BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF:

THE APPEAL BY SOUTHERN MONTANA ELECTRIC REGARDING ITS AIR QUALITY PERMIT NO. 3423-00 FOR THE HIGHWOOD GENERATION STATION

NO. BER 2007-06-AQ
NO. BER 2007-07-AQ

TRANSCRIPT OF THE PROCEEDINGS
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I N D E X

WHEREUPON, the following proceedings were had:

CHAIRMAN RUSSELL: I guess you're still under oath, even though someone else swore you in.

So let's go ahead.

MR. McCARTER: Mr. Chairman, Mike McCarter for SME. What I'd like to do is, we intend to call Mr. Lierow in our case on direct, so what I'd like to do, with the Chairman's permission, is simply clear up the matter of this one exhibit that was offered, MEIC A, and any other matters, I can cover in our direct examination, if that's okay with the Board.

JOSEPH LIEROW,

a witness, having been previously sworn, testified upon his oath as follows:

CROSS-EXAMINATION

BY MR. McCARTER:

Q. Mr. Lierow, do you have MEIC Exhibit A before you?

A. Yes, I do.

Q. Okay. And this appears to be an exchange of e-mails between you and Mark Payne; is that correct?

A. Yes.

Q. Okay. And the first e-mail that begins the sequence is from you to Mr. Payne?

A. Yes.

Q. And what is the date of that e-mail?
A. That is November 2nd, 2006.
Q. Okay. In the scheme of permits and draft permits, on that date, what was the status of the permit and the permit application?
A. I believe at this time, the draft permit was issued.
Q. Okay. And do you recall what the filterable PM limit was in that draft permit?
A. 0.012 pounds per million Btu.
Q. Okay. What triggered your e-mail?
A. Well, the e-mail -- we had a meeting with the Department the previous day, and we had discussed modeling, because we needed a remodel to move the facility off the national landmark. And they requested that we provide some PM2.5 modeling. So I e-mailed Mark requesting some information on PM2.5 emissions for material handling baghouses, which are mainly for coal handling and limestone handling.
Q. Okay. Just give a thumbnail sketch of what is involved with modeling and why you do it.
A. First, the reason we do it, we need to look at the impacts from the facility and compare them to the ambient standards or the Class 1 and Class 2 PSD increments.

And what was the other part of your question?

Q. Why do you do it?

A. Or some of the material -- And then, basically, we need to quantify emission rates per the emitting units and put them into the model to get an assessment of what the impacts would be on the fence line and outside the fence line.

Q. Okay. And you were requesting information with respect to the material handling baghouses. Why were you requesting that information for modeling purposes?

A. We didn't have that information at all to -- in our emission inventory.

Q. What are the material baghouses -- the material handling baghouses?

A. They are baghouses that collect the dust when coal or limestone is being transferred from one conveyor to another or into a silo.

Q. So this is a baghouse that is completely separate from the baghouse that's attached to the boiler?

MS. DILLEN: Objection, leading.

Q. (By Mr. McCarter) Well, explain the difference between the material handling baghouse and the boiler baghouse.

A. Well, they are two separate baghouses, I'll clarify that. Typically, a boiler -- I shouldn't say

typically, but a boiler could have a baghouse for the exhaust from the boiler, and then typically, you have material handling baghouses to handle all the emissions from transferring of coal or limestone in this -- at a plant like this.

Q. Okay. Why didn't you request information for the boiler baghouse?

A. Well, we had a pretty good indication of what the PM2.5 emission rate would be based on the condensable emission rate.

Q. Was the information you had a separate 2.5 or was it a surrogate 10?

A. We ultimately used PM10 as a surrogate, but we had a good indication that condensables were mainly PM2.5.

Q. Mr. Payne, in his reply, which is at the top -- Firstly, what is the date of that reply?

A. It's November 6, 2006.

Q. Okay. In the sentence that you were requested to read, it says, "In addition, if PM2.5 regulations come into effect, our solution to comply is to install higher efficiency bags."

Do you know what he was talking about when he said "if PM2.5 regulations come into effect"?

A. No, I didn't know what he was talking about in

this sentence.

Q. Okay. With respect to higher efficiency bags, I believe you indicated that the draft permit had a .012 limit. Would that have allowed the use of the fiberglass bags or would you have had to use the Teflon-coated bags?

