BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

DEPOSITION OF KATRINA WINBORN November 5, 2009

IN THE MATTER OF:) Docket No. 09-2801

MEDICINE BOW FUEL & POWER, LLC)

AIR PERMIT CT-5873.)

APPEARANCES:

HICKEY & EVANS, LLP
By John A. Coppede, Esq.
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P.O. Box 467
Cheyenne, Wyoming 82003-0467
and
MARY A. THRONE, ESQ.
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Cheyenne, Wyoming 82001
Appearing on behalf of Medicine Bow Fuel & Power, LLC.

WESTERN ENVIRONMENTAL LAW CENTER
By Daniel Galpern, Esq.
1216 Lincoln Street
Eugene, Oregon 97401
Appearing on behalf of Sierra Club.

STATE OF WYOMING ATTORNEY GENERAL'S OFFICE
By Nancy E. Vehr, Esq.
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Cheyenne, Wyoming 82002
Appearing on behalf of State of Wyoming Department of Environmental Quality.

Pursuant to Notice and the Wyoming Rules of Civil Procedure, the deposition of KATRINA WINBORN, called by Sierra Club, was taken on Thursday, November 5, 2009, commencing at 9:18 a.m., at 405 Mason Court, Suite 117, Fort Collins, Colorado, before Carolyn Leathers, Registered Merit Reporter, Certified Realtime Reporter and Notary Public within and for the State of Colorado.

I N D E X

DEPOSITION OF KATRINA WINBORN

I N D E X (Continued)

(Attached to original and copy transcripts.)

P R O C E E D I N G S

(Ms. Throne was not present at the commencement of the proceedings.)

KATRINA WINBORN,

being first duly sworn in the above cause, was examined and testified as follows:

EXAMINATION

BY MR. GALPERN:

Q Katrina, would you please state your name and address for the record.

A Yes. My name is Katrina Winborn, and my address is 8181 East Tufts Avenue, Denver, Colorado 80237.

Q Katrina, have you appeared in a deposition previously?

A No, I have not.

Q Okay. Have you appeared in a court case at all?

A No, I have not.

Q Okay. But you understand that you are required to tell the truth?

A Yes.

Q And you understand that you've been designated by Medicine Bow Fuel & Power as an expert witness?

A Yes.
Q And you have not been designated as an expert witness by the Wyoming Department of Environmental Quality?
A Correct.
Q Neither have you been designated as an expert witness by the Sierra Club?
A Correct.
Q Now, are you an employee of Medicine Bow Fuel & Power?
A No, I am not.
Q Have you ever been an employee of them?
A No.
Q Are you under contract with Medicine Bow?
A Yes.
Q Okay. You are --
A Let me clarify that. Currently I'm under contract with Hickey & Evans, but my company, URS Corporation, has a contract with Medicine Bow Fuel & Power.
Q And your company had a contract with Medicine Bow Fuel & Power well prior to this deposition?
A Correct.
Q Do you expect to continue to work for URS

Corporation on this matter subsequent to -- I'm sorry -- on the Medicine Bow Fuel & Power facility subsequent to this case?

A I don't know. It could be reasonably expected, but I honestly don't know.

Q Now, the contested case in which we are involved right now has to do with a prevention of significant deterioration permit, air permit?

A Yes.

Q The facility is also required, I believe, to secure an operations permit subsequent to construction?

A Operations permit would be after construction, after facility startup.

Q After construction has begun?

A Right.

MR. COPPEDE: Could we -- Mary is here. Could we break. I apologize for interrupting.

MR. GALPERN: Sure. Take a break. Go off the record.

(Recess from 9:21 a.m. to 9:22, during which Ms. Mary Throne entered the room.)

Q (By Mr. Galpern) So, Katrina, do you expect that you would work on the application for a permit subsequent to construction beginning on the

facility?

A I would hope that we would be able to help them prepare the application for the operating permit, but I can't say that I expect it. They have not asked us to do that work, nor have we proposed or offered to do that work yet.

Q Okay. If URS were to receive that work, would you be the one in charge of such -- might you be the one in charge of that permit?

A I might.

Q Okay.

A Unless I'm on a leave of some sort.

Q Now, you joined URS in December of 2007?

A Yes.

Q And the initial application was filed with DEQ in December 2007?

A The initial application was actually filed earlier in 2007 --

Q Oh.

A -- before they had a design change to produce gasoline products.

Q Initially they were going to do diesel?

A Yes.

Q So December 2007 was when Medicine Bow, through URS, submitted its first version of its final

application --

A Yes.

Q -- for PSD permit? What was your role in the December final application?

A I was a project team member. I worked with three other people on our air team to put together the application. I was not the project manager on it.

Q Was it substantially redone in December when you joined URS?

A Can you clarify?

Q There were earlier iterations of the application, and you said that you were on a team of three people to finalize the application that was then submitted in December 2007.

A Yes.

Q Were there significant changes that you were responsible for making in that first month of your employment with URS?

MR. COPPEDE: Object to the form of the question, vague. You can go ahead and answer.

A Yes. I would say yes, I was. They were in the process of completing that application at the time I joined, and I joined in December 2007 and did begin doing quite a bit of work on the project.

Q (By Mr. Galpern) Okay. Good. John's point reminds me to tell you that if you don't understand a question, please ask me to rephrase it --

A Okay.

Q -- or clarify it, and you need not answer a question -- don't answer a question unless you are sure that you understand the question.

A Okay.

Q Now, another preliminary thing, if you need to take a break, let us know. I think we'll try to take a break about once every hour or so.

A Okay.

Q And if you have given an answer to a question that you later realize was inaccurate, please let me know, and I'll give you the opportunity to revise your answer.

A Okay.

Q Of course. Now, is there any reason that you would feel that you are not able to give your deposition today due to any mental state or health issues or anything like that?

A No, no reason. I feel I can give my deposition today.

Q Nothing has arisen in the last, say, 24

hours to throw you into a tizzy?

A I won't even ask you to clarify that question. No, I am okay. I am very happy today and very happy to give my deposition.

Q Okay. If for any reason you need to take a break to make a phone call or anything, you can let me know that as well.

A Okay.

Q Now, in preparing for this deposition, did you review any documents?

A Yes, I did.

Q The notice that we sent you asked you to produce those documents. Did you bring them with you today?

A Yes. I have a hard copy in front of me of many of the documents I reviewed, but I also have them on a Zip drive. I don't know if you have a computer with you that you are planning to take back, so --

Q I do. I do.

A So I can give you this and have you transfer all the files. I brought a second one just in case you didn't have a computer with you.

Q Okay. Thank you.

A So I don't know when to give you that.

Q We can do that at a break. Thank you very much.
A Okay.
Q Can you --
A Not a Zip drive. Sorry. It's actually a memory stick.
Q Sorry?
A It's not a Zip drive. It's actually a flash drive.
Q So they are not zipped, they are just PDF files?
A Exactly.
Q That's better. I have a Mac.
A Okay. It should work.
Q How are the documents you brought today identified?
A On the flash drive, the file names should be self-explanatory -- well, most of them should be self-explanatory. I have them divided into subdirectories that will also be helpful --
Q Okay.
A -- as far as the topic. I must admit, some of those file names might be a little hard to figure out because I -- if I downloaded a document, I did not rename it in some circumstances.

Q Okay. Do you have any idea approximately how many we're talking? 15,000?

A No. It will take me a few minutes to count. No, there's quite a few.

Q Okay. Who did you speak to in preparation for this deposition?

A I spoke with Mary Throne and John Coppede.

Q Did you have any correspondence with them that you have produced?

A I have actually one item of correspondence from when I -- actually from when I prepared my expert witness report that I have a hard copy of today.

Q Okay. Do you have copies of e-mails that occurred between you and John or you and Mary?

A Actually, no, I do not. We did have a few e-mails, but the documents that were transferred on those e-mails are on this flash drive.

Q Okay.

A And the e-mails did not have any substance other than transferring the file.

Q So the e-mails do not reflect any comments on drafts of your report, for example?

A No.

Q The e-mails don't reflect any substantive

discussion about the issues involved in this case at all?

A No, they do not contain that.

Q Can you describe the substance of your conversations with either John or -- first John -- about this deposition?

A Quite a bit of our discussion has been about the deposition itself because this is my first deposition, so just -- I have had a lot of questions about how the deposition would proceed and what to expect in the questions, what to expect in the setting for today.

Q Okay. And how about with Nancy, counsel for Wyoming?

A I have not had any conversations with her about this deposition.

Q And did you answer both with respect to John and Mary?

A Well, with both of them, yeah. Mary has actually also provided information as to what to expect in the deposition. I have talked to them both together numerous times.

Q Okay. In preparing your report, your expert report for this case, did you produce drafts of the report?

A Just one, yes.
Q And did you produce that with the documents that you are going to provide today?
A No, I do not have an electronic version of that. I have a hard copy.
Q You have a hard copy?
A Here, yes.
Q Did you discuss the draft report with John?
A Yes.
Q And did you discuss it with Mary?
A Yes.
Q And did you take notes on those discussions?
A Yes.
Q And did you produce those notes?
A Yes.
Q And you said there was only one draft?
A Correct.
Q Were there other communications about the substance of the report with John and Mary prior to your crafting a draft?
A I have had a few verbal conversations with them.
Q Did you take notes on those conversations

as well?

A I did not.

Q Okay. Did you discuss the deposition of Ranajit Sahu with John?

A I have, yes.

Q And with Mary?

A Yes.

Q And did you take notes of those conversations?

A No, I did not.

Q Did you discuss the deposition of Ranajit with Nancy?

A No, I did not.

Q You are a senior air quality specialist with URS Corporation?

A Yes.

Q URS is based in Denver?

A Yes.

Q And where is your principal location of business?

A My principal location, I would say, is the Denver office, although I do work from my home office several days a week, but I base out of -- the principal office is in Denver.

Q Now, was Medicine Bow the first industrial

client matter that you had since working at URS?

A Yes, they were the first client I worked on once I joined URS.

Q You have worked with multiple industrial clients since you've been with URS?

A Yes.

Q Can you say approximately how many?

A Ten or so.

Q Okay.

A Yeah. I've worked multiple projects with, in some cases, the same company, and I think I've given you a good count, but quite honestly, I would rather write out something like that so I could count them. But I've given you my best guess.

Q Okay. Maybe we will ask you to write that out to make it easier as well in a second. Are any of the clients with whom you've worked since joining URS consuming nearly as much of your time as the Medicine Bow project?

A Today, no.

Q So far today?

A Yeah, so far today. I would say that varies. I have had -- I have had other clients since joining URS that have taken up a tremendous amount of time for a short time period, which is the nature of

the work I do.

Q Of course.

A Yeah. So that's a bit of a difficult question to answer just from the aspect of the time period that you are talking about.

Q Okay. But from December 2007 to present, would you say that overall you have spent more time on the Medicine Bow project than on other projects?

A No, I would not say that.

Q Okay.

A Yeah.

Q Now, you have a master's degree in environmental policy and management, and your master's, in reading from your thesis, reading from your resume, had to do with development of a greenhouse gas reduction strategy for a midsized U.S. oil refinery?

A Yes.

Q Have you utilized your ideas in this project?

MR. COPPEDE: Object, vague and ambiguous, but go ahead and answer to the extent you can.

A That is a tricky question. In a sense, yes, but there is such a difference between the refinery that I looked at for this thesis and this

facility that I would say to a larger extent no, I haven't been able to.

Q (By Mr. Galpern) You haven't been able to fully employ your ideas?

A Correct.

Q Can you more generally describe your responsibilities with URS?

A Yes. I work as an air quality permit engineer primarily. I also do compliance-related work. So what I mean by that is that for most clients, I am preparing an application for either a construction permit, whether it be a large one or a small one, a construction permit, or an operating permit under the Clean Air Act. I work primarily with air quality issues, so I don't work with other media.

And when I do do compliance work, that can be widely varied depending on what the client would like for us to do. Sometimes it is assisting with reports that have to be written and submitted. Sometimes it's internal compliance-based plans to help them achieve compliance with their permits. But that's primarily what I do is the permitting and compliance.

Q Okay. And all of your clients since

you've been with URS have been industrial clients; is that correct?

A Yes.

Q Okay. So no contracts with the Wyoming Department of Environmental Quality?

A Correct.

Q Neither with the Colorado clean air agency?

A Correct. That's not to say someone at my company hasn't had, you know, some sort of contract, but I have not.

Q Does your company have significant contracts with the state clean air agencies?

A I don't think so. Definitely not in the air group that I'm aware of right now.

Q Okay. And how many persons are in the air group at URS?

A In the Denver office?

Q Um-hum.

A I'm sorry, I have to count.

Q Sure.

A Six.

(Discussion off the record.)

Q (By Mr. Galpern) So there are about -- you've had about eight different industrial clients

since December 2007 --

A Yes.

Q -- working on either air permits or -- either preconstruction or operating air permits?

A Yes.

Q And is one of those clients Motiva Enterprises?

A No.

Q So that was prior to coming to URS?

A Yes.

Q Was that when you worked for McVehil-Monnett Associates?

A No.

Q Okay. That was when you worked for Motiva directly?

A Right.

Q I see. At URS, have you been the person who's had primary responsibility for shepherding the Medicine Bow application?

A Not the entire time.

Q I'm sorry. Since you arrived in December 2007.

A I've been the primary contact for air permitting for a portion of the time.

Q Okay. And what portion is that?

A Since early 2008.
Q Okay. So since January or February 2008 or . . .
A More like March.
Q Okay. And so you've been the primary person dealing with the Department of Environmental Quality on behalf of Medicine Bow since March 2008?
A Correct.
Q Was that an assignment that you sought or reluctantly accepted?
MR. COPPEDE: Object.
MR. GALPERN: Compound?
MR. COPPEDE: Vague and ambiguous, compound.
A It was a responsibility I accepted.
Q (By Mr. Galpern) Okay. You are also a licensed professional engineer in three states, I see?
A Yes.
Q Do you consider yourself an expert in the air pollution control?
A Yes.
Q And also in the engineering aspects of air pollution control?
A Yes. Although, I'm not a design engineer.

Q Got it. You have a bachelor's in chemical engineering. In the course of that, did you have occasion to take courses in mathematics?

A Yes.

Q Statistics?

A Yes.

Q Air pollution control?

A No, I did not. They were really not offered at that time.

Q Atmospheric chemistry?

A Not specifically atmospheric chemistry. I don't think anything like that was offered at the time either.

Q And for your master's degree, did you have courses specifically in air pollution control?

A Yes.

Q Atmospheric chemistry?

A Not specifically or solely atmospheric chemistry, but there was an element of that in the air pollution control courses.

Q Did you produce billing statements for your work with Medicine Bow?

A Yes. We've sent invoices to Medicine Bow.

Q Did you provide -- are you providing me with copies of those today?

A I can, but I don't have them with me.
Q Okay. That would be good.
A Okay.
Q I believe that was part of the request, so . . .
A I apologize.
Q That's okay. So if you could do that, that would be good. Can you tell me, because it's not denoted here in any particular way, what facilities you have helped secure air pollution permits over the last five years?
A Yes. I've helped to secure air permits or completed applications for this facility that we're speaking about today.
Q Yes.
A Numerous oil and gas facilities, wellhead operations, midstream operations, gas plants, petroleum refineries, ethanol plants, cement plants, chemical plants.
Q Have the petroleum refineries -- can you tell me them by name?
A Yes. There's a local refinery that I've worked with.
Q What's the name?
A Suncor.

Q Suncor. Did you say in Denver?
A Yes.
Q Any other refineries?
A There is a refinery in Cheyenne that I've worked with. I've not helped them secure air permits, though.
Q But you worked with them on air pollution control issues?
A Compliance-related issues.
Q And what is the name?
A Frontier Refining.
Q Frontier Refining. Okay. Any other refineries?
A No.
Q You said that you worked with oil and gas companies with respect to air pollution control, midstream processing, and what does that mean?
A That is, generally speaking, after the wellhead, and there are various points along the pipeline until you get to, let's say, a refinery if we're talking about crude oil, so I worked at midstream compressor stations. They are used to boost the pressure of the gas. I've also worked at midstream gas plants that are doing treating at some point in the line before the gas or liquids are sent

to other customers.

Q So the object is to contain the methane so it doesn't escape into the atmosphere and lose product for the gas companies?

A No. The object of those facilities can be varied. It can be to simply compress the gas so that it can be moved farther down the line, provide the force for it to be moved down the line, and then also when I say it cleans the gas or cleans the liquid, it simply removes impurities, brings the product in a specification so that it can be sold, or brings it closer to specification.

Q Okay. So the air pollution control requirements in which you were helping facilities come into compliance or stay in compliance had to do with limiting venting during those processes?

A In a sense. These facilities have permits, and the permits have numerous conditions in them. So it can be any aspect of the permit, which may or may not include venting emissions.

Q And these facilities already had the permits, that you worked?

A In some cases, yes. In other cases, no.

Q And in those cases no, who are the -- who are those clients where you helped secure permits?

A For new facilities, I've been doing work with Kinder Morgan, which is a gas and energy company. I believe that's the only one for new facilities.

Q Was that a PSD permit?

A Yes.

Q Of the facilities that you have worked with, or for --

MR. GALPERN: Sorry for the compound form there, John.

Q (By Mr. Galpern) -- were any deemed minor sources of air pollutants?

A Yes.

Q And were any deemed minor sources of hazardous air pollutants?

A Yes.

Q And was sulfur dioxide a pollutant that was a pollutant of concern in any of these?

A Yes.

Q Were any of these considered -- were any of these, pursuant to their PTE calculations, deemed minor sources of sulfur dioxide?

A Yes.

Q So I would like to -- are you doing okay?

A Yeah.

Q -- submit Exhibit 1.

(Exhibit 1 marked.)

Q (By Mr. Galpern) It's just your report. Do you have a copy, or would you like another copy?

A I do have a copy.

Q I would like to go over your report in some detail with you, if that's okay.

A Yes. I have a clarification or addition.

Q Yes.

A During our break, I thought of another company that I have worked for with new facilities. In addition to Kinder Morgan, I've worked with the El Paso Corporation on new facilities.

Q What kind of facilities?

A Oil and gas.

Q Oil and gas. Okay. And the El Paso Corporation oil and gas facilities are in Texas?

A Yes. They have more than that, but yes.

Q Okay. And the facilities that you worked on were in Texas?

A Colorado.

Q Colorado. You've got to ask that follow-up question. But you can volunteer those sorts of things, if you would.

A I thought you were assuming El Paso from

the name El Paso.

Q I was. I was.

A And I don't know if they originated there or what.

Q Yes. Yes. Feel free to elaborate if you think that I'm not getting something.

A Okay.

Q So can we turn to your report --

A Um-hum.

