q. So, on that development objective, is that stuff they've got to do in addition to monitoring and operating the console?

A. Yep. Like, a lot of times it's maybe just to help them become better operators.

Q. Can you give me some examples?

A. Well, some of them take a course, like a communications course, or something like that. So, that would be on a day off, or the day they're not operating. Might be reviewing procedures

or updating procedures to get them more familiar with that.

Q. Okay. And, that would be done while they're operating?

A. Yep.

Q. Is there anything else going on while they're operating like meetings or training or mandatory email review?

A. Well, yeah, there's other stuff going on, yeah. There's email they have to read and we have safety meetings once a quarter that they would attend. But it's not, you know, they don't -- if the guy's busy, he can just stay at his desk. He doesn't have to come. Like, if he has a swing coming up, or --

Q. But he's not counted off?

A. No, it's not, yeah. That -- their job comes first no matter what.

Q. Okay. If they do more development do they have a reward for that?

A. Well, I'd like to think that if they're developing better that they get a higher rating. If they're learning more and becoming better operators.

Q. Okay. I think that's pretty much all the wrap-up questions I had.

MR. NICHOLSON: Okay. Thanks, Karen.

Ravi?

MR. CHHATRE: Yeah, I have just a couple questions.

BY MR. CHHATRE:

Q. You mentioned one of the leak, I guess, criteria was the

pressure change, a sudden pressure change?

A. Yep.

Q. And, what about the startup? Since there is no -- the pressure's zero at Marshall --

A. Uh-huh?

Q. -- not getting pressure up, is that a criteria in your mind or not -- that is not a criteria in your mind?

A. Yeah, that's a trigger, yeah, could be.

Q. But that's not listed in your procedure, if I remember it correctly? In your triggers.

A. I guess I'm not sure.

Q. Okay.

A. Like, what procedure are you referring to? Like, all of them, or --

Q. Well, I've only looked at the procedures Matt has, and the issue is sudden pressure change, but to me it looks like that's more like an operational type parameter that sudden pressure change will be. I'm wondering whether -- if -- just (indiscernible) to you that pressure not increasing could be a leak trigger? But the way I understand is almost everybody in the control room was focusing on leak and -- not leak per se, but I mean, what do you call that?

MR. JOHNSON: Column.

BY MR. CHHATRE:

Q. Column -- no, no, not column, that you are losing some

product to --

MR. NICHOLSON: Drain out.

MR. ZIMMELL: Draining?

BY MR. CHHATRE:

Q. Drainage, yeah.

A. Right.

Q. But, nobody seemed to be thinking about that as a trigger for a leak.

A. Right.

Q. And, I wonder if you (indiscernible) procedure up and out, it's not (indiscernible).

MR. CHHATRE: Is it mentioned, Matt, that the pressure not going up --

MR. NICHOLSON: No.

MR. CHHATRE: Okay.

MR. NICHOLSON: No, I don't see it on here.

MR. JOHNSON: I think that's --

MR. CHHATRE: All right. If you are -- you were following the procedure to the T but it doesn't look like that was in that (indiscernible).

MR. ZIMMELL: Well, I --

BY MR. CHHATRE:

Q. That's -- now, as (indiscernible) have you been monitor pressure, you see pressure going up during the startup and I guess two or three locations before Marshall, I mean, it may not be

full, but it was going up and suddenly you're not seeing at Marshall?

A. Yeah.

Q. What does that mean to you? Is there any other -- I mean, it is either drainage -- are there any valves in between that were closed --

A. Yeah.

Q. -- I mean, I'm trying to understand in my mind, not being a pipeline person, as if you have a drainage and are you being (indiscernible) the whole pipe should have some less volume in it if it's completely connected to each other.

A. Right.

Q. How --

A. Yeah.

Q. Why the drainage came only became an issue only, do you know, Marshall? Pressure not picking up?

A. Yeah, that's a good question. We didn't -- I didn't think of any valves closed. A valve closed, you would -- you'd know. it would pressure up and being that Marysville was draining --

Q. Okay.

A. -- that's what triggered me to think that we had drained that section of line off in addition to the shutdown.

Q. True. But --

A. So that's --

Q. -- (indiscernible) pick up earlier, and that's how -- I don't mean to be second guessing you, but I'm just trying to figure out -- I'm just trying to think as to why leaks didn't occur in so much experience four or five people involved with the discussion.