A. Are we talking material handling?

Q. No. I mean -- Okay.

A. The material handling emission rate was .0005.

Q. Okay. Did you have any understanding as to what he's talking about in installing higher efficiency bags?

A. Not -- not at all, especially in context to my question on material handling.

Q. So did this e-mail make any sense to you?

A. I didn't understand what he was referring to in that first sentence of that paragraph.

Q. Okay. And did it affect anything that you did?

A. No, it didn't.

Q. Did it affect anything to do with the information that you provided to the Department?

A. No, it didn't.

MR. McCARTER: That's all I have at this time.

MR. RUSOFF: The Department doesn't have any questions of Mr. Lierow.

MS. DILLEN: We don't have any further questions of Mr. Lierow at this time.

CHAIRMAN RUSSELL: Okay. Thank you. The witness is dismissed, excused.

Oh, did you guys want to ask any questions?

MR. ROSSBACH: Is he going to be recalled?

CHAIRMAN RUSSELL: Yes. He'll be up tomorrow or Thursday morning.

MS. SHROPSHIRE: So I can save my questions.

CHAIRMAN RUSSELL: All right. So we should probably try to get another witness going or we're going to be in trouble tomorrow.

So who is next in order? Is the Department next?

MR. RUSOFF: I just wanted to clarify that --

MS. DILLEN: We should clarify, we're resting our case-in-chief at this point, and now the Department will carry on with their own witnesses.

MR. REICH: Mr. Chair, if I might just clarify what you're expecting. It looks like we are moving hopefully faster than we all anticipated.

CHAIRMAN RUSSELL: No, we're anticipating at least this pace, just for clarification.

MR. REICH: Well, that's good. We were trying to rev it up as fast as we could.

CHAIRMAN RUSSELL: And you're doing a fine job. See, two witnesses down.

MR. REICH: So in terms of the witnesses, the

Department will call one witness, Mr. Merchant, and then after that, SME will call two witnesses, Mr. Lierow and an expert witness, Mr. McCutchen. It's up to the Board, obviously, how you want to handle the time, but I would expect that between Mr. McCutchen and Mr. Lierow, if we start at 8, I would think we could accomplish that in four-some hours, you know, 12, 1. But, certainly, I don't expect us to have to go into the evening, is what I'm saying.

CHAIRMAN RUSSELL: Well, our hope was we'd have some time tomorrow afternoon to deliberate as a board, so if Eric is ready, we're ready.

MR. RUSOFF: Thank you, Mr. Chairman. The Department calls Eric Merchant.

And if there's no objection, I prefer to examine Mr. Merchant from the seated position. I'm having back trouble today.

CHAIRMAN RUSSELL: David, why don't we just pull the mic over.

ERIC MERCHANT,

a witness, having been first duly sworn, testified upon his oath as follows:

DIRECT EXAMINATION

BY MR. RUSOFF:

Q. Would you please state your name and occupation.

A. Mr. Chairman, members of the Board, for the record, my name is Eric Merchant, and I am an air quality specialist with the Montana Department of Environmental Quality's Air Resources Management Bureau.

Q. And how long have you been employed with the Department's air quality program?

A. Just under nine-and-a-half years.

Q. Would you please describe your current position with the Department.

A. Currently, I have just taken a new position with the Department. I am in air quality program development in the Air Quality Policy and Planning Section.

Q. Would you please describe any previous positions that you've held with the Department.

A. Prior to that, up until a couple of months ago, for a period just over nine years, I was in the Air Quality Permitting Section, and within that position -- I had a couple different positions within the Air Quality Permitting Section, beginning with coming in and working with portable-type sources and some other smaller, minor sources. And then over the last several years, I've been working in permitting major sources -- actually, the whole gamut of sources, but primarily in major source permitting.

Q. Before you came to work for the Department, did

you hold any previous positions in the environmental field?

A. Just prior to coming to work for the Montana Department of Environmental Quality, I was an air quality -- I'm sorry, an environmental consultant, working on issues in air, water, waste, all those types of issues.

Q. And would you please describe for Board any college education that you've received related to your employment with the Department.

A. I have a bachelor of science in biology, a minor in -- and a minor in environmental studies, and then I also have an MPH, a master's in environmental and occupational health.