Q -- Katrina. So this is your final report?

A Yes.

Q Okay. When did you work --

MR. GALPERN: Looking at Page 2 of Katrina's report.

Q (By Mr. Galpern) You noted that you work closely and directly with EPA's National Petroleum Refinery Enforcement Initiative.

A Yes.

Q When you say that, you don't mean to imply that you worked for EPA --

A That's correct.

Q -- to help enforce that initiative?

A That's correct.

Q You worked for a large oil refinery on-site to stay in compliance with EPA's change in

requirements?

A That's partially correct. Yes, I did that, but I was also involved in assisting the larger project team as the refineries -- or the company's consent decree was being negotiated with EPA.

Q And you helped develop that consent decree?

A In part. I was not directly involved in the negotiations.

Q Was the consent decree an outgrowth of an EPA enforcement action against Motiva?

A No, not against Motiva. It was -- well, in the sense that a consent decree was written for Motiva, I guess I should say yes, but it was the beginning of this National Petroleum Refinery Enforcement Initiative. I was working with the third refinery in the nation to undergo that process of negotiating a global Clean Air Act consent decree.

Q What were the major features of this global consent decree with EPA?

A It was the -- I think what you would call the typical marquee issues of this initiative centered on NSPS J compliance; New Source Review; PSD-related issues; flaring issues, which included sulfur plant compliance issues; benzene waste organic

NESHAPs compliance, N-E-S-H-A-P-s; and equipment leaks, LDAR compliance.

Q That's your descriptor, marquee issues?

A You will see that phrase when you look up information about this petroleum refinery initiative, and when people discuss it, they will discuss it in that terminology.

Q Why did you say you are fortunate to be involved in developing the consent decree and implementing its requirements?

A Because it was very interesting work, and it was very fulfilling to me personally because it achieved some very real pollution reductions.

Q Great. When you are able to help achieve real pollution reductions, I gather, then, from your prior statement, you feel more fulfilled in your work --

A Of course.

Q -- than otherwise? Is that your primary motivating factor for becoming an air quality specialist?

A Yes.

Q Is your master's thesis published?

A No. It's available at the University of Denver, but that's the only place I've submitted it

to.

Q That was what year?

A That was in 2002.

Q I gather at that time you anticipated that greenhouse gas emissions would be regulated fairly soon after your master's?

A Yes.

Q Are you surprised that they have not been yet?

A Not really, no.

Q Disappointed?

A Perhaps.

Q Thanks to us. To Page 3, the second paragraph, Katrina, "The Saddleback Hills Mine is expected to produce approximately 3.2 million tons per year of coal." Is that a significant amount in the context of Powder River Basin coal mines?

A I don't know.

Q Have you been to Saddleback Hills Mine?

A No, I have not personally visited.

Q So you haven't visited the site of the facility that --

A No, I have not.

Q -- you've helped secure the permit to construct? Have you been to Medicine Bow, the town?

A No, I have not.
Q Do you know where Medicine Bow is?
A I do.
Q Do you know what county it's in?
A It's in Carbon County.
Q Is Carbon County part of Powder River Basin?
A Honestly, I'm not for certain.
Q Now, the next paragraph, you note that the facility will produce, in combination, approximately 700 million British thermal units per hour of energy. Is that enough for the plant operation?
A Yes. Actually, can you clarify that question? I'm not sure I understand that.
Q Well, the energy that's going to be utilized from the fuel gas that's produced in the facility, and the LPG that is produced also in the process, it's my understanding -- and I think that this is reflected in your report -- that that energy will not be for sale?
A Correct.
Q It will be utilized in the processes of the facility itself?
A Yes.
Q And those processes are designed to

produce, among other things, gasoline for sale?

A Yes.

Q And so what I'm wanting to know is does the combination of the energy that's available from the production of the liquefied petroleum gas and also the fuel gas -- will that all be used by the facility -- will that be sufficient to meet the facility's energy needs?

A Yes, it should. According to my understanding, when they start up, they may need natural gas in order to get started up.

Q Yes.

A But on a normal basis, that should be sufficient for the use.

Q So you mean for any startup or just a cold startup?

A I think it would be just a cold startup.

Q Okay. So for non-cold startups, they will not -- you don't believe they will need to use additional natural gas to -- because they will still have sufficient LPG around and fuel gas around to meet their power needs?

A Yes. That's my thought, my understanding. I have not discussed that specific question with anybody from Medicine Bow.

MR. GALPERN: Okay. I said we would take a break every hour. We're on the hour, so let's go off the record and take a -- what length of break is customary here in Fort Collins, Colorado?

MS. VEHR: I would say if you want to stroll, it would be longer. I don't know.

(Recess from 10:11 a.m. to 10:30 a.m.)

Q (By Mr. Galpern) So, Katrina, you note in your report that in your experience, cold-start emissions are not included in the facility's PTE calculation?

A Yes.

Q And you previously testified that you have actually worked for some facilities that received -- well, actually, I'm not sure you did. Which facilities, in your experience, received PSD permits in part because cold-start emissions were not included in their PTE?

A I'm sorry. Say that question again.

Q You testified -- or you reported that in your experience, cold-start emissions are not included in the facility's PTE.

A Um-hum, yes.

Q And so if they are not included, as in this facility, they may not be a major source, for

example, for SO2?

A Correct.

Q So which facilities, in your experience, have received air permits when their cold-start emissions were not included in their PTE -- or the PTE calculation for them?

A Both the refineries that I have personally worked at.

Q Is that the El Paso refinery?

A No. No.

Q Oh, I guess I didn't get those names. Which refineries?

A That is in my resume, or CV. Motiva Enterprises, their refinery south of Baton Rouge, Louisiana, and Flint Hills Refining Company. At the time I worked for them, they were called Koch, spelled K-o-c-h, Koch Refining Company, south of Minneapolis. Those two facilities are the first examples that I think of when you ask that question. They have PSD -- or have had PSD permits and do not have cold-start emissions included.

Q Did you work on those PSD permits?

A To procure them, no, not for the original construction. Subsequent modifications I worked on projects for.

Q So you worked on securing -- probably shouldn't call it procuring -- securing the PSD permits for expansions of facilities?

A Expansions or modifications.

Q Modifications that resulted in additional emissions?

A Yes.

Q You put the term "cold" in quotes on Page 5, Paragraph 3, Line 1.

A Um-hum, yes.

Q Is this because when the facilities are brought back online subsequent to outages or turnarounds, they are -- they are brought up to operating temperatures first, and so, in fact, when they are starting up, they are not cold? Is that why you put it in quotes?

A Mostly I put it in quotes because I probably don't understand when to use quotations and when not to. But I did do that for a reason, and that's mostly the reason. You say -- we say "cold," and we don't mean cold as in to the touch.

Q Right.

A We mean cold as in the equipment is at ambient conditions, whatever that might be. It's not necessarily at operating conditions.

Q And in fact, after an outage or a turnaround for a facility with this type of design, you would be bringing them up -- the equipment up to operating temperatures which exceeds ambient temperatures?

A Correct.

Q What's a turnaround?

A A turnaround is a term that's used across industry. It's similar to the term "outage." A turnaround is a major maintenance activity, primarily. It's a time when the entire facility, or a portion of a facility, is shut down and the equipment is brought to ambient conditions so that inspection work can occur, maintenance work can occur, any sort of other special maintenance or inspection needs can be performed at that time.

Q So when you use the two terms "outages" and "turnaround," you mean something different by that, although they are similar. Are you saying an outage is less predictable, whereas a turnaround is an event pursuant to a planned schedule?

A No. I present those two different terms because I have found that people in different industries use different terms, or sometimes people -- you know, for example, lawyers -- might use

different terms. I find them to be equivalent, and I find that the electric utility industry, for example, will use the word "outage," whereas refining petroleum industries might use the word "turnaround." So it's just an observation I've made in the course of my career, that these two terms are interchangeable.

Q The plant's energy needs will be met in part with LPG generated at the facility or fuel gas generated at the facility?

A Correct.

Q And those will feed generators to produce the electricity necessary for the facility's operations?

A Yes.

Q Those fuels go to the -- get transmitted to the generators through lines?

A Yes.

Q If there were an earthquake and a line were -- let's say both lines were severed, the facility would need to shut down at least temporarily --

A Yes.

Q -- correct? Would you call that a turnaround?

A I would not.

MR. COPPEDE: Go ahead. I didn't mean to interrupt.

Q (By Mr. Galpern) Would you call that an outage?

A No.

Q What would you call that?

A I would call that a malfunction.

Q Malfunction. Okay. So you are using outage -- shutdown of the plant pursuant to that kind of breakdown would not be an outage; it would be a loss of power pursuant to a malfunction?

A Yes.

Q I want to understand your use of the term "normal" with respect to your opinions on potential to emit.

A Okay.

Q And I'll try to do this by giving you a mundane example, the maintenance schedule of the type of car that I drive.

A Okay.

Q Since I'm a public interest lawyer, I drive a fairly older car and try to run my cars as far as they can go before replacing them, and so I try to stick with what the dealer says is a -- or not

the dealer, but my mechanic says is a normal schedule of maintenance. Every week, every two weeks, you're supposed to check tire pressure. Would you regard that as part of a normal schedule of maintenance?

A Yes, I would.

Q Every two weeks?

MR. COPPEDE: Objection, vague, lacks foundation.

Q (By Mr. Galpern) You can continue to answer as long as you understand it. Every four months or 5,000 miles, change the oil. Normal?

A Yes.

Q Okay. Every six months or every 7,500 miles --

MR. COPPEDE: Same objection.

Q (By Mr. Galpern) -- rotate the tires. Part of the normal schedule of maintenance?

A Yes.

Q Every 12 months or every 15,000 miles, replace the air-conditioning filter. Normal part of my maintenance?

A Yes, for filter replacement.

Q Filter replacement. Every 24 months, two years, or 30,000 miles, replace the engine coolant. Part of normal maintenance?

A Yes.

Q And then every 48 months or 60,000 miles, replace the timing belt. They say, actually, replace the timing belt and the water pump at the same time, but every 48 months or 60,000 miles, replace the timing belt. Part of normal maintenance?

A Yes.

Q Okay. On Page 5, could you read the first sentence after the heading PTE Calculation.

A "A facility's potential to emit (PTE) emission rate is calculated for each pollutant on the basis of equipment design capacities, taking into account physical or operational limitations, and including limitations from pollution control devices or air permit restrictions provided that the air permit limitations are federally enforceable."

Q Do you still agree that that's a good working summary definition of PTE calculation?

A Yes.

MR. GALPERN: Can I provide now Exhibit 2.

(Exhibit 2 marked.)

Q (By Mr. Galpern) This is Chapter 6 of the Wyoming Department of Environmental Quality, Air Quality Division, Standards and Regulations. You are familiar with these --

A Yes.
Q -- Katrina, correct?
A Yes.
Q I've just provided excerpts so as to save on paper. The third page has the -- well, first of all, just to set the foundation, if you could go to the first page, Katrina, you will see the table of contents. I'm going to be directing you to Page 660. Do you see that that is within the section titled Prevention of Significant Deterioration?
A Yes.
Q So to Page 3.
MS. VEHR: Page 3 of the --
Q (By Mr. Galpern) Page 3 of the handout, Page 660, thank you, of the Wyoming Air Quality Division Standards and Regulations. The definition of potential to emit, could you read the first two sentences of that.
A Yes. "Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restriction on hours of operation or the type or amount of material

combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable."

Q Does Wyoming's definition -- this is Wyoming's definition of potential to emit in the relevant regulations?

A Yes.

Q Does this definition include the word "normal"?

A No, it does not.

Q Does this paragraph restrict the emissions to be considered in a proper PTE calculation to normal emissions?

A It does not speak to that.

Q Does the summary of the definition that you provided in your report on Page 5, second paragraph, first line, include -- restrict the emissions to be considered for purposes of PTE calculation to normal emissions?

A It also does not speak to that.

Q Now, your summary definition speaks to the emissions stemming from a facility on the basis of equipment design capacities, correct?

A Correct.

Q Can we go back to the Wyoming definition?

A Yes.
Q And the first sentence, do you see that "Potential to emit" -- quoting now -- "means the maximum capacity" --
A I see it says that.
Q -- "of a stationary source to emit"? Does the Wyoming definition in any way indicate that cold startup emissions should not be included in the PTE?
A I think the Wyoming definition doesn't say you should or shouldn't include them.
Q What state law supports your opinion, Katrina, that PTE calculations exclude emissions from cold startups?
A My opinion that the cold startups are excluded comes primarily from my experience, which comes from interpretation of the regulations in various states.
Q Your interpretation?
A Others' interpretations as well.
Q So no state statutes, to your understanding, supports that interpretation?
MR. COPPEDE: Objection, misstates her testimony.
Q (By Mr. Galpern) Does any state statute, to your knowledge, support that interpretation?

A To my knowledge, no. I'm not familiar with the statutes.

Q Any state regulation?

A My opinion, several states will be as silent on the issue as Wyoming is.

Q Okay. Any federal statute, to your knowledge, that you can point to support that exclusion?

A The federal definitions of PTE are very similar to these we've looked at.

Q So is that no?

A I don't know of any that restrict or that include.

Q Okay. And any -- finally, this is the whole field -- any federal regulation?

A How did that differ from the last one?

Q Oh, that was federal statute.

A Oh, okay. Same answer.

Q Okay. Katrina, could you explain for me Footnote No. 1? I really don't understand it.

MS. VEHR: What document are you referencing?

MR. GALPERN: I'm sorry. Still on Katrina's report.

MS. VEHR: Okay.

Q (By Mr. Galpern) And now at the bottom of Page 6, this is a note -- I mean, I'll just set the stage, Katrina. Katrina noted that it is her experience, ten years working in operating facilities and seven years assisting operating facilities with air quality permitting, that these, quote, cold-start emissions are not included in the facility's PTE emission rates. Then you have a footnote that I don't understand, and maybe you can read it.

A Yes. "This discussion applies to shutdown emissions related to shutdown activities for outages and turnarounds. Shutdown emissions are not discussed here as they are not the focus of this discussion for the MBFP facility."

Q So you are saying that this discussion applies to shutdown emissions, but then you say shutdown emissions are not discussed. Did you mean shutdown emissions from -- so I don't understand. Are you able to clarify?

A Yes, I can. This was intended just to be a clarifying footnote. When one speaks of startups, they often speak of startups and shutdowns.

Q Yes.

A Because you obviously have to shut down the equipment if you are going to start it back up

again.

Q Right.

A It is my experience, although I cannot say definitely for this facility, that most shutdowns really don't result in that many emissions to atmosphere or vents to flare. Sometimes they can, of course, but it's just my experience that it's usually the startup of equipment is where you generate vents to atmosphere or vents to a flare.

Q So did you mean to say in this footnote that this discussion applies to startup emissions following shutdown activities, but that shutdown emissions are not discussed here as it's not the focus of your discussion?

A No. I meant to say what I wrote here, although perhaps I didn't word it very clearly. You know, we are talking about cold-start emissions. I just felt the need to say that we could be talking about startup and shutdown emissions, or that you might find someone within the context of all these discussions mention startup/shutdown. I just simply wanted to provide that clarification that when I am writing about it, in my mind I'm thinking about startups as being the principal source of emissions.

Q Okay.

A And I have not personally given much consideration to shutdown emissions.

Q Okay.

A So I apologize if that was unclearly worded.

Q But by this, you meant to say that if there were shutdowns that occurred because of outages or turnarounds -- did I say that right? If there were a shutdown that resulted in some emissions created as a result of an outage or a turnaround, those two should not be deemed, in your opinion, normal, and then also should be excluded from the definition of -- from the calculation of PTE?

A Correct. You said from turnarounds and outages.

Q Yes. Turnarounds and outages.

A Yes. Yes.

Q All right. Going back to the source of your understanding that cold-start emissions should be excluded -- or shutdown emissions pursuant to outages and turnarounds should be excluded from a PTE calculation, you testified -- you stated recently that you could not think of a state or federal statute or a state or federal regulation that supported that interpretation. Can you think of --

do you know of any court decision that supports that interpretation?

MR. COPPEDE: I have to object, foundation, and I think it misstates her prior testimony, but you may answer to the extent you can.

A I think I said earlier that I'm not aware of statutes that prevent it or allow it.

Q (By Mr. Galpern) Right.

A I'm sorry. Repeat the question.

Q So can you think of a court decision that excludes from the emissions to be included in the PTE calculation cold-start emissions?

A I cannot think of a court example.

Q Okay. Same question as regard to any guidance document from the Wyoming Department of Environmental Quality.

A I cannot think of anything.

Q A guidance document from any state air permitting agency that you've worked with?

A No.

Q Okay. Thank you. I just wanted to exhaust the -- make sure I wasn't missing something. So staying on Page 6 of your report, does PTE also stand for permitted to emit?

A Potential to emit.

Q Just potential, not permitted to emit?
A I've never heard it used in that way.
Q Okay. So do you see the heading Unintended Consequences of Including Cold Start Emissions in PTE? Could you read -- on Page 6 of your report, could you read the first sentence following the heading.
A Yes. "A very practical and environmentally beneficial reason exists for an agency to omit cold-start emissions from a facility's PTE: If such emissions are included in the PTE, then those emissions have been permitted, and the facility is then allowed to emit up to that level as established by the PTE."
Q Do you believe that a permitting agency, such as DEQ or any other state permitting agencies that you've dealt with, is required to permit -- that is, including allow it to permit -- all emissions that formed the basis of a facility's PTE calculation?
A I think I understand your question.
Q I'm happy to rephrase if you --
A Yeah, please, that might help me.
Q Okay. Do you believe that permitting agencies, DEQ, for example, are required to permit

all emissions that form the basis of a facility's PTE calculation?

A I think they should because it's PTE; however, I don't think they are necessarily required to. I've never been asked that question before and have not had to consider it.

Q Okay. Because in this sentence that you read, you equate emissions included in the PTE calculation --

A Um-hum, yes.

Q -- with the emissions that would, in fact, be permitted --

A Yes.

Q -- under a permit.

A Yes.

Q As opposed, for example, that -- let's say a hundred tons per year of a particular pollutant could go into the PTE calculation, and that amount -- because that is the amount that the facility or the agency, if the agency is doing the PTE calculation, is maximally capable of emitting given the design of the facility, and the agency might then permit only 20 tons of that pollution per year, for whatever reason: health and welfare, ensure that that facility is not going to eat up the max increment.

And so that's the basis of my question. My question is getting to why are you -- my question is, why do you equate emissions included in a PTE calculation, which is maximum potential to emit, with what the agency is required to provide in the permit?

A I do that because it's a logical conclusion to make when somebody is asking these types of questions about cold-start emissions. I have every indication from experience, but then also from the permit that was issued, that the PTE for the facility would be listed at the full PTE that's been calculated and that no other limit has been established under the PTE. I see that in the final permit that we have now.