A. I guess the -- I don't know.

Q. Okay.

MR. JOHNSON: Do you have check valves at the station which would have locked the pressures down?

MR. ZIMMELL: Yeah, I think stations do that (indiscernible).

MR. JOHNSON: And join -- my understanding is when you're going through a station, you'd have the station discharge check valve, which would have allowed you to be building pressure and not losing it behind those. I think that was one of your questions, Ravi.

MR. CHHATRE: Yeah. That's (indiscernible).

MR. JOHNSON: So if -- well you have -- you'd have check valves?

BY MR. CHHATRE:

Q. You have startup (indiscernible) right? You have startup (indiscernible).

MR. JOHNSON: So, as you're starting them, you're building pressure at some of the upstream stations and then you're not getting it past Mendon, but you're -- you can drain away from

Mendon, but you can't drain back. That's why you're holding pressures behind.

MR. CHHATRE: Okay.

MR. JOHNSON: Because they're locked in.

MR. CHHATRE: So the (indiscernible) not allowing the pressure to -- from the -- to drain from upstream to downstream?

MR. JOHNSON: Yes. So you would be holding pressure with these check valves behind Mendon, LaPorte.

MR. CHHATRE: But, where those check valves in -- activated, I guess, but, I'm not sure they are -- they are open?

MR. JOHNSON: They are. They're just --

MR. ZIMMELL: They're automatic.

MR. JOHNSON: They are just working.

MR. CHHATRE: Okay.

MR. JOHNSON: You know, basically if flow goes past, it can't come back.

MR. CHHATRE: Right.

MR. JOHNSON: So, if you've got pressure leaving Mendon, so you're showing pressure behind Mendon --

MR. CHHATRE: So, it's (indiscernible). Okay, so --

MR. ZIMMELL: It's -- it just works on --

BY MR. CHHATRE:

Q. But the flow you're going from (indiscernible) to other --

MR. JOHNSON: Okay, so each time it goes through a

station --

MR. CHHABRRE: Right.

MR. JOHNSON: -- each station has a check valve.

MR. CHHATRE: Right.

MR. JOHNSON: So, if you're building pressure --

MR. CHHATRE: Right.

MR. JOHNSON: -- it's going to hold the pressure behind those stations. But then when we get to leave Mendon station --

MR. CHHATRE: Right.

MR. JOHNSON: -- it's pushing through Marshall.

MR. CHHATRE: Right.

MR. JOHNSON: And at that -- I mean, that's the area where Aaron was not seeing pressure.

MR. CHHATRE: Okay, but if --

MR. NICHOLSON: He's talking about it draining, though.

MR. CHHATRE: Yeah.

MR. NICHOLSON: That's in the direction of flow, if you're trickling --

MR. JOHNSON: Okay, it's draining away from Marshall, but you're saying why are you holding pressure behind.

MR. CHHATRE: No, no, what I'm saying is as this -- in the startup, and I'm looking on the charts, the place it is being built up, at (indiscernible), Niles, Mendon, where you --

MR. JOHNSON: That's the sequence they're --

MR. CHHATRE: Right, but --

UNIDENIFIED SPEAKER: -- they're building them.

MR. CHHATRE: But now (indiscernible) higher pressure in all these upstream stations then Marshall and your check valves still should allow the oil to flow to Marshall.

MR. JOHNSON: Yes.

MR. CHHATRE: Right? And that is from your check valve. So --

MR. JOHNSON: That's correct.

MR. CHHATRE: So, now you're getting build-up of pressure up to Marshall during the startup.

MR. JOHNSON: Okay, but past Marshall you're not building pressure because you're trying to fill the line and you're trying to pack the line.

MR. CHHATRE: But why you got to pack the line only after Marshall and not you are --

MR. JOHNSON: His --

MR. CHHATRE: -- if you feel a drainage --

MR. JOHNSON: Yeah. His column separation was in the Mendon to Stockbridge area.