Q. Mr. Merchant, have you taken any training courses related to your employment for the Department that dealt specifically with PSD permitting?

A. I've taken many courses dealing with PSD permitting; specifically, some introductory, intermediate, and advanced courses in major new source review or major NSR permitting, along with a gamut of training courses that deals secondarily with BACT determination training, effective permit writing dealing with major source permitting. Just a series of training courses.

Q. How frequently have you attended training courses related to air quality permitting?

A. I would say, on average, one or two, maybe three courses a year.

Q. Do you have any rule development experience related to air quality permitting?

A. I do.

Q. And could you describe that experience briefly for the Board, please.

A. I was -- Based on litigation on another proposed power plant in Montana, I was the lead writer of a rule for presentation to the Board titled the "Montana Top-Down BACT Rule" or "BACT Rule," and we presented that -- we presented that to the Board for an initiation, and it was not adopted by the Board.

And in addition to that, I was the lead rule writer on a rule -- well, essentially, modification of our rules to incorporate the federal new resource review reform rules. In that case, Montana ultimately made a determination or sent a determination to the federal EPA indicating that our program was at least as stringent or more stringent than the proposed -- or the new resource review reform package, and so we did not adopt those rules either.

And then one other rule that I worked on for adoption by the Board was our initial -- our initial rule development project for registration of minor sources, and, specifically, portable-type sources, registration or

general permitting.

Q. Who requested development of the draft BACT process rule that you stated that you worked on and presented to the Board?

A. The Board requested that that rule be developed and proposed.

Q. And then I believe your -- it was your testimony that the Board decided ultimately not to go through with initiation of rulemaking to adopt that rule?

A. That's correct.

Q. Would you please describe the general process that you follow in reviewing an application for an air quality permit for a major stationary source like a power plant.

A. Generally speaking, the applicant would submit -- the applicant or their consultant would submit an application for my review as the lead permitter on the project. I would have a period of time in which to determine whether or not that application is complete. In Montana, that's a 30-day period. Typically, you're going to find, with any application, there's going to be deficiencies or additional information that is required. In that case, I would send a letter to the applicant highlighting the information that's necessary to complete the application. I would then receive information back.

I would then have another period of time in which to analyze the response to determine whether or not that completes the application.

When I deem the application complete, then I have a 40-day period in which to issue a draft air quality permit for public comment, and then we follow the process through to a final permit.

Q. Did your duties as an air quality permitter for the Department include reviewing air quality permits that other department staff had drafted?

A. Yes.

Q. In the course of your employment as an air permitter, did you also have occasion to review permits drafted by EPA and other state permitting authorities?

A. Yes.

Q. Did you regularly review permits issued by EPA in other states?

A. Yes.

Q. And how many of those permits that you regularly reviewed involved emission controls for PM10?

A. Almost all of them. There may be a few exceptions.

Q. Mr. Merchant, are you familiar with the Department's air quality permitting rules?

A. I've worked very closely with them for over

nine years. Yes.

Q. Can you state approximately how many air quality permits you've drafted for the Department.

A. Approximately 200, a few more than that.

Q. And of those approximate 200 permits that you've drafted for the Department, can you state how many of those permits have involved determining BACT for PM10?

A. Because PM10 is a regulated pollutant, again, I would say most of those permits dealt in some regard -- or dealt with PM10 in some regard. And specifically BACT, with the exception of some amendments, permit amendments that didn't deal with that or modifications that didn't deal with PM10, I would say, again, the majority of those permits had a BACT process for PM10.

Q. For those permits that involved BACT for PM10, did you research PM10 emission control technologies for the permits?

A. Yes.

Q. Can you state approximately how many air quality permits you've reviewed that someone else has drafted, either for the Department or for other permitting authorities.

A. It's hard to come up with an approximate number, but I would say at least as many permits as I've written; maybe 200 or more.

Q. Have you previously drafted air quality permits for major stationary sources like the SME Highwood Generating Station?

A. Yes.

Q. Is there any required process for making a BACT determination other than what is specified in Montana's Subchapter 7 and 8 rules regarding BACT?