Q Yes.

A And so it is a logical conclusion that I draw.

Q Okay. Conclusion based on this particular -- experience with this particular permit?

A Yes, as well as other projects. Like I say, I've not been asked that question before, and I've not come across that example that I can immediately recall.

Q Are you saying that in your experience with all your projects, agencies have permitted the

amount of emissions that a facility is maximally capable of generating?

A I cannot recall.

Q Okay.

A I would have to look at it in more detail to answer.

Q Okay. But again, you are basing your equating of the term "PTE" with what actually is permitted on experience rather than reading of any statute?

A Yes, but as we've established, I think, in our previous conversation here, I think the rules can be fairly silent on this, on this topic.

MR. GALPERN: Let's go off the record for a second.

(Recess from 11:05 a.m. to 11:10 a.m.)

(Last question and answer read.)

Q (By Mr. Galpern) Page 6 and 7, you have an argument --

MR. COPPEDE: Object to the characterization.

Q (By Mr. Galpern) You have a -- well, it is an argument. They are premises; you have conclusions. That's an argument. I want to summarize your argument. And I don't actually have

to respond to objections, but John made me think again. John always makes me think.

I want to see if I'm fairly characterizing your argument here in four brief sentences. Not including cold-start emissions in the PTE calculation means they will not be permitted. If cold-start emissions are not permitted, then any such emissions, or excess emissions, are potentially subject to penalty. C, the potential for penalty constitutes an incentive to control, reduce and prevent cold-start emissions. Therefore, not including cold-start emissions in a PTE calculation is a more stringent approach to controlling cold-start emissions than including them. Is that fair?

A Yes.

Q Suppose, please -- suppose that the PTE included cold-start emissions, but a permit term by DEQ is imposed as part of the BACT requirement that bars such emissions, okay? So it's in the PTE, but it's barred -- the facility is barred from emitting them by a permit term. Do you follow the scenario?

A I do, yes.

Q Would the facility have the same incentive to control, reduce and prevent cold-start emissions that you just talked about?

A I think it depends on how that permit term is written.

Q If it is written to not permit any cold-start emissions?

A That's a difficult question. If it's written to not permit any cold-start emissions, meaning not allow any cold-start emissions --

Q Yes.

A -- then I don't understand what the point of that permit term is, because that's the situation they have right now, in my opinion.

Q If cold-start emissions for the Medicine Bow facility were included, then the facility would be deemed a major source of SO2 emissions, correct?

A Yes.

Q And so under the scenario that I just postulated, the difference would be that it would be considered a major source of SO2 emissions, and thus compelled to undergo a full BACT analysis?

MR. COPPEDE: Object to the form of the question, compound, calls for -- lacks foundation, calls for a legal conclusion.

MR. GALPERN: You can answer.

A I'm not sure what the question was. I think -- I understand you just told me -- clarified

what the difference is.

Q (By Mr. Galpern) Yes. Yes.

A And I agree with that. My response in that I didn't understand what the difference is, I'm thinking in terms of day-to-day compliance and actual operation of the facility, that if they are operating and they are facing a cold-start situation, then if they have -- whether or not they are a major source for SO2, if they are facing a cold-start emission and they are not allowed to have those emissions, and if, by having those emissions, they will be in violation or have excess emissions from their permit limit, there's no practical difference --

Q No practical.

A -- between the two.

Q So then is it fair to say that if there's no practical difference, then they would have the same incentive?

A If there's no practical difference, I think yes, they would have the same incentives.

Q Okay. On Page 7, Katrina, starting with the section headed No Change to Selected Best Available Control Technology, in the second paragraph, you assert that a BACT analysis for SO2 was, in fact, done in compliance with Wyoming Air

Quality Standards and Regulations; is that correct?

A Yes, with reference to the application analysis done by the DEQ.

Q Are you saying that your only source of information that such a BACT analysis was done is the application analysis?

A I'm saying that there is reference to the startup/shutdown emissions as well as all the other SO2 emission sources in that analysis, yes.

Q You are saying that you refer to that?

A Yes.

Q Advancing to Page 10 for a second, in the first large paragraph titled Top-Down BACT Methodology -- BACT is B-A-C-T -- you note that PSD review was not triggered for SO2 because the facility was deemed a minor source of SO2 emissions and that such a review would include a PSD BACT analysis, but that a BACT analysis was done anyhow, again, in accordance with Wyoming Air Quality Standards and Regulations. In your opinion, what is the principal difference between a Wyoming air quality BACT analysis and a federal PSD BACT analysis?

A The most immediate difference that I can think of actually relates to minor sources in that in the state of Wyoming, the BACT analysis has to be

done for all emission sources regardless of whether they are major or minor under the New Source Review program.

Q Assuming the facility is a major source, is there any difference, in your opinion, between a Wyoming BACT analysis and a federal BACT analysis?

A Assuming it's a major source, no, there's not. If you are a major source, you are going to have done a PSD review, and the BACT analysis done suffices for both the Wyoming standards as well as the federal PSD rule.

Q Is the inverse true also: When a person is following the Wyoming rules on the BACT analysis, it will satisfy the federal BACT requirement?

A The ultimate result, more than likely, yes. If you are doing one for a minor source in the application, you may not have as detailed a written discussion that you might have for something that will be reviewed by EPA, but I think, based on my experience, that the minor sources do arrive at, for the most part, the same BACT result that you would if you were major.

Q By "BACT result," you mean the control technologies and schedule for the application of those technologies?

A Control technology.
Q Control technology?
A And resulting permit limit, if there is one.
Q Okay. Page 8, middle of the first paragraph, you say that "Very few emission control options exist to control flaring emissions," and you said this in the course of saying that the BACT that was chosen under the Wyoming-required BACT analysis would be the same if a full federal BACT analysis were done.
A Yes.
Q The only control provided with the flare is the flare itself, you say, and after that, one needs to control the rate and composition of the flow to the flare.
A Yes.
Q When you said, "Very few emission control options exist," then, did you have in mind any particular emission control options other than the ones we just talked about?
A No, honestly. I think I might -- I say, "Very few emission control options exist," but perhaps I would have been more correct to say none that I know of. I do not know of any others that

exist.

Q Okay. Page 9, still the Katrina report, you note that there's no need for DEQ to justify their decision to establish non-numerical limitations and instead rely on work practices because of language in CFR 52.21, correct?

A Correct.

Q And then you cite 52.21(b)(12). Was this the full citation of that provision?

A I think it is.

Q Okay. Could you please read the first sentence.

A Of the citation?

Q Yes.

A "If the administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology."

Q You conclude from this that a work practice or operational standard -- this is at the

first sentence after the quote -- is an acceptable means to establish BACT. Does the first sentence of the quote that you read condition your opinion in any way?

A That it does not change my opinion in any way, or condition it.

Q In the application that you helped write, is there an analysis leading to a determination that that numerical emissions standard for the flares is infeasible?

A Not, not in the application.

Q Was there an analysis and determination of infeasibility in the permit analysis?

A I don't think there is a specific discussion --

Q Okay.

A -- to that point. I'm looking at the analysis now where I think it may be, and in the interest of time, I'm saying I don't think there is.

Q You mean where it would be if it were there?

A Right.

Q Is that what you meant, Katrina?

A Yeah, where it would be if it were there. I'm just flipping through a hard copy of it. It's

not marked.

Q Okay. For what it's worth, I also did not see it. Is there a -- oh, what did I call it? -- a specific determination of infeasibility following analysis in the permit itself?

A I do not think there's a discussion of infeasibility or impracticability.

MR. GALPERN: Can we mark the permit as an exhibit and pass that around.

(Exhibit 3 marked.)

Q (By Mr. Galpern) To your knowledge, Katrina -- I'm sorry. Did you answer the question with respect to the permit?

A Yes.

Q To your knowledge, Katrina, is there an infeasibility determination following an analysis on this in the record anywhere?

MR. COPPEDE: Object to the extent the record would speak for itself on that issue, but go ahead and answer to the extent you can.

A I'm not aware of one.

Q (By Mr. Galpern) Okay. What prevents numerical limits from being placed on flares?

A The ability to prove that you can comply with a numerical limit placed on a flare.

Q The facility's inability to prove compliance?

A Yes.

Q If there were a numerical limit placed on flaring, say, for SO2 emissions, would it be incumbent on the facility to affirmatively prove compliance?

MR. COPPEDE: Objection, vague, ambiguous, and calls for speculation.

A Can you restate that? I'm not understanding.

Q (By Mr. Galpern) Would the burden be on the facility to prove compliance with a numerical limit?

MR. COPPEDE: Object to the form of the question, legal conclusion. Go ahead.

A I would think so.

Q (By Mr. Galpern) You would think so. Okay. How does a facility show compliance with any numerical limit?

A With any numerical limit, it can be through either a direct measurement or through calculation.

Q And so are you then saying that this facility would not be able to show, through a

calculation, that it was in compliance with a numerical limit?

A I think it would be a challenge to do that. I think it could be possibly done. The accuracy of that calculation, I think, could be in question. Flares are very difficult to do calculations for.

Q Okay. Then the same question with respect to measurement. You said there were two ways of showing compliance, measurement and calculations. By "calculations," I assume you mean the amount, for example, of sulfur that's in the stream going to the flare?

A Yes.

Q And for measurement, I assume you mean some instrument that measures actual emissions?

A Yes.

Q So the same question with respect to measurement. Do you believe that Medicine Bow would not be able to use a measurement device to show compliance with a numerical limit imposed in the permit?

A I guess I have a multi-part answer to that.

Q Sure.

A That I'm aware of a means of measuring flare emissions, and I think they could do -- use that technology to measure flare emissions. However, to show compliance with some sort of numerical limit on the flare, it would depend on the time frame that you are looking at; in other words, how the permit limit is structured, whether it's a year or -- a year average or a one-hour average.

Q Right.

A And the ability to use the one measurement tool that I'm aware of -- there are two measurement tools. I think you can do a typical stack test, but that would be extremely difficult, and I've never seen it done, but the open-path infrared technology that has been discussed in Dr. Sahu's report is the only other method I'm aware of, and I think it would be difficult to show compliance with a limit that encompasses cold starts because of the varying conditions and the possibly rapid changes in conditions in the stream going to the flare. This is a bit of speculation on my part, but it is based on experience of how I've -- what I've seen happen at other plants with regard to flaring.

Q Did those other plants have the technique that you just described, the -- what was it, the

infrared --

A No, they did not.

Q They did not. So they did not have the kind of trouble that you are speculating about right now with respect to measurement?

A Correct.

Q Is it possible for the relevant DEQ officials, assuming they have adequate technical information, to write a permit term, keeping in mind the need to make it practically possible for the facility to comply?

MR. COPPEDE: Object to the form of the question, foundation. I think it calls for speculation.

A Is it possible -- I'm asking the question. Is it possible for DEQ to write a permit term -- say it again. I'm sorry.

Q (By Mr. Galpern) Sure, happy to. You noted that some of the difficulties would arise or not, depending on how the permit term was written, and among the factors that you enumerated, which could make the control more or less possible to comply with is the time period over which the measurement was to be taken, over a year versus a day, for example. And so my question goes to whether

the permitting agency, if it had in mind some of the potential problems that you address here today, could write a permit term that was both enforceable and avoid some of the insuperable problems that you were speculating about.

MR. COPPEDE: Is that a question? I'm sorry. It was a long one.

MR. GALPERN: It is. It's only slightly compound, but it's with a conjunction rather than a disjunction, and I think that Katrina understands it as well --

A I think I do.

MR. GALPERN: -- as or better than I do.

A I think I do. I think it remains tricky.

Q (By Mr. Galpern) I ask it because you are very -- obviously the most -- one of the most technically -- I can't say the most because my expert's pretty well versed too, but you are one of the most technically versed people I know in this area, and we are discussing the possibility of a numerical limitation. You have identified several potential difficulties --

A Um-hum.

Q -- admitting that you are speculating about those, but you are trying to contain the -- in

your discussion here, the parameters or identify the parameters that could -- that, if unaddressed, could make compliance more difficult.

A Um-hum.

Q But if addressed, I am saying -- I am asking -- could make compliance feasible. And so I'm getting to the question of granted there has been no -- we do not know anywhere in the record any particular infeasibility determination, or we've already gone over that. I'm asking the flip question. Can the permit term with numerical limits like we're talking about be feasibly crafted?

A And as you are asking the question, in my mind I'm trying to write that permit term.

Q Sure.

A I think it remains difficult to write a good permit term, and that is because the cold startups are not as predictable as one would think they would be, and this is where I have difficulty trying to think of an example of a good permit term.

Q Sure.

A You would want your startup emissions to last for a very short duration for reasons of the plant being able to start up quickly and for reasons of minimizing emissions, but you can't guarantee how

long the startup is going to last. You can't guarantee it's going to be a minute, or you can't guarantee it's going to be a hundred minutes or multiple hours. Startups are unique events, and you try to plan for them as best as possible. You try to minimize emissions as best as possible, but you still have several unknowns in there. So to write a permit term that can reasonably foresee these specific types of emissions and then allow you to have a measurement -- a means of measurement to show compliance, it's very tricky, in my mind, and it's hard to come up with an answer immediately. This -- I guess one could say it may be possible, but I hesitate strongly on that.

Q Okay.

A It's -- I just hesitate.

Q Okay. Fair enough.

A Yeah.

Q Now, let me probe a little bit more, if I can, on this question because my question previously was going to the measurement question and not so much as to the predictability issue --

A Um-hum.

Q -- or the regularity issue. On that, you have testified that there is some predictability --

your report -- some predictability, some regularity, but you can't determine with precision that there will be an outage or turnaround, shutdown, followed by a cold startup every 3.5 years.

MR. COPPEDE: I think that might misstate what she said, so I'll object.

Q (By Mr. Galpern) Tell me if I'm misstating your views in the report.

A I don't recall writing 3.5 years.

Q No, I was using that as an example. I think you said approximately every four years or something. Oh, we'll get to it. My point here is only that we were previously talking about the ability to show compliance through measurement or calculation.

A Um-hum.

Q Okay.

A Yes.

Q So have we established, then, that that could be feasible, feasibly done in a permit term?

A What's happening is that I am combining these issues in my mind.

Q No, I'm trying to separate them so we can take them one by one because they are complex, at least I find them to be complex.

A Yes.
Q So it's easier for me if we can break them down a little bit. And it was fair for you to introduce that, but you introduced this other complexity.
A Um-hum.
Q So if we've established that, then we can move on to the second issue.
A Okay. We can establish that, but my hesitation in -- I guess my hesitation or my problem in that is the usefulness of including compliance as numerical limit.
THE REPORTER: The usefulness of?
Q (By Mr. Galpern) Of including a numerical limit in a permit term that needs to be complied with; is that right?
A Well, what did I say? Is the usefulness or practicability of a numerical limit.
Q Okay. Okay. Well, then, let's stick with that for a second and see if we can come to an understanding on that. I'll get to that in a second. I want to get to another point that you made just a second ago, and that is that it -- I believe you said you agree that it's feasible but difficult. Is that a fair characterization?

A Yes, to place a numerical limit.
Q Right.
A Yes.
Q Not to place a numerical limit, that's easy. You could say there shall be a limit of 10 tons of sulfur. That's easy.
A I agree.
Q But that it's -- it may be feasible to comply with a numerical limit?
A Yes, it may be feasible to comply.
Q Okay. It may be difficult or not, depending on the limit.
A And it may be hard to prove.
Q It may be hard to prove. Now, is it your understanding that a proper BACT limitation -- that a BACT limitation must be easy to comply with or it's not a proper BACT limitation?
A No, I think that mischaracterizes.
Q No, I just want to know --
A Yeah, no, I think --
Q Because you were saying that it may be feasible to comply, but difficult.
A I think a BACT limitation should be established so that a source can reasonably be expected to comply.

Q Okay.
A Otherwise, you are setting an unattainable goal. I don't think the BACT limit, whenever one is set, should necessarily be easy either.
Q Okay.
A And this is based, of course, on the other aspects of permitting which work in conjunction with each other, the review of the emissions and the analysis of impacts --
Q Right.
A -- and the BACT analysis. So you don't -- you have other means of ensuring you are not setting a limit that's too high or too low.
Q Is BACT intended to be technology forcing?
A I believe it is, but I would like to clarify. When we say "technology forcing," control technology.
Q Yes. Some interesting issues. You mentioned timing could be a complication in establishing an effective, feasible-to-comply-with permit term,
A Yes.
Q On Page 6, you note -- at the top of your report, Katrina, on Page 6, you note that outages and turnarounds generally may fall within a given

frequency range, for example, every four to six years. That's what you meant, within a given frequency range there?

A And that is an example.

Q Um-hum. And that's an illustration that you may not be -- that it may not be feasible to write a permit term that says that you can have cold-start emissions simply once every 4.2 years?

A When I spoke of timing issues with a permit limitation, I wasn't thinking of this example of timing, every four to six years.

Q What were you thinking of?

A I'm thinking of the timing during an actual startup.

Q The duration of the actual startup?

A Exactly.

Q A longer startup would produce additional emissions?

A I'm also thinking of possible -- possible other variables, such as composition changes in the streams that are being directed to the flare during startups.

Q Chemical composition changes?

A Yes. And I don't have knowledge of the exact compositions in the streams from this facility

that would go to flare during startup, so I am speaking in terms of my experience, but when you have a startup, it's a transient period of time where, you know, conditions may change on a minute basis or an hour basis.

So even if you have a measurement tool or measurement instrument, the ability of that instrument to accurately measure over that period of time when conditions are transient, it calls a lot of questions up, and you wonder about the accuracy. And that's not to say you can't measure accurately, but you definitely need to investigate these questions.

Q When you say "conditions are transient," are you simply saying that the composition of the -- composition or rate of the flow can change?

A It can change, as it should during a startup because you are going from a -- you are going from a condition where you've been shut down to fully operating.

Q Okay. So previously you said that there would be an incentive on the facility to -- if there were no cold-start emissions included in the PTE, to either figure out how to have no emissions during cold startup, or to substantially minimize the frequency of the startup -- or the emissions so as to

limit liability penalty.

A Um-hum.

Q Couldn't a permit term well crafted provide that same incentive?

MR. COPPEDE: Object to the form of the question, vague and ambiguous.

Q (By Mr. Galpern) Do you understand the question?

A I do.

Q I figured.

A And I'm considering it. I think it could provide incentive, but the fact is that you would still have a permit term that allows those emissions.

Q Yes.

A And I do still think that the way they have this permit now -- by "they," meaning Medicine Bow -- and by the way, the permit's being given to them, they don't have that allowance for cold-start emissions, so they still have a very stringent -- more stringent set of conditions now.