MR. CHHATRE: Right.

MR. JOHNSON: He didn't have column separation before that.

MR. CHHATRE: Okay. But --

MR. JOHNSON: So that's why the pressure was coming up there --

MR. CHHATRE: And did --

MR. JOHNSON: -- because you weren't packing.

MR. CHHATRE: And (indiscernible) after Marshall and before Stockbridge? I've got to find (indiscernible) where you (indiscernible) leaking or seeping, whatever.

MR. ZIMMELL: Oh, we're -- you mean on the delivery?

BY MR. CHHATRE:

Q. Right. On --

A. It would be downstream of there at Marysville.

MR. NICHOLSON: We don't have a very good line diagram. That is a problem.

MR. JOHNSON: Okay.

MR. NICHOLSON: That shows us where these tanks are. I've asked for that. You did give me one line, and Ravi's got the same problem I have. We don't know exactly where Marysville is to Sarnia --

MR. JOHNSON: When we go over to the office this afternoon and talk to Jim, let's pull up some --

MR. CHHATRE: Okay.

MR. JOHNSON: -- drawings and get you some of that to better explain that.

MR. NICHOLSON: Yeah, I think that would help us.

MR. CHHATRE: Okay.

MR. ZIMMELL: Marysville and Sarnia are basically the same.

MR. NICHOLSON: Marysville and Sarnia?

MR. ZIMMELL: They're not that far apart.

MR. NICHOLSON: It's like way at the end of the line, right?

MR. ZIMMELL: It's the delivery point.

MR. NICHOLSON: Yeah.

BY MR. CHHATRE:

Q. But I thought during the shutdown what happened was all these valves (indiscernible) each stations that closed and if they're not closed and you are seeing zero pressure during the shutdown at Marshall, from the turbodynamic viewpoint, it doesn't make any sense if the pressure drop at Marshall, I should -- the pressure should be equalizing in the line, and I should be dropping the pressure that (indiscernible). And all the line pressure should be equal. Turbodynamically --

A. Well --

Q. -- turbodynamically speaking, why would I be at zero pressure in Marshall only and not in any other upstream pressures? That's what I'm trying to understand, see what I'm saying?

MR. JOHNSON: I don't believe -- Aaron, I don't believe -- they don't -- I don't believe they close the valve at every station.

MR. ZIMMELL: No, we -- no. There --

BY MR. CHHATRE:

Q. They do not, right?

A. No.

Q. So, now I have zero pressure at Marshall and I have a couple of two, three hundred PSI at an upstream station?

A. Yeah.

Q. The valves are open. Wouldn't the basic turbodynamics that the oil should flow to Marshall?

A. No.

Q. That I'm at a higher pressure than a lower pressure?

A. Well, it depends.

Q. I mean, that's what I'm asking.

A. Depends. Like, there -- there'd be a lot of factors that go into that, so when we shut down a pipeline, we shut down certain valves to hold our hills together.

Q. Right.

A. So, they're -- we know which ones to close on the screen.

Q. Okay.

A. It tells us. But yeah, when -- even if you have your line equalized, your elevation's going to change your pressures, your type of crude you have in there is going to change your pressures. Your -- if you have a check valve, it's going to -- might -- you might not equalize. So --

Q. Yeah. I (indiscernible) check valves because I thought all the check valves were closed and it made sense to me that it would be Marshall showing no pressure so that even though I have

(indiscernible) upstream of Marshall is blocked. So, from what I understand, all the check valves are open. Now, topography wise, is there any place before Marshall, and I do not know that Mendon isn't a flat terrain or (indiscernible) isn't a flat terrain, because if they are (indiscernible) flat terrain, the (indiscernible) hill logic fails. I understand that after Marshall you have a really steep climb up. Or -- am I right or --

A. Well, I don't -- I don't know the profile exactly.

Q. Oh, you don't get a profile on your screen or --

A. We have it on our screen, but I don't have it in my --

Q. Oh, no, I understand.

A. I can't, like, explain it to you.

Q. Okay. Okay. I mean, you got to -- since you've been operating so long, I thought maybe you will know it, but if you don't --

A. Yeah.

Q. -- but, I mean, I understand. Maybe that is something that -- does anybody know?

MR. NICHOLSON: Well, you know, I got -- do you want to talk profiles or --

MR. CHHATRE: I want to find out, because until this point I always thought that each station was isolated during the shutdown.