Q Okay. When you say that the permit term would allow emissions, that, of course, depends on the permit term?

A Of course, yes.

Q The permit term could allow no emissions?

A True.
Q Katrina, so far we've been talking about the permit term to limit -- with numerical limitations to constrain flare emissions.
A Yes.
Q It is possible, however -- in your opinion, is it possible that we could have permit terms that do that?
A Yes. We could have permit terms that limit the startup emissions. My first thought of an example of that would be a permit term that requires an emission minimization plan.
Q Yes. Or you could have, isn't it true, a permit term that applies to flare emissions during years in which there are cold-start emissions?
A You can have a permit term, or terms, that apply for those events when they happen, cold-start events.
Q And you could also have -- I don't want to interrupt you.
A I just go back to my same point. I think those permit terms, then, still do allow those emissions --
Q Sure.
A -- where --

Q Just like any permit term that has a numerical limitation will allow emissions up to the limit?

A Yeah.

Q And isn't it also true that you could have a separate permit term to allow or restrict flare emissions during years in which there are no cold starts?

A Yes. Yeah.

MR. GALPERN: Okay. How is everyone doing? It's 11:58.

MS. THRONE: I need to return some phone calls, if we could take a break.

MR. GALPERN: Okay. The next line of questioning might be a little complex, so why don't we -- do you want to take a break now? Is that good for everybody, take a lunch break?

THE DEPONENT: Yeah.

(The deposition recessed at 11:59 a.m., to be reconvened at 1:00 p.m.)

AFTERNOON SESSION 1:10 p.m.

EXAMINATION (Continued)

BY MR. GALPERN:

Q So we're back on the record. Katrina, to Page 11, the first full paragraph, Possible Control Options, in your report.

A Okay.

Q You cite four options that were discussed in Ranajit Sahu's report, and you assert that -- and you list them, and you assert -- the first one was, in fact, adopted as BACT for flare emissions. That's specific and enforceable work practice standards.

A Yes.

Q And the other three are minimum gasifier loads during startup, limits on startup duration, and limits on the number of startups per year. Where in the permit -- I'm sorry -- application BACT analysis are these three options analyzed?

A In the permit application, I don't think any of these are analyzed. These, to my recollection, were specifically -- these four were specifically brought up in Dr. Sahu's report.

Q Were they discussed as part of the analysis of BACT in the DEQ analysis?

A The DEQ and any reference it made to the

SSEM plan, I think, would have indirectly referenced this specific and enforceable work practice standards because I believe that is what is the SSEM.

Q I'm sorry. I meant the last three.

A I don't believe the last three are specifically called out.

Q Okay. And then finally, anywhere in the record is there reflected an analysis of any of these last three options that were identified in Ranajit's report?

A I don't think there's anything in the record, to my knowledge.

Q So here you are stating that you believe that the SSEM plan is a specific and enforceable standard?

A Yes, work practice standard.

Q Work practice standard, and that it is BACT?

A Yes.

(Exhibit 4 marked.)

MR. GALPERN: Okay. Going to the next exhibit. What exhibit would this be?

THE REPORTER: This is 4.

Q (By Mr. Galpern) And actually, I guess this is a bit redundant because I had already handed

out the permit, but this exhibit is the permit alone.

A Okay.

Q I mean the SSEM plan alone. So on Page 1, the second paragraph, can you read that? It begins with, "Specific . . ."

A Oh, okay. "Specific startup and shutdown operating procedures for all process units in the plant shall incorporate the elements of this plan to the greatest extent possible."

Q Is that a specific standard?

A Is what a specific standard?

Q The requirement to -- that the shutdown -- startup and shutdown operations shall incorporate the elements of this plan to the greatest extent possible.

A Because that sentence is written into this SSEM plan, I think yes, it is a standard for Medicine Bow.

Q Is the requirement to incorporate the elements to the greatest extent possible -- do you regard that as enforceable?

A I do.

Q Do you contemplate the possibility of an enforcement action against the facility on the ground that they failed to incorporate the elements of this

plan in their startup and shutdown operation procedures to the greatest extent possible?

A I could imagine such a situation.

Q The requirement here is phrased in the future tense, "shall incorporate." Does that mean that this plan is not the actual operating guide to control emissions from the facility?

A I believe this plan is the operating guide, but I believe as part of this guide, the very specific operating procedures for the operators to follow will incorporate the elements of this guide.

Q So you don't believe that this guide provides specific operating procedures?

A The specific operating procedures that I'm referring to are the operating procedures that operators use for startup and shutdown and for daily operation, and it's very common for -- large plants have to have specific operating procedures, so those are the procedures that I refer to.

Q Down below there's a permit term or permit -- I'm sorry, SSEM sentence under Gasifier, "One gasifier will be started at a time at a 50 percent design flow rate. Subsequent gasifiers will not be started until the downstream equipment is ready to receive the increase in syngas volume."

There's a numerical limit here, correct?

A Correct.

Q Why is the limit of 50 percent chosen?

A I cannot answer that question. The process engineer and design engineers would have to answer that question as to exactly why 50 percent was chosen.

Q Is the rationale for 50 percent -- first of all, you do agree that 50 percent is a nice, round figure?

A It is, yes.

Q Is the rationale for the selection of that figure by the -- what was it, permit engineer or --

A Process engineer, process or design engineer.

Q -- process or design engineer, within Medicine Bow?

A Correct, or a contractor of theirs within Medicine Bow.

Q So this plan was written by Medicine Bow?

A Yes, with review from the WDEQ.

Q Did the DEQ suggest the plan?

A Suggest creating the plan?

Q Yes.

A Yes.

Q DEQ suggested creating the plan but did not write the plan?

A I would say they participated in the writing of it through review. Just as with, you know, reviewing permit applications, they consider this part of the application.

Q Except that here DEQ suggested writing a SSEM plan, whereas DEQ did not suggest writing the application?

A True.

Q Why did the DEQ suggest the SSEM plan?

A Well, as we stated earlier -- I believe we stated earlier -- the startup emission discussion and the BACT discussion is not in the application itself. It was considered -- it's in the decision document but is not in the application. So that was brought up to URS and Medicine Bow as something that was missing from the application.

Q So would the justification for the selection of this particular numerical limit be -- so it would not be in the application because the application did not have an SSEM plan at first?

A Correct.

Q Is the justification for the 50 percent to be found in the permit analysis?

A I don't think the permit analysis written by the WDEQ contains detail of every line item in the SSEM plan.

Q And so it probably does not include any detail about this?

A Probably does not. I don't recall it including any of the detail.

Q Do you know if the support for this selected numerical limit is found anywhere in the record for this case?

A I don't know if it is.

Q Was the SSEM plan available for public comment?

A It was.

Q But the justification for this particular numerical limit was not available for public review?

MR. COPPEDE: Objection, foundation, misstates her testimony.

Q (By Mr. Galpern) You can answer unless you don't understand the question.

A No. No, I don't think the justification was present in the package for public comment. "Justification" meaning justification of every element of this plan.

Q Right, including this particular numerical

limit. Okay. Again, here, two lines below, there is a requirement that there be a pressure check for low pressure and normal operating pressure for the gasifier?

A I'm sorry, you said -- oh, I see. I'm sorry. I see it, yes.

Q Is there anywhere in this plan -- is the low pressure number -- the low pressure number is not designated here?

A There are no numbers specified here.

Q Are there any numbers specified anywhere in the record, to your knowledge, to indicate what is a low pressure?

A No. And I think -- not that I'm aware of, and I think it's possible that the final low pressure/normal operating pressure numbers have not been finalized yet, or there may be multiple pressures. I don't know.

Q And the same thing would be true with respect to the normal operating pressure?

A Possibly, yes.

Q As opposed to the low operating pressure?

A Yes.

Q Does this sentence provide adequate specificity to be enforceable?

A I think it does.
Q Can we turn back to your report on Page 11, Katrina. Do you see the first full paragraph, the paragraph headed possible control options? Again, we're talking about still the startup/shutdown flaring emissions. You cite -- let me see here. You reject the idea of the imposition of limitations on the duration and number of startups, in part, because -- because you say they are not desirable due to "potential economic impositions that could result." Do you see that?
A Yes.
Q Do you recall the definition of BACT that we went over a little while ago?
A I'm not sure we went over it a little while ago, but I recall the --
Q I mean earlier today, the definition of BACT in the Wyoming --
A Oh, yes, yes, yes.
Q You can get it out again if you wish to refer to it. Does the definition anywhere provide that because control options may be costly, they cannot be BACT?
A I think in the fifth line of the definition, which states that "on a case-by-case

basis, taking into account energy, environmental and economic impacts and other costs" -- I think that phrase is the phrase that allows one to take costs into account when determining BACT.

Q Yes. It allows one to take costs into account, but does it say that because a control option may be costly that it cannot be BACT?

A I think in effect it does because part of the economic impacts would be the cost of that control option.

Q If the cost of the control were significantly less than the value of the product that's being created and still was a large number, isn't it probable that you could have a significant cost and it still could be BACT?

A The numbers would have to work out such that your cost per ton is determined reasonable for BACT, yes.

Q Okay. Does the definition say "reasonable" or "achievable"?

A It says "achievable." My use of the word "reasonable," though, I intend to mean the same thing. One would calculate a dollar-per-ton-removed figure, and that if you determine that to be unreasonable, then you are determining that to not be

achievable.

Q And in the next sentence, isn't the term -- the operative term "infeasible"?

A I'm sorry. Where do you see "infeasible"? Oh, several lines down, right?

Q Yes.

A It says "infeasible," yes.

Q So that the imposition that is of concern that would nullify the requirement for a numerical limitation is one that imposes an infeasible burden?

A That's what this says, infeasible burden. Well, it doesn't say burden.

Q So where --

A No, no.

Q So where, if anywhere in the record, has the DEQ, that is to say, as the administrator, rendered a specific determination that the control suggested by Dr. Sahu, Controls 2 through 4 which you criticize in this paragraph, are infeasible on technical or economic grounds?

A I don't think the administrator has done that anywhere, primarily because those four were brought up in Dr. Sahu's report and in my criticism of his report.

Q I see. Does the administrator reject

other limits -- potential limits on flares on the ground that they are either technologically or economically infeasible?

MR. COPPEDE: Objection, foundation.

A I don't think so, but I speak for the WDEQ on that.

Q (By Mr. Galpern) Katrina, could we turn to Page 13. Here we're going to get into the issue of fugitive VOC emission calculations, one of my favorite subjects. Actually, let's turn to Page 14. Could you read the first two sentences of the last paragraph.

A "Typically permitting agencies do not specify permit conditions regarding the component counts or stream compositions due to their understanding that the emission rate calculations have been based on conservative assumptions. Rather, the permitting agencies typically note the allowable (permitted) VOC and HAP emission rates in the permit and entrust the permittee with the responsibility to comply with the agreed-upon emission limits."

Q So when you say typically do this, you are speaking in your personal experience?

A Correct.

Q You are not basing this on any studies of

what large stationary sources typically do?

A I am -- yes, I am basing this on my personal experience.

Q But your personal experience is with a number of different permitting agencies?

A Several, yes.

Q The Wyoming DEQ, the Colorado clean air agency?

A Yes.

Q The Texas clean air agency?

A Yes.

Q The Louisiana clean air agency?

A Yes.

Q The Michigan --

A Also, Minnesota, Arkansas, Iowa, Illinois.

Q And you find that in your experience, these agencies typically simply entrust the permittee with the responsibility to comply with agreed-upon emissions and don't specify the details of component counts or chemical compositions of the streams?

A Correct.

Q Why, then, do the permitting agencies bother to do the permits? Is it simply a formal exercise?

A Well, no. I think they establish the

emission limits, and the permittee shows compliance with the limits, and if --

Q Well -- I'm sorry.

A And then if they do not comply with those limits, there's enforcement action that's taken.

Q So they don't entirely trust the permittee with self-compliance monitoring?

MR. COPPEDE: Objection, misstates her testimony.

Q (By Mr. Galpern) Did I misstate your testimony?

A I used the word "entrust," perhaps, incorrectly, but they do establish the emission limits, and the permittee does have to comply with the emission limits.

Q And if the permittee does not --

A If they do not comply, then there will be enforcement action -- there should be enforcement action.

Q Okay. So is it true, then, that I am correctly stating your testimony, although amending your report?

A You are correctly reading my report, and it's possible that my use of the word "entrust" was not correct.

Q We're still on the subject of potential to emit, which the definition reflects has to do with the maximum capacity of the facility to emit whatever pollutant of concern one is directing their attention toward. Medicine Bow has relied on SOCMI average emission limitation factors --

A Yes.

Q -- in several different places. How can an average emission factor be used to estimate the maximum potential of a facility to emit? It doesn't intuitively make sense --

A Right.

Q -- does it?

A The average emission factors, I think, can, in the -- well, the average emission factors can estimate a maximum emission rate for a facility provided that you've used some conservatism in your component counts, and given the fact that once the facility starts up and once all the equipment is operating, not every valve, not every pump, not every flange, so forth, will emit at the same emission rate. You will have some valves that emit higher and some valves that emit lower, for example. Some that leak, some that don't. So I think in reality what happens is an averaging effect when it comes to the

emissions rate from equipment leaks across the facility.

Q But isn't it true that, for example, the SOCMI average emissions factors often underestimate the actual emissions from a particular facility which has still continued to use the SOCMI emission factors in their calculation of potential to emit?

A I've not seen a study personally that makes that assessment for the SOCMI factors.

Q Okay. Where in the Medicine Bow application are emission factors for facility components -- here, of course, we're talking about components that could be the source of fugitive emissions, VOC emissions, including HAP emissions. Where in the application are other emission factors for facility components examined and rejected in favor of the use of SOCMI factors?

A It's not presented in that manner in the application.

Q Okay. Is there a place in the permit analysis where that is done?

A Not to my knowledge, but I don't think I have looked at the permit analysis with that question in mind.

Q Okay.

A So I am not certain about my -- about that.
Q Okay. So you don't know?
A I don't know.
Q Do you know if it's in the decision document?
A I don't know.
Q Is it in the permit?
A Well, in the permit, it is clearly stated that this is a SOCMI facility because the SOCMI regulations apply to the facility.
Q Which regulations?
A That would be 40 CFR 60 Subpart VVa.
Q New Source Performance Standards?
A Yes.
Q But here we're talking about potential to emit and the use of SOCMI averages for the purposes of constructing the proper PTE calculation?
A True.
Q Different from the standard that's the guide, the New Source Performance Standard?
A Well, I disagree just in the aspect that if it's a SOCMI facility when talking about one regulation, it's still going to be a SOCMI facility when discussing another aspect of the regulations.

Q Isn't there a difference between the performance standard that is established and the potential to emit that one needs to undertake in order to see if it's a major or minor source?

A I agree, there's a difference there, but what I'm saying is that the facility has been deemed to be a facility that falls within the Synthetic Organic Manufacturing Chemical Industry (sic), the SOCMI.

Q Yes. But the potential-to-emit regulation does not require one to use SOCMI averages?

A It does not, but it is a logical conclusion that when you have SOCMI emission factors, you would use them for a SOCMI facility.

Q For all purposes?

A Yes, I think so.

Q Back to the application, where in the application does Medicine Bow Fuel & Power establish that the SOCMI emission factors are applicable to the PTE calculation for this particular facility?

A I don't -- I think the only thing in the application is just use of the SOCMI factors.

Q Just use, okay, but no independent applicability determination?

A In the application, no, I don't think

there is a discussion of SOCMI.

Q Okay. In the permit analysis?

A In the permit analysis, to the extent that the facilities described is a SOCMI facility, I think that's justification.

Q But other than the categorization of this type of facility as a SOCMI -- as within the SOCMI category, is there any independent assessment in the permit analysis that the components at issue that potentially emit fugitive VOCs or HAPs, that the PTE calculation for them is appropriately to be determined with the use of the SOCMI emission factors?

A I don't know without looking at my decision document further.

Q Okay. And the same thing with the permit itself?

A Same thing with the permit.

Q No independent assessment of the appropriateness of the use of the SOCMI emission factors?

A Correct, no independent assessment.

Q Okay.

A But I do think the permit clearly states it to be a SOCMI facility.

Q Yes, I understand that. Katrina, can we turn to Pages -- the bottom of Page 14 and the top of 15 of your report. Mostly the very top of 15. The sentence begins on 14. If the final component count results in VOC or HAP PTE emission rates that are larger than those presented in the application and decision document, then Medicine Bow will be required to obtain a revised permit application and possibly conduct a MACT, M-A-C-T, analysis prior to startup. Therefore, the final component count requirement in the permit provides a strong incentive to Medicine Bow to carefully evaluate piping components during ongoing engineering design activities in order to stay at or below the estimated VOC and HAP PTE emission rates.

What you are getting at there is a strong incentive to stay below the rates that would, if crossed, lead to designation as a major source of VOC or HAP emissions?

A Yes.

Q And thus triggering the requirement for an analysis as to what is the maximum achievable control technology for the facility?

A Yes.

Q Now, why is the possibility of needing to

conduct a MACT analysis such an incentive for Medicine Bow to carefully evaluate piping components and so on? What is the fear?

A My --

MR. COPPEDE: Objection, foundation.

A My -- may I answer?

MR. COPPEDE: Yeah, you can answer.

A I think when we say "conduct a MACT analysis," I'll take the blame for not -- for writing a poor phrase there. Conduct a MACT analysis, really I think the MACT regulations for this source category already exist, so it would be -- the facility would become applicable to the appropriate subparts in 40 CFR Part 63, as opposed to conducting a MACT analysis.

Q Wait a second. Let's go a little slower there, if we can.

A Okay.

Q I asked because I think it was phrased properly in your report. While the regulations exist, if the PTE calculation, properly done, showed that the facility was a major source of VOC or HAP emissions, then all that would happen is that the MACT regulations would apply, and there would be the requirement on the part of the facility to conduct an

analysis to discern -- correct me if I'm wrong -- what control technology would -- must be selected so that the maximum achievable emissions reductions would be realized?

A I think in the case of these equipment leaks, that is not quite correct, simply because the regulations for the source category already exist, and the full analysis is conducted when the regulations do not already exist and have gone past their date for the regulations to be promulgated. But in this case, the regulations exist, so you would apply the regulations and the control technologies that are present in those regulations.

Q So you mean you would apply the regulations by selecting from the particular control technologies that are already designated for this kind of facility in the regulations?

A Correct.

Q So not much analysis needs to occur?

A No, not much analysis for these equipment leaks would need to occur. That's why I say my wording might be poor there when I say "conduct a MACT analysis."

Q I see. So Medicine Bow's concern, since the analysis is already done in the regulations that

would be applicable if these were a major source under MACT, the -- Medicine Bow's concern would not be with respect to potential cost of the analysis since, as you say, the analysis has already been done?

A Right.

Q So why does this provide a strong incentive to them, to Medicine Bow, to be very careful in evaluating piping components so that they don't trigger MACT?

A I personally think that it provides a strong incentive because the permit's already been issued, and if I were Medicine Bow, I would not want to reopen my permit. I think it also provides a strong incentive because it forces them to, as I state here, carefully evaluate the piping components and essentially prevent those emissions from being generated in the first place through careful design, and I personally think that's always a good thing.

Q I agree with you that it's a good thing, but what I am trying to figure out is it seems a little circular, what you are saying, Katrina. It seems like you are saying that it provides a strong incentive to carefully evaluate the piping components because carefully evaluating the piping components is

a good thing. Other than needing to reopen -- here, once again, you said that the concern was that they would have to possibly conduct a MACT analysis prior to startup. It sounds like you are amending that to say might have to conduct a MACT analysis subsequent to startup?

A I don't think they would be allowed to start up if they had to conduct a MACT analysis.

Q So they would not be allowed to start up, so is the concern that the startup would be delayed?

A I think that's a fair statement. What I had said just a second ago where -- you know, if I were them, I would be concerned for delaying the permit, then yes, I think that relates --

Q Delaying the permit. Okay.

A Yeah.

Q All right. In your opinion, does the control technology actually selected in the application and the permit meet MACT?

A Yes.

Q So if it already meets MACT, then it need not delay startup too long?

MR. COPPEDE: Objection, speculation.

A I don't know how long that would take at DEQ.

Q (By Mr. Galpern) Okay. Fair objection. Now, moving down a little bit, Katrina, in your section Fugitive Equipment Leak VOC and HAP Emission Factors, could you read the first sentence of your second bullet point in that section.

A Yes. "The only document on EPA's Emission Inventory Improvement Program (EIIP) website addressing equipment leak emissions was issued in November 1996 and notes in its Chapter 4 (Preferred Method for Estimating Emissions) that the EPA correlation equation approach is the preferred method when actual screening values are available for new sources, when no actual screening values are available, average emission factors can be used temporarily to determine fugitive emissions from equipment leaks until specific and/or better data are available. Following this example, calculations and data tables all reference back to data and average emission factors provided in the 1995 protocol document."

Q Okay. Katrina, did Medicine Bow, in its application, use EPA's preferred correlation equation approach?

A No.

Q Did DEQ utilize that in either its permit

analysis or its decision document, notwithstanding the compound nature of the sentence?

MR. COPPEDE: Objection, compound, foundation.

MR. GALPERN: Thank you.

A No. I believe the correlation equation approach requires actual screening values which are not available.

Q (By Mr. Galpern) What is a screening value?

A A screening value is an actual field test result on the equipment in place at the facility.

Q Do vendors test their components?

A I don't know. They probably test their model lines when they come out.

Q And wouldn't those be screening values?

A Not in the term -- not in the sense that I'm using it or that I think it's intended to be used with this guidance that I've cited.

Q Do you have any source for that interpretation of the term "screening value" that you could point me to?

A No. That's my opinion.

Q Okay. Now, did Medicine Bow, in its application, obtain or attempt to obtain more

specific or better data?

A No. I don't think it's very possible to do that.

Q Did they attempt -- did Medicine Bow attempt to obtain vendor data?

A No. Again, I think that would be very difficult to obtain.

Q And did Medicine Bow attempt to obtain specific or better data from other facilities using the same components?

MR. COPPEDE: Objection, foundation.

Q (By Mr. Galpern) Do you understand the question?

A I do. I'm thinking. No, they did not, but again, I think that would be very difficult.

Q Let's establish the foundation for John's purposes. Do other facilities -- are the components at issue here with respect to estimating fugitive VOC or HAP leaks, are those components unique to the Medicine Bow Fuel & Power facility?

A In some regard.

Q Are many of them used in -- for example, lines or valves or pumps -- used in other industrial facilities?

A Yes.

Q May those other facilities utilize them under similar conditions of pressure and composition?
A It's possible.
Q Did Medicine Bow attempt to discern which facilities were using those facilities and, from them, obtain specific or better data?
MR. COPPEDE: Objection, foundation.
MR. GALPERN: You can answer that.
A No, but I think given the nature of this facility, that would be extremely difficult.
Q (By Mr. Galpern) Okay. Same sets of questions with respect to DEQ and its permit analysis. Did DEQ, in its permit analysis, show that it had, in fact, obtained or attempted to obtain specific or better data from the vendors?
A I do not think there's a discussion of that.
Q Or from other facilities?
A I do not think there's a discussion.
Q Do you know if specific data on at least some of the Medicine Bow components is available?
A What do you mean?
Q Specific data as to their emission values that could be plugged into a correlation equation approach.

A I don't think such data exists that could be put into a correlation equation.

Q Okay. But have you made that assessment yourself?

A Yes. Yes. On the basis of the facility's not constructed yet.

Q But it has been designed?

A It is in design.

Q It is still in design?

A Yes.

Q And for at least some of the components at issue with respect to the potential for fugitive emission leaks, fugitive emissions of VOC or HAP, you and the applicant had information as to the types of components that would be required?

A Right.

Q Pumps, lines, valves?

A Right.

Q Okay. I would like to turn to the Page 19. This is the issue as to Fugitive VOC Emission BACT Determination. You note that Medicine Bow conducted Steps 1 and 2 of the top-down BACT analysis for fugitive VOCs?

A Yes.

Q Where in the record is this documented?

A To be documented in the permit application. I don't know if the exact -- without looking right now, I don't know if the exact language that I've used here is used in the application, though.

Q But I gather from your answer that Step 2 -- that Step 1 and Step 2 would have been done. In the permit application, they would have identified all available control technologies, and then eliminated all of those -- assessed them for technical feasibility, and then eliminated all of those that they deemed to be technically infeasible?

A Yes. Yes.

Q Is a leakless valve in pump technology new?

A No. Well, I'm sorry, what do you mean by "new"?

Q Within the last ten years.

A Ten years. I don't know. I don't know an exact date when that technology first began to come out.

Q Would you say it's at least four years old?

A Yes.

Q Where in the record is there documentation

of Medicine Bow's consideration as part of its BACT analysis of leakless valve and pump technology?

A In the record, I think the only documentation one would find is beginning with this matter we're discussing. I don't think there's anything in the application that speaks to that.

Q What do you mean, beginning with this matter we're discussing?

A Beginning with Dr. Sahu's report, actually.

Q Oh, okay, so nothing in the application?

A Right. But, yeah, there's nothing discussing leakless valve technology, although that begs the question of leakless valve technology applied to what part of the plant?

Q Yes, I agree. Is there analysis of the option of the use of leakless valve and pump technology anywhere in the record with respect to any part of the plant?

A Not that I'm aware.

Q Okay. I didn't think so, but I just wanted to check. Katrina, can a prospective permittee --

MR. GALPERN: The screen's gone blank.

(Discussion off the record.)

Q (By Mr. Galpern) Can a permittee who's obliged to conduct a BACT analysis -- can they avoid consideration of potential control alternatives simply because considering those alternatives would prove difficult?

MR. COPPEDE: Object to the form of the question, speculation, calls for a legal conclusion.

A No, I don't think so.

Q (By Mr. Galpern) Must the BACT analysis of a pollutant be straightforward to be required?

A I'm sorry, repeat that. Was the BACT analysis . . .

Q Must. Must the BACT analysis be straightforward or simple --

A Oh.

Q -- to -- of a particular pollutant to be required?

A The BACT analysis is required on the basis of being PSD, so, I mean --

Q But if it's difficult to do for a particular pollutant, is one relieved of the obligation?

A No.

Q Okay. You say on Page 20 that "Utilizing leakless valves and pumps would present several

challenging questions in a BACT analysis, to the extent that it would likely be discounted as a potential control option." What did you mean by that last appositive?

MS. VEHR: I don't know that word, "appositive." I don't know that.

MR. GALPERN: Appositive, by the last clause.

A The statement "to the extent that it would likely be discounted"?

Q (By Mr. Galpern) Yes.

A That is my attempt -- and I tried to go further into that in the following statements. That's my attempt to say that various issues or questions would come up when one considers implementing leakless valve and pump design as BACT such that it would be considered technically infeasible.

Q Okay. So you say that "It seems highly unlikely that a leakless valve make or model would be available for all valve and pump types located at the facility"?

A Yes.

Q And it seems -- can a facility be required to adopt leakless valve and pump types as BACT even

if it's true that they are not leakless, such components, for all of them?

A That is difficult to answer because when one considers the possibility of a control option for leakless valve and pump design, as I said earlier, it begs the question of what components you would look at. Would you look at a portion of the facility? If so, what? Or would you look at the entire facility? My thought here is that in order for it to be a viable technology, you would look at the entire facility because otherwise, to me, in my opinion, implementing a few or installing a few leakless valves and pumps falls into a program of leak detection and repair, which has already been looked at for BACT. In other words, I have a difficult time saying that leakless valve and pump design is a control option under BACT. I think it would be considered part of the LDAR program.

Q LDAR is leak detection and repair?

A Yes.

Q A leakless valve is not supposed to leak?

A But it will leak.

Q Nevertheless?

A Yes.

Q Just less?

A Just less.
Q Will it leak less?
A Well, by the name, it sounds as if it will.
Q Down lower where you are quoting EPA's recently promulgated rule for standards of performance in the Synthetic Organic Manufacturing Industry, does EPA consider that leakless equipment is likely to leak less?
A They do.
Q And you don't -- you do not disagree?
A I do not disagree. I'm certain they've done more research on this issue than I have.
Q Okay. You say in the same paragraph we were quoting previously, the one beginning, "One alternative," in the second sentence, that if you were going to utilize -- if you are going to consider as a potential BACT option leakless valves and pumps that it seems that a majority would need to be leakless. Previously you were talking about all valve and pump types, and now you are saying a "majority" -- or here you are saying a "majority."
A Yes.
Q Majority is more than 50 percent, correct?
A Yes, technically, it is.

Q I don't mean to hold you to a technical meaning of your terms, but I'm trying to understand where you are coming from and trying to gain the benefit of your expertise. And to a layperson like myself, if you could replace 40 percent of valves and pumps with leakless versions, that while they may not be entirely leakless, leak less and would be better in terms of control technology than not doing it at all, and thus a fit subject for BACT analysis?

A It's a question, right?

Q Do you agree?

A I am not sure I agree with that. Now, I do use the word "majority" in this report. I do say "all" when I'm talking to you today. And then you introduced the thought of 40 percent of all components at the plant.

Q Right. But you introduced the thought of majority at all.

A Right. Right. I think that discussion highlights or just exemplifies the issue with considering leakless valves as a -- valves and pumps as a separate, distinct BACT option, that I think the better and more environmentally beneficial way to look at it is to keep leakless valves and pumps within an LDAR program where you may end up replacing

40 percent of your equipment once it begins leaking over time. You may replace nothing if you find it to not be leaking over time. I just think that --

Q You --

MR. COPPEDE: Let her finish.

MR. GALPERN: Sure.

A Well, I just think that this discussion exemplifies the questions that come up when you try to think of the program -- of leakless valve and pumps exclusively as a BACT option.

Q (By Mr. Galpern) And who is suggesting that that would be the exclusive control option, as opposed to one in an array of options which together would be BACT?

A That is what I have interpreted from reading the reports, reading Dr. Sahu's report and also the rebuttal. That's how I've interpreted the statements.

Q Okay. As opposed to, for example, that this is one of many options that need to be evaluated from which one or several can be chosen as BACT?

A I just strongly think that this option is not necessarily an option to be considered, that it would -- that implementing or installing leakless valves and pumps would be part of a leak detection

and repair program.

Q Oh.

A I just don't see it as a separate option.

Q Is it part of the Medicine Bow leak detection and repair program?

A It's not specifically stated as part of a leak detection and repair program.

Q Okay.

A But that does not exclude it from being used.

Q It's not excluded, but it's not discussed?

A Correct.

Q Not discussed in the record that describes the LDAR program?

A Correct.

MR. GALPERN: Let's take a five-minute break.

(Recess from 2:23 p.m. to 2:33 p.m.)

Q (By Mr. Galpern) You are doing great, Katrina. Thank you for your patience.

A I do have a correction I would like to --

Q Yes, let's start with the correction.

A I think earlier, and it's been quite some time since we talked about the use of the SOCMI factors -- during the break, I've been flipping

through the application, and I want to correct what I said. In the application, I have found a justification for the use of the SOCMI emission factors.

Q This is a wonderful development. Could you point us to the page.

A 3, dash, 9.

Q Okay. Could you read it, please.

A Yes. Tell me when to stop. There's a lot here.

Q Where are you?

A I'm at the beginning -- at the very top of Page 3, dash, 9.

Q Equipment Leaks?

A Yes. "Equipment leak estimates were calculated using the average emission factor approach described in EPA's Protocol for Equipment Leak Emission Estimates," and the EPA document number is provided. "EPA-approved Synthetic Organic Chemical Manufacturing Industry factors were used for the calculations. Although use of the refinery emission factors was considered, use of the refinery factors was deemed inappropriate for the following reasons: The plant process is a chemical synthesis process rather than a refinery process. SOCMI factors are

recommended for use in all industries except refineries. Even within refineries, SOCMI factors are recommended for chemical processes such as the production of methyl tertiary butyl ether."

Q Okay. We can stop there.

MR. COPPEDE: Are you sure?

Q (By Mr. Galpern) Your recollection, then, goes to the answer -- to the -- your correction goes, then, to your -- the answer to the question I asked, were other emission factors considered, and you are correcting by saying yes, another type of emission factor was considered, and that's the refinery emission factors?

A Yes. And also, I believe I stated in answer to a question that there was no discussion of the justification for use of SOCMI factors.

Q Okay. This still, though, does not indicate whether manufacturer data, vendor data, was sought or obtained?

A Right. This is just a discussion of the industry.

Q Of refinery?

A Yeah.

Q And is the facility at issue here, Medicine Bow, a refinery?

A No, it is not.

Q What is the principal difference between the industrial liquefaction or gasification -- gasification or liquefaction plant at issue here and a refinery?

A Refineries are facilities that process crude oil that utilize catalytic cracking and reformation chemical reactions to produce hydrocarbon products. This facility does not have those types of process units in it. It does not process crude oil, it does not undergo catalytic cracking, nor does it go under catalytic reformation.

Q In fact, this facility doesn't even utilize what's commonly termed liquid coal?

A Correct, I think. Let me correct. I'm not entirely sure what liquid coal is.

Q Okay. Thank you for the correction.

MR. GALPERN: Can we go off the record for a second.

(Discussion off the record.)

Q (By Mr. Galpern) Page 20 again, in the middle of the middle -- the middle of the middle paragraph.

MR. GALPERN: Is that compound, John?

Q (By Mr. Galpern) "Numerous other problems

present themselves when considering this as a possible BACT control option." The first one, you say, is "the cost and time required to obtain an adequate cost estimate to use in BACT analysis." In your opinion, is an entity that's conducting a BACT analysis entitled to decline to consider a potential emissions control simply because gathering the data to analyze it would increase the time and expense of the BACT analysis?

A No, I do not think that that is the correct thing to say. What I meant to say with this was that I think it would be very difficult to obtain a cost estimate from the manufacturers -- in fact, I think it would be impossible to obtain a good cost estimate from the manufacturers, therefore, the cost and time would, I guess, be infinite. I just -- I don't think you could do that for leakless technology. Given the number of components and given the state of design that the facility is at, a manufacturer would not be able to provide you the data and the cost that you would need to complete the analysis.

Q And you say this not because the components at issue -- again, we're talking about components that potentially emit fugitive VOCs and

HAPs -- not because those components are unique to Medicine Bow?

A Correct. It's because those components would be of different sizes, different size pipes, possibly a different valve design or pump design, depending on the specific design application you have for that.

Q Different from what?

A Different from another type of pump design or different from another type of valve design. So you have multiple different models of valves that you might need for a service or pumps that you might need for a service.

Q Isn't that true with most major industrial facilities?

A Yes, it is.

Q But presumably for each model, which can be as specific as the type of pump and the size, the vendor will have -- may have test data?

A Um-hum. I just don't think they are in a position or that their design process is at the point where you can say exactly which model or which type of component you need at that specific spot in your pipe.

Q Medicine Bow Fuel & Power --

A For Medicine Bow Fuel & Power.
Q -- is not at the late enough design stage that you can even identify, you are saying, the components with specificity. Is that your point?
A Correct, and that is my opinion. I have not discussed this with anyone from Medicine Bow.
Q Okay. Page 21, the first single-sentence paragraph, you appear to draw a conclusion from a quote from the New Source Performance Standards rule for standards of performance for SOCMI facilities construction or modification commenced after November 2006, and that conclusion is, "Installing leakless equipment is not a potential BACT control option." Again, why do you draw that conclusion from that citation?
A I draw the conclusion not only from the citation but from my thoughts and consideration that are in that previous paragraph that we've been discussing.
Q As to the difficulty; is that correct?
A As to the technical difficulties in obtaining an estimate and how one would consider how leakless valves and pumps could be a BACT option in and of themselves. But you are right in that I do, in part, consider this citation from the NSPS to make

that determination.

Q Right. Although, New Source Performance Standards are not necessarily BACT?

A I agree. I do want to point out this is a new NSPS, the date is 2006, but to me that is still new. So these statements regarding leakless equipment and technical feasibility are new and relevant, and I think it -- they are relevant to be considered in this context of BACT.

Q What is the relevance?

A Well, NSPS is not the same as BACT, and I understand that, but the best available or best developed technology for NSPS, that determination is fairly new. In my opinion, it is new. I don't think enough time has progressed yet for NSPS to deviate significantly from BACT in this specific case.

Q Would you agree that NSPS standards are the floor for BACT analysis?

A Yes, I do.

Q So that BACT analysis cannot be -- BACT controls cannot be less effective than NSPS standard?

A I agree, however, I think it is possible for NSPS and BACT to be equivalent in certain circumstances.

Q If BACT were at the floor?

A I wouldn't say it that way, no.
Q How would you say it?
A I would say that if the NSPS and BACT both represent the best available control technology at that time.
Q Okay. On the next page, you, three-quarters of the way down, say that a letter was sent to DEQ in June 2008 noting the revised leak definitions that are -- that would be considered in the course of Medicine Bow's BACT analysis for VOCs. Are you familiar with the author of that letter?
A I think I am, yes.
Q Who is that author?
A I wrote that letter.
Q Who made the decision to lower the definitions?
A The WDEQ notified us that they felt the original leak definitions did not represent BACT, and Medicine Bow ultimately decided and proposed these lower standards.
Q The original definitions, when initially incorporated in the application that was sent to DEQ, I guess, in December of 2007 --
A Yes. Sorry. Yeah, clarify. December 2007, yes.