MR. ZIMMELL: No.

MR. NICHOLSON: No.

MR. CHHATRE: And --

MR. NICHOLSON: There's only one section (indiscernible) closed, correct? On the (indiscernible)?

MR. CHHATRE: It is after Marshall, I think. It is after Marshall.

MR. ZIMMELL: Yeah. I think there might be one at Stockbridge and then one upstream, or whatever. Yeah.

MR. NICHOLSON: At roughly Mendon, I would --

MR. ZIMMELL: Yeah, somewheres in there.

MR. NICHOLSON: And, the purpose of sectionalizing in Mendon is to?

MR. ZIMMELL: That's the ones the engineers have said to keep our hills intact.

MR. NICHOLSON: There's -- actually, it's the other way, isn't it?

MR. CHHATRE: Okay.

MR. NICHOLSON: These are all your stations. These dashed lines.

MR. CHHATRE: Oh, the lines are stations? Okay.

MR. NICHOLSON: Are indicating the stations.

MR. CHHATRE: So, I am at Marshall, which is six or seven. We should be right somewhere in here.

MR. NICHOLSON: That's part of it.

MR. CHHATRE: Yeah. Yeah.

BY MR. CHHATRE:

Q. So, we saw zero pressure between Marshall and Stockbridge or we saw zero pressure -- where did we see zero pressure in the shutdown?

A. Downstream of Mendon. Or Marshall.

MR. JOHNSON: Marshall.

MR. NICHOLSON: Right here.

MR. ZIMMELL: Yeah.

MR. NICHOLSON: On both sides of Marshall.

MR. CHHATRE: Okay. And this terrain is -- (indiscernible). Something does not make any --

MR. JOHNSON: Do you know if we closed the valve at Mendon?

MR. CHHATRE: -- sense to me.

MR. JOHNSON: Is that the other one or --

MR. CHHATRE: And where is the --

MR. ZIMMELL: Yeah, I think so.

MR. CHHATRE: And where is the valve? Upstream of Marshall or --

MR. ZIMMELL: Is there a valve upstream of Marshall?

BY MR. CHHATRE:

Q. Yeah -- I'm trying to understand why we are only seeing zero pressure at Marshall or whatever the last leg was, and not upstream or any other place upstream of that. And I don't see any --

A. Well, you know --

Q. I see a big thing here, but Marshall's six or seven, Marshall's here.

A. Right.

Q. So, if this head and this valve is open here?

A. Yeah?

Q. This head should try to equalize the pressure in here, or am I missing something? And that's why I'm asking. I'm not saying it is. I'm just asking you.

MR. JOHNSON: Depending on where the valve which I --

MR. CHHATRE: That's what I'm asking; where the valve is.

MR. JOHNSON: -- we -- and I don't know that Aaron knows that offhand.

MR. CHHATRE: Okay.

MR. NICHOLSON: Well, what valve are we talking about?

MR. JOHNSON: This -- there was two valves closed during -- when they shut it down.

MR. NICHOLSON: Well, the valve is right at Mendon, the sectionalizing valve, 57693 (ph.).

MR. JOHNSON: Is that the one they closed?

MR. NICHOLSON: That's the one that's closed during shutdown. Well, you would know, right?

MR. ZIMMELL: Yeah, I don't know the exact milepost of where it is, but --

MR. NICHOLSON: 57693.