Q -- were quite a bit higher --
A They were.
Q -- than the ones that you-all eventually settled on in your letter to DEQ?
A Right.
Q When you originally applied and utilized those earlier leak definitions, were you yourself, Katrina, the responsible person who settled on the initial leak definitions as BACT?
A My supervisor, another team partner, and I settled on those definitions, yes.
Q You and he or you and she?
A She.
Q What is her name?
A Susan Bassett.
Q She was the team leader?
A Yes.
Q Was she your boss?
A Yes, she is, actually.
Q But you and she jointly?
A Yes.
Q Why did you believe those were BACT?
A In retrospect -- in retrospect, I think I should have known better because when the DEQ called about this, I realized they were right. You know,

NSPS VVa is a fairly new rule, and when we discussed this, we defaulted to leak definitions that are commonly used in other regulations or in other programs, and so we defaulted to standards that we were familiar with.

Q At that time you weren't familiar with the NSPS?

A Not as familiar as I am now.

Q I'm not trying to assign blame.

A No, actually, you are pointing out an error that Susan and I -- or I feel that we made.

Q Everyone makes errors, but I'm just trying to understand because this is an example of where it was fortunate that DEQ caught it.

A I think they did their job.

Q But it is an example of where one doesn't want to simply entrust, you know, the applicant to establish the standards and then to comply with the standards that they establish.

MR. COPPEDE: Objection, argumentative.

Q (By Mr. Galpern) I didn't mean to argue.

A Oh, no, I'm okay.

Q Now, so what was your role in deciding to lower the definitions?

A We made the recommendation to Medicine Bow

Fuel & Power.

Q I see. What was their response?

A They agreed to the lower standards.

Q Was there a debate?

A I don't recall one. I don't think -- I think there was discussion to understand.

Q There was an additional lowering done several months later?

A No. I'm sorry. Do you see that written somewhere?

Q Well, in the middle it says, As result of this review, Medicine Bow Fuel & Power lowered the LDAR program leak definitions. DEQ determined this to be BACT. You sent them a letter noting the revision. The calculations remained at that level until the draft permit. Then in August, DEQ contacted Medicine Bow again. Is this an additional lowering?

A It was a request to consider an additional lowering.

Q But Medicine Bow asserted that the recently agreed-upon definitions were BACT?

A Yes, and provided justification as explained on the next page, Page 22 of my report.

Q But Medicine Bow responded to the request.

Were you involved?

A Yes.

Q Did you help craft the response?

A Yes.

Q So was it your idea to justify the retention of the new lowered standard on the basis of the New Source performance rule?

A When the question came to me, or to Medicine Bow and then to me from the WDEQ, I did some additional research into it because it was a question to consider lowering the leak standards. So in my research, I did look at the recently promulgated NSPS, and, you know, what I found in here, what is quoted in my report, I felt was a strong justification and a current valid justification that could be used in this context of BACT.

Q Who is Jude Rolfes?

A Jude is an employee of Medicine Bow Fuel & Power. His exact title escapes me at the moment other than a vice president. But I'm sorry, I would have to look up his exact title. Senior vice president on the letters. I've just grabbed a random letter and looked at it.

Q Did he sign the application?

A I am not sure about that, and I don't have

a signed copy with me. It may have been someone else.

Q I seem to have seen that somewhere. In any event, was he the Medicine Bow official most responsible for the shepherding of the application, to your knowledge?

MR. COPPEDE: Objection, foundation.

THE DEPONENT: Do I answer?

MR. COPPEDE: To the extent you know.

MR. GALPERN: You can answer.

A He has worked with the application. I have worked with other Medicine Bow employees, though, primarily on the air permitting issues.

Q (By Mr. Galpern) Did you write the text of any other letters for Medicine Bow employees in responding to public comments?

A I've written a portion of others, yes.

Q Okay.

A I never submitted the final. The finals always go through Medicine Bow review.

Q Right. Okay. And the points that you made, that Jude made that came from you, were eventually accepted by DEQ, and so the leak definitions were lowered no further?

A Correct.

Q The last full sentence, Katrina, of Page 22, you conclude that the final VOC BACT determination, quote, was made on the technical merits of the discussion, which included an evaluation of cost effectiveness and the results of field studies which indicated no additional control effectiveness would be gained with more stringent controls.

My question is, was the evaluation of cost effectiveness -- we'll break it down so we don't run into violation of compound sentences, which I just did -- conducted expressly for Medicine Bow?

A It is a reference to the EPA document.

Q Rule making?

A Yes.

Q So the same thing with respect to your citation of results of field studies?

A Correct.

Q Those were not field studies that you conducted for Medicine Bow?

A Correct.

Q Those were field studies that EPA cited to in its rule making?

A Correct.

Q So there was no independent evaluation of

cost effectiveness?

A Correct. At that time, I personally felt there was not a need for that due to the recent nature of these -- of the statement from EPA. I submitted that to Medicine Bow Fuel & Power for their consideration, and then they submitted it to WDEQ for their consideration.

Q The EPA rule making cited to these purported evaluation of cost effectiveness results of field studies that had occurred sometime prior to the publication of the rule making, correct?

A Presumably.

Q So that the cost effectiveness evaluation -- so that even though the rule making was published sometime recently, say after November 7, 2006 -- I presume it was published, in fact, sometime in 2007 -- the studies to which the rule making cites in its preamble may not have been very recent?

A I can't answer to that. I did not look at the independent field studies when they occurred. I do see that it's a 2006 docket number, and --

Q What's a 2006 docket -- I'm sorry, what is a 2006 docket number?

A Well, I see that this docket number has 2006 in it, which I think would mean -- I don't know.

The docket was established, I believe, in 2006. I would have to go back and double-check that because I do not know exactly how dockets are created at EPA. But I also think that the cost numbers -- the cost effective numbers presented here, if they were calculated in 2006 and this is the year 2009, I don't think that if one were to adjust those numbers for that three-year time frame that it would be much different. I think the technology has remained the same. I think the costs may be a little higher these days, so the 5,700 and 16,000 might be a little higher, but I don't think enough time has passed for these cost effectiveness numbers to have changed appreciably such that it would have changed the opinion.

Q Yes. But again, the cost effectiveness determination cited in the preamble to the rule making which you cite, or which Jude cited at your recommendation, were with respect to a different type of facility than Medicine Bow, namely, with respect to refineries?

A Yeah, more -- well, the standard, I believe, is for chemical plants and refineries. I don't know the study -- the nature or details of the study that was conducted, the field studies.

MR. GALPERN: Okay. We can take a five-minute break.

MR. COPPEDE: Sure.

(Recess from 3:06 p.m. to 3:14 p.m.)

Q (By Mr. Galpern) Are you okay, Katrina?

A I am, yeah.

Q Do you want another cookie before we start?

A No. I appreciate you trying to get me fat.

Q No, hardly. So on Page 24 and 25 of your report, Katrina, you give a little history of the -- which reprises some points that you made earlier in the report, the revisions to the VOC -- what do you call them? -- leak estimates, and which, of course, includes -- or tightens the control efficacy, I guess, for HAP emissions as well?

A Yes.

Q Do I have that right?

A Yes.

Q And when you -- you say that when you lowered the definitions, that effectively tightened the control efficacy for Medicine Bow's LDAR program, and that then resulted in lowered calculations for total HAP emissions and for methanol emissions. And

the revision for the total HAP emissions had the effect, with respect to that particular parameter, of then putting the facility -- moving the facility from the category major source of total HAP emissions to not a major source of HAP emissions?

A That's correct.

Q And although still very, very close to the margin?

MR. COPPEDE: Objection, vague and ambiguous.

A Under the margin.

Q (By Mr. Galpern) Under the margin. And still within 4 percent of the margin?

A Yes.

Q In fact, still within 3 percent of the margin?

A Yes.

Q And these -- however, these calculations -- this is my interpretation, so please tell me if I'm wrong. The facility's not operating, so it's not even constructed?

A True.

Q So we are estimating the emissions?

A Yes.

Q Now, who derived the new total HAP

estimate at the top of Page 25?

A Well, I did the emission calculation spreadsheet. I did that calculation. However, I was not acting alone. I was acting with my team members and with Medicine Bow Fuel & Power.

Q So would you say, then, that you were responsible for the estimate equally with the other team members?

A Well, it's Medicine Bow Fuel & Power's decision as to --

Q To accept your recommended estimate?

A Right. In this case, we discussed the calculation and the variables that went into the calculation, but -- so I would say I acted equally, I guess, with them. It just so happened the spreadsheet was the one -- I was working with the spreadsheet.

Q Who is "them"?

A "Them" would be my team member, Susan, and then --

Q She's with your company?

A Yes. Susan Bassett.

Q She's your supervisor?

A Yes. And then the team members from Medicine Bow Fuel & Power.

Q Who are they?
A Bob Moss and James Knox.
Q Did you say Bob Moss?
A Yes.
Q James Knox?
A Yes.
Q K-n-o-x?
A Yes.
Q So did the team have a name?
A No. We just -- the client. No, we did not have a name.
Q But you were a team -- you were a functional team in that you worked together with Susan on the application, and with two people from -- two officials from Medicine Bow?
A Correct.
Q Did the modified emissions estimate that is identified here at the top of Page 25 constitute your best estimate of total HAP emissions?
A At the time, yes.
Q What was the standard error of that estimate?
A I did not calculate that.
Q Why did you not calculate that?
(Ms. Throne left the room.)

A That is something that's typically not done. It did not occur to me to do that.

Q (By Mr. Galpern) Okay. Was there any discussion about calculating the standard error of the estimate?

A No, not amongst our team.

Q So you did not hear of any discussion about calculating a standard error for the estimate?

A Not that I can recall.

Q So if you did not calculate the standard error, then you could not estimate the probability that your estimate would exceed the threshold of 25 tons per year?

A That is correct.

Q And it is your experience that -- have you ever been involved in rendering an estimate for purposes of determining whether hazardous air pollution emissions from a facility are likely to be a major source where the estimate was this close to the threshold, that is to say, within 3 percent or less?

A I don't know. I have done lots of emission calculations over my career.

Q Sure.

A Some of them have probably been close to a

threshold, a HAP threshold. I don't immediately recall anything, you know, that -- there's just too many calculations I have done to recall.

Q But nothing stands out?

A Nothing stands out.

Q Okay. Again, to a layperson, you know, with no real technical training, the result of the estimate seems surprisingly close to the threshold?

MR. COPPEDE: Objection, vague, ambiguous.

Q (By Mr. Galpern) Was there a discussion amongst you and your team members about how close to the threshold the best estimate that you came to at this point was?

A There was a discussion.

Q Can you tell me about the discussion?

A To the best that I can remember --

Q Yes.

A -- yes. As noted here, the modified emission calculations resulted in a facility HAP that was just below the total HAP and a methanol emission rate that was just above the methanol threshold.

Q Yes.

A So that that initiated a discussion, seeing these numbers. When one looks at the emission calculations -- and those are provided in Appendix B

of the application -- one can see how the emission calculations were done, and one can see, you know, what variables -- as with any calculation, what variables might need to be changed.

So there was a discussion of the feasibility, I guess, of lowering the numbers to below the thresholds for major HAP. There was also discussion of the wisdom of doing that, and although not a statistical discussion, a discussion of the reasonableness of doing that, the likelihood that they would be able to comply with the number that would be calculated from lowering the emission rate.

Q What was your view as to the latter point?

A My view was, and still is, that they need to be careful about that, that this has resulted, I think rightfully so, in some permit terms around the equipment leaks. It's resulted in a permit term that specifies the component count, and it is my opinion they should be careful when they go through their design. Thus, my earlier comments about they have an incentive if they want to stay within the existing threshold, and if they want to stay within the permit limitations, they need to take care and not lose sight of this throughout the entire design process. And when I say "they," I mean Medicine Bow Fuel &

Power.

Q Is 24.7 a rounded number? In other words, does the calculation go to the hundredth spot?

A It's an Excel spreadsheet, so yes, it would.

Q It would.

A I don't know what the other digits are without opening up that spreadsheet to look. But typically, you will see a ton-per-year number specified just to one decimal place like this.

Q Do you have a sense of the probability that the actual emission rate will exceed 25.0 tons per year?

A My sense is that they can stay under because I do feel we've made our best estimate at a maximum number. I feel that once they get an operating facility and they start measuring, they will find that there are many valves and pumps that do not leak and, therefore, have a very negligible emission rate. So provided that they maintain an effective LDAR program, then yes, I think they will. I think they have a shot.

Q But we are using SOCMI averages?

A Yes.

Q So that there will also be many valves and

pumps and fittings that will leak at rates higher than the SOCMI average?

MR. COPPEDE: Objection, foundation.

Q (By Mr. Galpern) Is that true?

A I wouldn't say many. I can't say at this point. I can just speak from my own observation and opinion that these pumps will be new.

Q They will all be new?

A Yes. It's a new facility.

Q But all the components will be new?

A Well, I'm assuming that, but -- yeah.

Q If your assumption were wrong in that some of the pumps were likely to be several years old, would that change your opinion?

MR. COPPEDE: Calls for speculation.

A I don't know. I'm leaning towards no.

Q (By Mr. Galpern) I say that because you just made a point that components should be new.

A No. I think the key point is the effective LDAR program. So I did not mean to make that point, I just -- because even new components could have a problem. I just think an effective LDAR program is the key here.

Q But, Katrina, is it true in a normal distribution of components where the mean and the

average will be the same, you are likely to have as many components leaking above the average as you will below the average?

MR. COPPEDE: Objection, foundation, speculation.

A I'm not well versed in my statistics. That sounds logical to me in a normal distribution. I just don't know what this plant will look like in terms of the results of its LDAR program.

Q (By Mr. Galpern) Similar to the point I was just probing. In the LDAR program, let's say, where you are expecting a pump whose leak definition has been lowered to 2,000 parts per million, if that pump is leaking at 1,500 parts per million, that would be considered a pass?

A Yes.

Q But if that pump were leaking at 2,500 parts per million, that would be considered a failure?

A Correct.

Q Corrective action would need to be taken?

A Correct.

Q The least that that pump could leak would be zero parts per million?

A Right.

Q But the most that that pump could leak could be well in excess of 6,000 parts per million, or even higher?

A Yes.

Q So that the error on either side of the definition, my definition, could be greater for the leakers than for the nonleakers?

MR. COPPEDE: Objection, speculation.

A I just don't know. I just don't know. I do know -- and I've never read in detail about the studies that have been done on LDAR programs or on these emission factors, but EPA does provide such studies --

Q (By Mr. Galpern) Yes.

A -- to review. I've just not -- I'm not in a position where I feel comfortable answering those questions because I've not reviewed those.

Q But you were responsible for developing the LDAR program?

A Not the LDAR program.

Q Not the LDAR program?

A No.

Q Okay. Were you involved in selecting it as BACT?

A I was involved in doing the emission

calculations and recommending it as BACT.

Q You recommended the LDAR program as BACT --

A Yes.

Q -- subsequent to doing the emission --

A Yes.

Q -- calculations, the PTE emission calculations?

A Yes. Yes. My colleague, Susan, and I developed the emission calculations together.

Q So these were calculations as to what would be the potential to emit of the entire facility of HAPs, assuming that the LDAR program were in effect?

A Yes, because that is a federally enforceable control that we expected would be in the permit and is in the permit.

Q So that even with the LDAR program intact, your calculations at that time, they changed mildly three months later with respect to the total HAP emissions, still had the HAP emission rate very close to the -- within 3 percentage points of the threshold for major source?

A Correct.

Q And three months later, in September 2008,

your calculation, still with the LDAR program assumed to be in place which you recommended as BACT, that the threshold would still be within 3 percent of the threshold -- for the total HAP emissions?

A Um-hum, yes.

Q And that the methanol threshold would be within 9 percent of the threshold for an individual HAP pollutant?

A The methanol emissions at 9.1 tons per year.

Q Right.

A Yes.

Q Within 10 percent of the individual HAP pollutant threshold for a major source?

A Yes, 10.

Q Okay. Previously you indicated that despite the closeness, I guess you would say, of the best estimate to the major source threshold, no standard error was calculated?

A Correct.

Q And so no probability that the threshold would be crossed was estimated --

A Correct.

Q -- for total HAP emissions?

A Correct.

Q And are the same two points true with respect to methanol emissions?

A Yes, the same two facts are true.

Q No standard error was calculated, and so no probability that the methanol emissions, in fact, would exceed the major source threshold was calculated?

A Correct.

Q You say at the bottom of Page 25 that the leak emission rates, by which I think you mean the equipment leak rates for VOC emissions, including HAP emissions, you say they are typically a conservative estimate, and this is a result of -- let's start -- let me begin again. You say, "As a result, the equipment leak emission rates, including HAP emissions, are typically a conservative estimate." My question is, as a result of what?

A The previous sentence.

Q So as a result of the engineering designs?

A What the two sentences say, and what I mean to say here, is that typically, and in my experience, air permit applications are put together and submitted, in many cases, before engineering design and final detail drawings are created. Therefore, as a means to protect oneself from an

emission limit or permit limit that you cannot comply with, a permittee will typically overestimate some portion of the calculation.

Q Some parameter that goes into the calculation?

A Yes.

Q So that the calculation would be -- tend to be larger than actual?

A Right.

Q That the best estimate should be -- should be -- should likely overstate what actual emissions will be?

A Right. So you can -- so within reason. So you can show compliance because you are calculating a number, and you must submit that calculation before you can start construction, before you have your design.

Q Given the panoply of assumptions we've talked about here that went into the PTE calculation, do you still believe that the Medicine Bow estimate was conservative?

A I do.

Q You note that HAP emissions from normal startup flaring activities are extremely low and negligible compared to other sources of HAP emissions

at the facility?

A Yes.

Q Here again, you are using the term "normal startup," by which I assume you, again, mean startup flaring activities that do not include cold startup?

A Correct.

Q Do you hold that cold starts similarly will produce either extremely low or negligible HAP emissions?

A I don't know.

Q Was that estimated by the facility?

A For cold start, no.

Q So cold-start emissions which the facility estimates will occur somewhere in the range of once every three to four years, HAP emissions for those were not included in the PTE?

A Correct, as we've discussed earlier with the cold-start emissions.

Q So that if they were to have been included and they were to have -- well, on average, even more than 1.4 tons per year of HAP emissions in them, that would have put the facility over the threshold for a major source?

A If they had high -- the emissions to cause them to go over 25, or 10 for any one compound, and

if they were calculated in the PTE, then yes. I think I just said that right. Yes.

Q Yes, you said it perfectly, I think.

A There's two ifs in there.

Q Two ifs. If both those things were true, if the facility or DEQ had done a PTE that included cold-start emissions and those emissions included at least 1.4 tons per year on average of HAP emissions, then that would have put the facility over the threshold even based on your September 2008 total facility HAP emissions?

A Yes.

MR. COPPEDE: Objection, asked and answered.

Q (By Mr. Galpern) And the same thing could be true if there were, on average, 1 ton per year of cold-start emissions, of methanol emissions?

A Yes.

Q Okay. We're now approaching the highlight of the day, the discussion of PM emissions. Do you want to proceed, or do you need a break?

A I think I'm good.

Q Okay.

MS. VEHR: Could I volunteer to take a quick break?

MR. GALPERN: Sure. Let's take a break until Nancy gets back.

(Recess from 3:44 p.m. to 3:48 p.m.)

Q (By Mr. Galpern) Katrina, I would like to turn to the subject of the consideration of PM2.5 emissions. First, going back a little ways, if I can, to lay the groundwork a little bit. You are aware that -- you are aware of the medical evidence that especially implicates inhalation of fine particulates with health problems, including cardiovascular problems?

A Yes. I think that's the first time I've heard cardiovascular, but yes.

Q You are aware of what PM2.5 stands for?

A Yes.

Q And that particulates that fall within that range are -- have an air diameter that is significantly less than the width of a human hair?

A Yes.

Q What is the largest size particle within the PM2.5 family of particles?

A I would gather 2.5.

Q 2.5 microns?

A Yes.

Q And what is the largest diameter particle

in the family of PM10 particles?

A 10 microns.

Q Okay. Did Medicine Bow conduct a direct BACT analysis for PM2.5 emissions stemming from the facility?

A What do you mean by "direct"?

Q Did they conduct an analysis of control technologies that are necessary to control or limit emissions of particles that are less than 2.5 microns in diameter?

A No, not in the application. The analysis for PM10 was completed.

Q Right. I understand that was a -- they did analysis for PM10 but not for PM2.5; is that correct?

A Right.

Q Did DEQ, in its permit analysis, conduct a direct BACT analysis for PM2.5 emissions?

A Not that I'm aware.

Q And are you aware if they conducted a direct BACT analysis in the decision document? In the decision document.

A Not that I am aware. I forget at the moment what the discussion was in the decision document regarding 2 -- PM2.5.

Q Okay. And are you aware if DEQ conducted a direct BACT analysis for PM2.5 emissions in the permit itself?

A In the permit itself? No, I don't think there is a BACT analysis for PM2.5.

Q And then finally, do you know if a BACT analysis was done by Medicine Bow or DEQ for direct control of PM2.5 emissions at all?

A No. Again, PM10 but not PM2.5.

Q Right. And PM10, again, are particles that can be as much as four times greater than the largest PM2.5 emissions?

A Yes.

Q And actually can be hundreds of times larger than the smallest PM2.5 emissions?

A Yeah.

Q Are you familiar with the phrase "to catch a mouse, use a trap smaller than for an elephant"?

A No.

Q No.

A I can figure it out, but I've not heard it before.

Q On Page 27, you offer your opinion -- this is at the end of the first paragraph, the last clause, what Nancy might term an appositive -- that

it's your opinion that the DEQ has appropriately considered PM2.5 emissions in the permit, circling back to the beginning of that sentence, given the timing of the permit as it relates to the ongoing PM2.5 regulatory development. So is it your opinion that DEQ's -- DEQ appropriately considered PM2.5 emissions only given that context of the particular timing?

MR. COPPEDE: Object, the document speaks for itself. It's not a complete statement of what's written there.

A I didn't, in writing this and even now, didn't consider WDEQ's actions in any other respect other than the timing of this permit as it relates to regulatory development.

Q (By Mr. Galpern) So, then, you do not have an opinion?

A Oh, I do have an opinion.

Q Oh.

A I do think that they appropriately considered PM2.5.

Q Period?

A Period.

Q To the next page, the middle of the top partial paragraph, you see -- you quote there EPA

final rule for PM2.5 -- I'm sorry, its final New Source Review Implementation Rule for PM2.5 -- that provides states with three years from the date of issuance, I guess May 18, 2008 -- states that have SIP-approved SPD programs will, by that time, need to submit revised PSD programs that include revised PM2.5 plans, but that during that period of three years, states are obligated to protect the PM2.5 NAAQS, N-A-A-Q-S. However, if states are unable to implement a PSD program, again citing the rule that you cite here, reading directly from your report, the state is authorized to continue to implement a PM10 program as a surrogate for PM2.5 controls.

My question is, in 2007 -- or let's say in 2008, either one -- was Wyoming unable to implement a PSD program for the direct control of PM2.5?

MR. COPPEDE: Objection, foundation.

A In 2007 or in 2008, I don't know if they were unable to. It's my understanding that they are proceeding to have the SIP modified, but I do not work in SIP issues with any state, and so I don't know.

Q (By Mr. Galpern) Okay. Are you saying that it's your understanding, then, that Wyoming does not believe it currently is unable to do this?

A I don't know.
Q Given your expertise in air pollution control, what kind of inability would a state need to have to exercise the option under this rule to not implement the PSD program for PM2.5?
MR. COPPEDE: Objection, foundation.
A I surely do not know all the reasons why a state would be unable to implement a PSD program, but I can think of one example, which may or may not be the case for Wyoming. I'm just talking generally.
Q (By Mr. Galpern) Sure.
A If the SIP cannot be approved, whether that be from a state legislature standpoint or if the SIP has to go through the legislature or if the EPA does not approve in a timely manner, and as I said, those are just examples.
Q Okay.
A I will not claim to be an expert on the SIP approval process.
Q Okay. That's fair enough. But I think you answered a different question from the one I asked.
A Okay.
Q What I'm trying to ask is clearly -- let's go back. Clearly, if the state does not have a PSD

program for PM2.5, then it will not be implementing such a program?

A Correct.

Q Clearly, if the state has a statute that says the agency cannot implement a new air pollution control program unless it has been adopted into the state SIP and approved by EPA, then DEQ, or whatever the authority is for air pollution control in a particular state, would be precluded by law from implementing a PM2.5 PSD program, but I don't -- but the question goes not to whether the state has the authority, but here, quoting from the rule, whether the SIP-approved state is unable to implement a PSD program, by which I take it to mean technically unable.

And so that's the reason why I asked you the question, given your vast expertise in the area of air quality and engineering questions and control questions, what would be the type of incapacity that Wyoming would need to have in order to get out from under this rule's requirement to implement a PSD program for PM2.5 in that three-year period.

MR. COPPEDE: Objection, foundation and asked and answered.

A I cannot think of any other possible

problems.

Q (By Mr. Galpern) Okay. Me neither. I just wanted to make sure. So at the time of -- this would be an extension of your answer, I think, but I want to make sure. At the time of the facility's -- Medicine Bow's submittal in December 2007, do you know if Wyoming was unable in this way to implement a direct PM2.5 PSD program?

A I do not know.

Q Now, we did review just a portion of your resume, and I need to ask if you are also a lawyer.

A I am not.

Q Okay. Any particular legal training --

A No.

Q -- in the area of air pollution regulation, for example, or the relevant statutes that would qualify you to make a -- to have an expert legal opinion?

A No. I don't think my course in air pollution law or environmental law in my master's program qualifies.

Q I ask because in the middle of Page 29, you -- this is seven, eight lines down. Do you see the sentence that begins, "It is also my opinion," kind of on the right-hand side of the page?

A Yes.

Q You say, "It is also my opinion that DEQ acted in accordance with EPA policy and regulation in effect at the time to use the surrogate policy for the proposed Medicine Bow Fuel & Power facility," and I'm wondering what weight the fact finder should accord that.

A It is my opinion.

MR. COPPEDE: Go ahead. Is that a question? It's calling for speculation. She's not in a position --

MR. GALPERN: I would never call for speculation.

Q (By Mr. Galpern) Now, relatedly, if it all relates -- does it?

A It does.

Q You offered an opinion as to the appropriateness of Wyoming's use of the surrogacy policy given the state of regulatory development that Wyoming found itself -- or Medicine Bow Fuel & Power found itself in 2007.

A Right.

Q And you said that it was appropriate to use the surrogate policy?

A Yes.

Q Do you believe it would have been inappropriate to undertake a direct BACT analysis for PM2.5?

A No, I don't think it would have been inappropriate.

Q Okay. Same for DEQ: Would it have been inappropriate for DEQ to have undertaken a direct BACT analysis for PM2.5 --

A No.

Q -- for the facility?

A I don't think it would have been inappropriate. I know that I would have questioned why they were doing that, but I don't think it would have been inappropriate.

Q Now, on Page 29, at the -- 69 percent of the way down, you say that by the time the DEQ issued a final PSD permit in March of this year -- are you with me there?

A Yes.

Q -- the technical issues referenced in the surrogate policy that was dated, I think, 1997, so 22 years earlier -- I'm sorry, 17 years earlier -- no, 12 years earlier. Do we have our math correct?

A I think that's correct.

Q You did indicate you took math in --

A I did.

Q But 12 years earlier, had been addressed, and EPA had promulgated the NSR Implementation Rule allowing the surrogacy policy during states' SIP -- allowing the use of the surrogate policy during states' SIP development periods. So by that time, the original justification for the surrogate policy had evaporated?

MR. COPPEDE: Objection, foundation.

A It seems to me that perhaps the original justification might have been addressed, the emission measurement estimation modeling issues, but I still see that the final NSR Implementation Rule allowed three years for development of the SIP programs for states.

Q (By Mr. Galpern) You don't cite any rule or regulation here; is that correct?

A Where?

Q With this sentence.

A There's no citation here, no.

Q What is the basis for your sentence here?

A Well, I know that the final PSD permit was issued in March of 2009. The technical issues had been addressed regarding the surrogacy policy. I do not remember which document I have seen that in,

but --

Q Is this at the top of 28?

A Well, that's where I'm looking is that I don't immediately recall which preamble I had found this in, but the statements would have been based on what I read in these cited regulations, and there are footnotes for those citations. So although this sentence does not have any citations, I think if you reference back to within the discussion before this paragraph, that is where you find the basis of my statements.

Q So could that be the Footnote 27?

A It could be, but like I said, I failed to remember exactly where some of these statements regarding the surrogacy policy have been made. I do know when the EPA promulgated the NSR rule, and I do know what it says due to the citations here. I did not bring copies of those federal registers with me here today.

Q I ask the question because here you say, in this sentence that we were just talking about -- you say that the use of the surrogacy policy is allowed during states' SIP development period, but previously where you directly cited from the regulation --

A Um-hum, yes.
Q -- it appeared that the permission to use the surrogacy policy within that three-year period was conditioned on the state being unable to implement a direct PSD program for PM2.5.
A That is not the way I interpret that. However, I do admit that I don't -- I do not know exactly what is envisioned by the phrase "unable to implement."
Q Okay. Let's move on. You cite to Trimble on the top of 30, noting that the legitimacy of the use of the surrogate policy -- it is surrogate policy, not surrogacy policy.
A Sorry.
Q No, it was my error, not yours?
A I've said it too.
Q -- is conditioned on a reasonableness determination. Do you see where you say that at the top of 30?
A I do. I do see the reference, and the fact that the administrative order provides suggested methods for the reasonableness of the policy.
Q Right. But it not only provides suggested methods, but it states that the state meaning to use the surrogate policy must establish its

reasonableness, and then provides suggested methods that that can be done --

A Yes.

Q -- is that correct?

A Yes, that's my understanding.

Q You rely, do you not, on AP-42 to say essentially that for combustion turbines, total PM emissions equals PM10 emissions equals PM2.5 emissions equals, most likely, PM1 emissions?

A For gas-fired combustion turbines.

Q Yes.

A Yes.

Q But doesn't Trimble caution against the use of simple ratios of factors such as the ones that you just --

MR. COPPEDE: Objection, foundation, calls for a legal conclusion.

Q (By Mr. Galpern) Well, you -- let's see here. On Page 32, could you read the first sentence of -- could you read the first three sentences of the second paragraph.

A Yes. Although, I would like to add a statement after I read them. "As noted in the Louisville G&E Administrative Order, a simple ratio of AP-42 emission factors or of the results of a

single compliance stack test would not appear to be sufficient. Instead, reasonable consideration would be given to whether and how the PM2.5 to PM10 ratio may vary with source operating conditions, including variations in the fuel rate and in control equipment condition and operation. This consideration may be based on engineering analysis of the facility, including the proposed control technology."

Q Thank you.

A My comment after that, I realize I have cited it here. I have since had a brief opportunity to look over the Trimble case again, and I have a question as to why they say something like this about AP-42. I have a question as to whether their conclusions regarding AP-42 were not very specific to the Trimble case and/or coal-fired boiler cases.

Q I see. But the language of Trimble is not restricted to coal-fired boilers.

A It is not. The language is not restricted, however --

Q The plant at issue was coal-fired?

A The plant at issue was coal-fired. And like I said, I've not spent a great deal of time reviewing that, but I personally think that that statement should be reviewed in the context of that

specific case.

Q Well, let's get back to your point on Page 30, if we can. Is there any technical basis in the record beyond the use of a simple ratio of AP-42 factors to support the assumption -- your assumption that all combustion PM -- all combustion PM is PM2.5, or even PM1?

A The only thing in the record would be this report and references to AP-42.

Q Your report?

A Yes.

Q This report right here?

A This report.

Q And references in the record to AP-42?

A Yeah, references actually right here in my report.

Q Okay. Okay. Good. So nothing in the application?

A Correct.

Q Nothing in the permit analysis?

A To my recollection, correct.

Q Nothing in the decision document?

A Correct.

Q Nothing in the permit analysis -- the permit?

A Correct.

Q Okay. Now, Katrina, with respect to the question of the reasonableness determination, where -- same sort of question -- where in the record has Medicine Bow Fuel & Power provided a specific analysis and come to a determination, such as is required under Trimble, that with respect to the Medicine Bow Fuel & Power facility, use of the PM10 surrogate policy was reasonable?

A I don't think Medicine Bow has anything in the record to that, to the use of the surrogate policy and the reasonableness of applying it. However, I would like to point out that Medicine Bow's permit was issued well in advance of the Trimble decision and the discussion of this reasonableness argument coming out.

Q Right. We will not debate here the legal import of that point.

A Good.

Q But it is heard. Same question for DEQ. Do you know, where in the record did DEQ conduct such a reasonableness determination?

A I do not know that it's anywhere in the record for WDEQ.

Q So you don't know if there's anything in

the permit analysis?

A I don't think there is, no.

Q And you don't think there's anything, then, in the decision document?

A Correct.

Q And you also don't think that there's anything in the permit?

A Correct. Also, I'll make the same point, those documents were created before the Trimble order came out.

Q Yes. You make an argument on the bottom of Page 32 that begins largely with the quote from the Trimble order, and you conclude what in the last sentence? Could you read that for us?

A Yes. "Therefore, in order to determine whether using the surrogate policy for fugitive emissions is reasonable, the focus should turn from emission quantification to emission control." Is that the correct sentence you wanted me to read?

Q Um-hum.

A Okay.

Q How does that conclusion follow from the prior sentences?

A I am making an acknowledgment that although -- I just told you that I personally have a

question about Trimble's statements regarding AP-42. In this report, I am acknowledging that my previous discussion had been based on AP-42, so I am turning my focus away from AP-42 and presenting another type of argument to support the use of the surrogate policy.

Q Okay. So then you could well have said, instead of "the focus should turn," "my focus should turn"?

A Yes.

Q Okay.

A You need a second career as an English teacher.

Q You don't need much help. To the question of baghouses and electrostatic precipitators, which I know lies close to John's heart.

MR. GALPERN: Right?

Q (By Mr. Galpern) You say -- see the second paragraph of Page 33?

A Yes.

Q -- that the controls that you selected as BACT for PM10 -- by you, I mean you advising Medicine Bow and Medicine Bow accepting it -- is a combination of good combustion practices. Here again, we're talking about the turbines, right, turbines?

A Correct.
Q And use of fuels that I imagine you've done a good job cleaning before they go to the turbines; is that correct?
A Correct.
Q To remove residual carbon emissions?
A Correct.
Q So that there would be virtually no soot?
A Correct.
Q That decision was made after consideration of using baghouses and electrostatic precipitators --
A Correct.
Q -- as part of the top-down BACT analysis for PM10? For PM10. Who undertook that consideration?
A Medicine Bow and URS in the permit application.
Q So there was a full top-down BACT analysis for PM10?
A Yes.
Q Did you testify previously there was no similar -- well, I guess a different question. Was there any similar consideration of top-down analysis for PM2.5?
A No, not separate, just the PM10.

Q And so there was no separate consideration for the use of baghouses and electrostatic precipitators for PM2.5 control?

A Correct. We are using the surrogate policy.

Q I know.

A I know. I just wanted to clarify.

Q So let me clarify. The reason why I ask is that one could decide to use the surrogate policy even after conducting a top-down BACT analysis for PM2.5?

A For this case.

Q For a particular case. Trimble even goes there. And so it's not intuitively obvious to me that the decision to rely on a surrogate policy -- that is, to rely on PM10 as a surrogate for PM2.5 -- that that decision can only be undertaken in the absence of actually conducting a BACT analysis for PM2.5?

A Okay.

Q So that's why I'm asking if -- that's why I'm probing to see.

A I may be thinking a bit too simplistically, then. My thought is the surrogate policy is being used, emission calculations and BACT

analysis together.

Q Um-hum. Okay. Then to the issue that obviously resides close to Nancy's heart, fugitive PM2.5. You say at the bottom that based, again, on AP -- you are back to using AP-42, you haven't abandoned the use of AP-42 emission factors. Based on that, emissions of PM2.5 are less than PM10 by average factors, and you conclude -- or you say that while the proportion could vary with respect to fugitive dust -- here I'm assuming you mean like dust created on haul roads or the conveyance of the coal on the conveyor belt and things of that nature?

A Yes. Primarily, though, I'm thinking about the road dust.

Q The road dust. So that would be not coal dust?

A Correct.

Q It would be just road dust?

A Correct.

Q But when we're talking about AP-42's techniques such as watering, the use of chemical wetting agents, aren't we talking coal dust, not road dust, or road dust that involves coal?

A Well, for road dust control, it is a common technique for -- to wet the roads and to

sometimes put down chemical agents just simply to control the road dust.

Q Okay.

A So it could be, you know, chemical wetting agents can be used in -- for both types of fugitive pollutants.

Q And that could be used either for keeping down coal dust when it's being conveyed, or road dust kicked up by trucks that are hauling the coal, or for whatever reason coming through the facility?

A Yes.

Q But if you wish to control PM2.5 where the proportion may vary depending on what it is that you are talking about and meteorological conditions that you cite and so on, isn't it true that the method of application of a work practice may be different?