MR. ZIMMELL: -- it's by -- so it's right here, then.
MR. NICHOLSON: Should be right after Mendon. And then --
MR. CHHATRE: Marshall --
MR. ZIMMELL: So that's why you would have pressure here and not here.
MR. CHHATRE: Okay. All right.
MR. NICHOLSON: But, that valve would have been open.
MR. ZIMMELL: During the startup, yeah.
MR. NICHOLSON: Yeah.
MR. ZIMMELL: Yeah.
MR. NICHOLSON: But that valve had nothing to do with their startup.
MR. CHHATRE: But, if startup means --
MR. NICHOLSON: It's open.
MR. CHHATRE: Okay. I'm still trying to figure it out as to --
MR. NICHOLSON: Well, the analysis Ravi's just gone through; was that the analysis that was done the night of -- or the morning of your startup and your troubleshooting?
MR. ZIMMELL: Well, we would have looked at the pressures, yeah, during the startup.
MR. NICHOLSON: Did you look at the profile to see if call set made sense or drain down or --
MR. ZIMMELL: Well, that -- the calculation of how much

the hill was, how much pressure there in the line loss, yeah, we did that.

MR. NICHOLSON: But, that was all way back here at Sarnia, right?

MR. ZIMMELL: No, that'd have been from Mendon downstream.

MR. NICHOLSON: Okay. Oh, that's CMT volume calc that you were doing?

MR. ZIMMELL: Oh, no, that -- yeah, that has nothing to do with the profile. That's just the volume-in, volume-out. That CMT?

MR. CHHATRE: Okay.

MR. NICHOLSON: So, the drain-up calc you did would have included lines all the way back to Mendon?

MR. ZIMMELL: It would include the line all the way back to the injection point, Griffith, because that's where the oil's getting put in, at Griffith.

MR. NICHOLSON: Right. And you came up with 610 cubes, roughly? But you're draining out 700 cubes?

MR. ZIMMELL: Well, it was --

MR. NICHOLSON: An hour.

MR. ZIMMELL: It was draining out 700 an hour. So, yeah, we --

MR. NICHOLSON: Okay.

MR. ZIMMELL: -- we go the volume in at Griffith,

injection, volume out at the delivery point.

MR. NICHOLSON: Uh-huh.

MR. ZIMMELL: Then the difference between the two.

MR. CHHATRE: That's all I have. Thanks.

MS. BUTLER: I -- I do have two more.

MR. NICHOLSON: Go ahead, Karen. I don't have any.

BY MS. BUTLER:

Q. Okay. Did you -- or would you typically in this process ever review alignment sheets or P&ID sheets or would it all just be computer screen driven?

A. In a case like this?

Q. Yeah.

A. Yeah, no, that -- I probably wouldn't review P&IDs, no.

Q. Okay. And, if you were to note that something like column separations always happening on a particular line, do you ever submit enhancements or ways to eliminate that to management?

A. Ways to eliminate column sep?

Q. Yeah.

A. No, I never have, no.

Q. Okay.

A. That's just one of the things that we deal with.

Q. Okay. And the reason I ask is, you know, sometimes people do things like add back pressure control valves or work to change some of the dynamics there by allowing you to hold pressure different or maybe in this case in Marysville allowing you to hold

pressure there from your perspective. Has any of those things ever come up?

A. No, not that I know of, no.

Q. Okay. That was it.

MR. NICHOLSON: Okay. All right. Anything else, Ravi?

MR. CHHATRE: Nope.

MR. NICHOLSON: Jay?

MR. CHHATRE: Thank you for --

MR. JOHNSON: No.

MR. CHHATRE: -- your help.

MR. NICHOLSON: Thanks, Aaron.

MR. ZIMMELL: Well, hopefully I helped some. Yeah.

MR. NICHOLSON: You're very patient while we questioned you a second time.

MR. BUTLER: Hey, thank you so much.

MR. ZIMMELL: Yep.

MR. NICHOLSON: Appreciate your time, and if you think of anything else, you've got my contact information, so --

MR. ZIMMELL: Okay.

MR. NICHOLSON: With that, we'll close off the interview.

(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 OIL SPILL
MARSHALL, MICHIGAN
Interview of Aaron Zimmel

DOCKET NUMBER: DCA-10-MP-007

PLACE: Edmonton, Canada

DATE: December 17, 2010

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

Patricia Noell

Patricia Noell
Transcriber