A I'm not so sure. How so?

Q Well, again, I'm no chemical engineer --

A I don't think so.

Q -- but if you have -- if you are trying to control -- getting back to the mouse and the elephant issue, but here in the context of fugitive emissions of PM2.5 versus PM10, if you are trying to -- say use of wetting, water or chemical agents -- control larger particles, then you may use larger particles,

but if you wish to control smaller particles, you may use more -- finer particles of water or chemicals. Isn't that true?

A I just -- I don't see it that way due to the, I want to say, practicality, but perhaps more correctly the way that the wetting agent is administered. It won't change. Let's say we're talking about road dust and we are talking about wetting the roads so that you have fewer emissions of PM10, PM2.5, PM of any size. More than likely, you are going to use the same type of truck or the same type of sprayer to spray the water and wet the surface of what you need to be controlled. So I don't think practically it will be any different.

Q Well, for example, it's typical, is it not, on a shower head that one could make the water coming out finer or coarser?

A Yeah. I don't know, though, if you have that capability on the water trucks.

Q You do not?

A The ones I have always observed with chemical trucks appear to be spraying the same -- using the same nozzle spray. They simply drive up and down the road --

Q Right.

A -- or cover the surface that they need to spray. I'm not aware of anybody changing the dial, per se, to change how that's administered.

Q Okay. Have you ever investigated that possibility?

A No, I have not.

Q Okay.

A I've observed it at plants that I visited, plants that I've seen, but it has been just an observation.

Q Okay. Moving all the way to Page 35. Do you have Trimble with you? That's okay if you --

A I don't know.

Q Without Trimble, I will relieve you of that deficit.

A Okay.

(Exhibit 5 marked.)

Q (By Mr. Galpern) Katrina, you proceed, I think, in 34 and 35 to provide some examples -- at least one example of where the EPA has found use of the surrogate policy to be appropriate.

A Yes.

Q And looking at the end of Page 35, you cite the Spurlock Generating Station.

A Yes.

Q And you say, "This case is mentioned in the August 2009 Louisville Gas & Electric Administrative Order, as well, as an example of a situation where the surrogate policy can be used," right?

A Yes, I see that.

Q So could you please look to Footnote 38, because I am concerned that you may be --

MS. VEHR: Footnote 38 in her --

Q (By Mr. Galpern) In Trimble, on Page -- I don't know what page -- 45, because I am concerned that your expert report may well overstate the case. Could you read the footnote?

A Yes. "In 2007, EPA denied a petition requesting that EPA object to the Title V permit for Spurlock for failure to include a BACT limit for PM2.5 emissions. In regard East Kentucky Power Cooperative, Petition No. 4," dash --

Q Sure, you can --

A Thank you. "EPA found that under the circumstances presented in that matter, KDAQ's use of PM10 as a surrogate for PM2.5 was appropriate. EPA's decision in the present order reflects the circumstances presented in this LG&E matter, including a more comprehensive petition and an

evolving understanding of the technical and legal issues associated with the use of the PM10 surrogate policy."

Q So does that footnote indicate that -- to you that EPA's understanding of the technical and legal issues may have evolved since the August 2007 case involving Spurlock?

MR. COPPEDE: Objection, speculation.

A It does say, at the end of the footnote, "and an evolving understanding."

Q (By Mr. Galpern) So do you still hold your opinion on the bottom of Page 35 that the Trimble order cites Spurlock as an example of a situation -- I'm quoting now -- quote, as an example of a situation when the surrogate policy can be used?

A Well, yes, because it does cite the Spurlock case, and at that time it was found an appropriate use of the surrogate policy.

Q But your opinion in 35 is not as to an example of a situation when this surrogate policy could have been used but "can" be used, present.

MR. COPPEDE: Objection, asked and answered.

MR. GALPERN: You can continue if you wish.

A I think it does raise a question to see -- you know, to say that there is an evolving understanding, but I don't think I would have replaced the word "can" with "could" in this sentence here.

Q (By Mr. Galpern) What would you have replaced it with?

MR. COPPEDE: Objection.

A I think I like it as is.

Q (By Mr. Galpern) Okay. And then finally for me, I think, right now, on Page 36 of your report, Katrina, you are claiming that fugitive PM -- this has to do with fugitive particulate emissions and the dispersion modeling. You claim that fugitive PM emissions were modeled for dispersion, but isn't it true that for short-term emissions, they were not?

MR. GALPERN: Can I hand this out as another exhibit? This is from the permit.

(Exhibit 6 marked.)

Q (By Mr. Galpern) The caption of Table 6.1 is the operative point, I think. (Pause.) Is that correct?

A Yes. I'm sorry. I didn't realize you were waiting for me.

Q Okay. Thank you.

A May I add a clarification?
Q Sure.
A The comment is that -- that I was responding to was that fugitive emissions were not modeled. This page notes that in the short terminals, the fugitives were not modeled. The fugitives were modeled in the long-term analysis.
Q Oh, okay. That's fine. There may have been a misunderstanding, then, in interpreting Ranajit Sahu's point, because he may have been referring only to short term.
A Okay.
MR. GALPERN: Okay. I think that concludes my examination.
MR. COPPEDE: Give us a moment here to review my notes.
MR. GALPERN: Sure, absolutely.
(Recess from 4:50 p.m. to 5:03 p.m.)

EXAMINATION

BY MS. VEHR:
Q And this all relates back to particulate matter, my area. I'm going to ask you some questions. You were asked about diameter of particulate matter, and does particulate matter PM10 include particulate that would be PM2.5 and smaller?

A By definition, yes.
Q Okay. And are you aware of the term "precursors"?
A Yes, I am.
Q Are there any precursors for PM2.5?
A Yes. In the case of the turbines, I think the Knox and any SO2 generated would be considered PM2.5 precursor.
Q Are you aware of volatile organic compounds are precursors also?
A They can be, yeah.
Q Are you aware if there's any permit conditions for nitrogen oxides in the permit?
A Yes. Yes.
Q Sulfur dioxides?
A Honestly, I need to look for sulfur dioxides, so if you could just give me one minute.
Q Okay.
A For the turbines we're talking about, correct.
Q Correct.
A Yes.
Q Okay. And volatile organic compounds?
A Yes.
Q Okay. And these are all considered PM2.5

precursors?

A Yes.

Q In your report, you mentioned about EPA's PM2.5 rule promulgation process, and you cited the final NSR Implementation Rule from May of 2008. Do you recall that?

A Yes.

Q Are you aware of previous proposed rules that EPA has made for PM2.5?

A Yes.

Q Have you ever heard the term "significant increment limits"?

A Yes.

Q Also referred to as SILs?

A Yes.

Q Are you familiar with the term "significant monitoring concentrations"?

A Yes, I am.

Q That's referred to as SMCs?

A Yes.

Q And are you aware if EPA has promulgated final rules related to PM2.5 SILs?

A No. My recollection is that those have been proposed, and I don't recall exactly when, but they've not been finalized yet.

Q Same question in regards to significant monitoring concentrations.

A Same answer. As I recall, those were proposed but not finalized.

Q Okay. And I don't have a copy here to hand out, but I'm going to represent to you that I'm reading from Dr. Sahu's initial expert report, and I am on -- give me a second to scroll down -- I am reading from Page 21 of Dr. Sahu's initial expert report, and he mentions in Paragraph -- he's discussing other test methods, and he references an Other Test Method 27 for filterable PM2.5. He makes a statement, "While this is not yet a promulgated test method, it is based on Method 201A."

A Yes.

Q Do you know what a promulgated test method means?

A Yes, I do. That would be a test method that has been published in the federal register and that then would be in the appropriate CFR.

Q Would that be a test method promulgated by EPA?

A Yes.

Q So would you agree with Dr. Sahu that EPA has not yet promulgated Other Test Method 27 for

filterable PM2.5?

A That's my understanding, yes. I have not checked the federal registers in the past two days or so, but that is my understanding right now.

Q And what are other test methods used for?

A Oh, you know --

Q Would it be used for measuring PM2.5?

A Well, just as with a test method, test -- most test methods are to measure something. So I've not read this test method detail, but other test methods were filterable, that's what I concluded, that it's for measuring PM2.5.

Q Would it be an accurate statement to say that test methods are tools used for evaluating PM2.5?

A Yes, that's fair.

Q Okay. Are you familiar with what a state im -- I'm leaving Dr. Sahu's thing right now.

A Okay.

Q Are you familiar with what a state implementation plan is?

A Yes.

Q And would you just briefly describe what that is in your words.

A Yes. I know I will get the legal

discussion incorrect, but the state implementation plan is the document that -- I'm not going to get my legal right -- that provides authorization to the state. When the state has a -- is delegated authority for a program, it is written into the state implementation plan and approved by EPA which thereby, then, if I understand it right, gives the state that authority for administering that program.

Q Okay. That's fine. That's in your words, and that sums it up pretty accurately and concisely.

A Okay.

Q Are you aware of any states that have submitted PSD NSR implementation programs for PM2.5 since the EPA promulgation of the NSR rule in May 2008?

A No, I'm not.

Q Same question, but are you aware if EPA has approved any state implementation plans?

A No, I'm not.

MS. VEHR: Okay. I'm just going to scroll back. Give me one minute here. I think that's all the questions I have.

THE DEPONENT: Okay.

MS. VEHR: Thank you.

MR. COPPEDE: I may have a few here.

EXAMINATION

BY MR. COPPEDE:

Q Ms. Winborn, do you recall when you were being asked questions about whether a permit could be crafted to control cold-start emissions for sulfur dioxide?

A Yes.

Q Do you have an opinion whether, even assuming such a permit could be crafted, whether that permit would lead to fewer sulfur dioxide emissions?

A I take that to be permit limit. As we discussed earlier, a permit limit for cold-start emissions -- I'm sorry, can you repeat the end of that question, please?

Q Do you have an opinion whether that type of permit would lead to fewer SO2 cold-start emissions?

A Yes. I do think that the current permit which does not have any sort of limit for cold startup and which establishes the SSEM for BACT, I feel if that is implemented properly, if the SSEM is implemented and enforced properly, and provided that Medicine Bow stays within their permit limits as stated in the current permit, that that's the most stringent scenario and will result in fewer

emissions.

Q Okay. The way the permit's drafted currently?

A The way it is drafted currently, because I feel that if there is a separate permit term that is established for cold startups, then it would allow those emissions from cold startups. Whereas, I don't see this current permit allowing that.

Q Do you recall generally the discussion about the facility's startup/shutdown emissions minimization plan?

A Yes.

Q And you are familiar with Medicine Bow's SSEM plan?

A Yes.

Q Did you understand that that was part of the facility's permit in this case?

A Yes. It's an appendix to the permit.

Q Can you explain to us generally what the purpose is of -- let me ask it this way: Can you explain to us generally what the purpose of the SSEM plan is?

A The purpose of the plan, it functions as the best available control for emissions from startup/shutdown activities, cold startup as we've

been talking about, and within the context of those cold startup emissions, its purpose is to minimize the emissions to the greatest extent possible.

Q Okay. That would include SO2 emissions?

A Yes, it would.

Q SO2 emissions for the flares?

A Yes, it would.

Q Or SO2 emissions from the flares, I should say.

A From the flares, yeah, correct.

Q Is it your opinion in this case that the SSEM plan is BACT, B-A-C-T, for SO2 emissions from the flares?

A Yes, it is my opinion.

Q And can you explain why that is your opinion?

A Yes. I feel that there's -- in fact, there are no other control technologies for back-end control of the flare and that this is one of the few possibilities for controlling emissions from the flare, and I think it's BACT because not only does it provide control, but in my opinion, it provides for prevention of emissions from the flare. Through following the plan, they can actually prevent the emissions or prevent the vents from going to the

flare which would then be converted into SO2 emissions.

Q Along those lines, do you recall the discussion about whether numerical limits could be set on flares?

A I recall, yes.

Q Do you know whether it's feasible to set such emission standards or limits on flares, and if not, what makes it infeasible to set such limits?

A I feel that it is infeasible to set numerical limits on the flares because of the difficulty of measuring emissions at all times, and particularly during those times of transient startup emissions that we discussed earlier that -- when I say "feasible," I feel that it is impractical and there's a good chance of the -- that the accuracy will be very poor during those transient times. So to me, that meets the definition of infeasible.

Q Do you know generally and can you explain to us generally under what circumstances where practice standards such as an SSEM plan will constitute BACT for such emissions that -- and such emissions being SO2 emissions from the flares?

A I believe that's in the definition of BACT, which, you know, work practice standard can be

used when the administrator, or when the state in this case, determines that it's infeasible to set such a numerical limit.

Q Okay.

A That's when the option is presented. They can determine that a work practice, or several other items similar to work practices are listed in the definition, and I'm sorry, I can't -- I would like to read the definition to you, but . . .

Q Which definition?

A Of BACT.

Q That would be Exhibit 2, I think, that was talked about earlier, I believe.

MS. VEHR: You are talking about the rules, John, the Chapter 6 rules?

MR. COPPEDE: Is that correct?

(Discussion off the record.)

A Exhibit 2 -- and this is the state definition of BACT. Yeah, I'll read this. "If the administrator determines that technological or economic limitations on the application of measurement methodology to a particular emission unit would make the imposition of an emission standard infeasible." That's what I'm basing what I just -- that's how I'm basing what I just said to you, that

the administrator determines that the application of measurement methodology is infeasible, and in my opinion, it is infeasible in this case. Therefore, the administrator may instead "prescribe a design, equipment, work practice or operational standard, or combination thereof, to satisfy a requirement of BACT."

Q Do you know or are you aware of whether any EPA reference method for measuring compliance in flares -- do you know if --

A I'm not personally aware of a compliance method that's been approved, EPA approved. I'm sorry, I should -- not compliance method -- measurement method that has been approved for measuring emissions from flares.

MR. COPPEDE: I don't think I have any other questions. Thank you.

FURTHER EXAMINATION

BY MR. GALPERN:

Q Okay. Redirect. So, Katrina, on that point, are you aware of any EPA guidance or reference documents on measuring flare emissions --

A No.

Q -- that have been -- that have yet to be approved, proposed but not approved?

A No, I'm not aware.
Q Previously, in response to Nancy's question about what a SIP is, you said that it's a document that's created by a delegated state?
A Yes.
Q And are you familiar with the fact that a delegated state is a term used for states without SIP-approved plans?
A I continually get those confused. For example, I think you just pointed out my error. Minnesota would be a delegated state.
Q Right.
A Washington would be a delegated state.
Q Right.
A So a SIP-approved state is, perhaps, the correct term instead of delegated.
Q Wyoming would be a SIP-approved state, that's correct.
MR. GALPERN: I think that's enough for me.
MR. COPPEDE: Imagine that. I don't have any more questions.
MS. VEHR: Thank you.
MR. COPPEDE: You can read and sign.
THE DEPONENT: Oh, yeah, what do I do? Do

I have to sign something?

MR. COPPEDE: Or you can waive it.

THE DEPONENT: Okay.

THE REPORTER: So would you like to reserve your right to read and sign the transcript?

MR. COPPEDE: Yeah, I think she will.

(The deposition concluded at 5:20 p.m., November 5, 2009.)

I, KATRINA WINBORN, do hereby certify that I have read the foregoing transcript and that the same and accompanying amendment sheets, if any, constitute a true and complete record of my testimony.

_____
Signature of Deponent

( ) No Amendments
( ) Amendments Attached

Subscribed and sworn to before me this

_____ day of _____, 2009.

Notary Public:_____

Address: _____

_____

My commission expires_____

Seal:

In the Matter of Medicine Bow Fuel & Power, LLC / CL

STATE OF COLORADO)
) ss. REPORTER'S CERTIFICATE
COUNTY OF DENVER)

I, Carolyn Leathers, do hereby certify that I am a Registered Merit Reporter, Certified Realtime Reporter and Notary Public within and for the State of Colorado; that previous to the commencement of the examination, the deponent was duly sworn to testify to the truth.

I further certify that this deposition was taken in shorthand by me at the time and place herein set forth, that it was thereafter reduced to typewritten form, and that the foregoing constitutes a true and correct transcript.

I further certify that I am not related to, employed by, nor of counsel for any of the parties or attorneys herein, nor otherwise interested in the result of the within action.

In witness whereof, I have affixed my signature and seal this 11th day of November, 2009.

My commission expires September 18, 2013.

_____
CAROLYN LEATHERS

AMENDMENT TO DEPOSITION FORM

Deposition of: KATRINA WINBORN
Taken on November 5, 2009

In the Matter of MEDICINE BOW FUEL & POWER, LLC
Docket No. 09-2801

THE FOLLOWING AMENDMENTS TO FORM OR SUBSTANCE SHOULD BE MADE:

PAGE	LINE	SHOULD READ	REASON
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Subscribed and sworn to before me this _____ day of _____, 2009.

_____ _____
NOTARY PUBLIC DEPONENT

My Commission Expires: _____

November 11, 2009

John A. Coppede, Esq.
Hickey & Evans, LLP
1800 Carey Avenue, Stuite 700
Cheyenne, Wyoming 82001

Re: In the Matter of Medicine Bow Fuel & Power, LLC
Docket No. 09-2801
Deposition of KATRINA WINBORN
Date of Deposition: November 5, 2009

The deposition in the above-entitled matter is ready for reading and signing. Please attend to this matter by following ALL blanks checked below:

_____ Arranging with us at (800) 845-3001 to read and sign the deposition in our office

XXX Having deponent read your copy and sign original signature page and amendment sheets, if any (original signature page enclosed)

_____ Reading enclosed deposition, signing attached signature page and amendment sheets, if any

XXX WITHIN 30 DAYS OF THE DATE OF THIS LETTER

_____ Before trial date of _____

Please be sure that signature page and accompanying amendment sheets, if any, are signed BEFORE A NOTARY PUBLIC and returned to Wilson George in the enclosed envelope to be dispersed and filed with the original deposition. A copy of these changes should also be forwarded to counsel of record.

Thank you.

cc: All Counsel

PLEASE ATTACH TO YOUR COPY OF THE DEPOSITION OF:

KATRINA WINBORN

Re: In the Matter of Medicine Bow Fuel & Power, LLC
Docket No. 09-2801
Date of Deposition: November 5, 2009

The original deposition was filed with

Daniel Galpern, Esq. on approximately the

_____ day of _____, 2009.

_____ Signature waived or not required

_____ Reading and signing was not requested pursuant to C.R.C.P. Rule 30(e)

_____ Unsigned; signed signature page and change sheets, if any, to be filed at trial

_____ Unsigned, original amendment sheets and/or signature pages should be forwarded to Wilson George to be dispersed and filed in the envelope attached to the sealed original

Thank you.

cc: All Counsel