A. No.

Q. Are you familiar with the EPA's Draft 1990 New Source Review Manual, a portion of which has been admitted and should be in the Board's binders labeled DEQ and SME Exhibit 1?

A. Yes, I am familiar with that manual.

Q. Does that manual include a recommended procedure for a permit applicant to conduct a case-by-case BACT analysis?

A. Yes, it does.

Q. Did SME follow that recommended procedure in the BACT analysis it submitted to the Department for the HGS?

A. Yes.

Q. In making a BACT determination for a permit application, does the Department rely heavily on the information provided in the application?

A. Yes.

Q. Why is that?

A. It's -- it's important to understand that when the application is submitted, each one of these facilities obviously is its own thing and has its own characteristics, its own proposed specific emitting units, its own -- all of the equipment is very specific to its facility. And the applicant presumably has a significant amount of time in which to prepare that application for a proposed project, and so the applicant -- when we -- And it's also a certified document; therefore, the information is accurate and true.

And the Department, again, has a somewhat more limited time frame in dealing with these types of projects to evaluate all of the information, document that information. We do all that we can to verify that the information in the application is true, accurate, and complete. But it's very important that we -- that that application contain the information necessary to write the air quality permit.

Q. As an air permitter, did you also conduct independent research regarding the proposed conditions in the permit application?

A. Yes.

Q. Were you involved in the Department's review of the air quality permit application for the SME Highwood Generating Station or HGS?

A. Yes. I was the lead permitter on this project.
Q. Did the Department receive a draft application from SME before receiving an actual filed application?
A. Yes, we did.
Q. Is that a common practice?
A. No. That's not a -- it's not a common practice, but it has happened in other cases.
Q. Do you know why the Department received a draft application in this case?
A. I believe we suggested that they submit an application -- a draft application to us. It would provide us with additional time to review some of the information. These are very complex projects, and the statutory time frames for processing a permit application are very -- are very short when you're considering the amount of information.
Q. Did the Department recommend that SME submit additional information that it had not included in its draft application?
A. Yes.
Q. And after the Department received the filed application, did you request even further additional information from SME?
A. Yes.
Q. Is that a common practice, for the Department to

request additional information after receipt of a filed application?

A. Fairly -- Yes, fairly common.

Q. Did SME respond to your request for additional information?

A. They did.

Q. Did other members of the Department's air quality permitting staff also review SME's application?

A. Yes.

Q. Is that a common department procedure?

A. It's a very common procedure, especially for major sources of this kind.

Q. Did you issue draft permits for the HGS for internal staff review?

A. I did.

Q. And did you receive comments from other department staff members on those draft permits?

A. Yes.

Q. Is that a common department procedure?

A. I'm not aware of any permits that go out the door without internal review.

Q. Did you consider the comments that you received on your draft permits from other department staff members?

A. I did.

Q. How would you generally describe the level of

review you conducted for SME's permit application?

A. This is the highest level of review that a permit application receives. This is a major new source, subject to the standards of major new source review, very complex, lots of information to digest, analyze, and understand. There is no application -- This is the highest level of review that we -- that I conduct.

Q. Can you estimate for the Board how much -- approximately how much time you spent reviewing SME's permit application and draft application and making the Department's determination.

A. I spent about a month reviewing the draft application prior to issuing a deficiency response to them and approximately four months with the filed application prior to issuance of the draft permit, so a total of five months.

Q. Can you estimate for the Board how much of this five months you spent reviewing SME's BACT analysis.

A. Well, it's important to note, first of all, that five months -- I mean, that's not the only thing I have to do at the office. I mean, I have a workload. And so I would say a significant amount of my time in that five-month period was spent reviewing this application, but, again, I do have a workload that goes along with other things that I do.

As far as the BACT analysis, I would say that of the time that I spent in that five months reviewing this application, the majority of that time is spent in review of the BACT analysis and determination.

Q. Did you conduct independent research regarding SME's BACT analysis included in its permit application?

A. Yes.

Q. Did the Department issue a draft permit for the HGS for public comment?

A. Yes.

Q. Did the Department issue a supplementary draft permit for the HGS for public comment?

A. Yes.

Q. Do you recall why that was?

A. The Department issued a supplemental preliminary determination or draft permit in this case because during the public comment period and prior to issuance of the Department's decision, information came to light regarding additional emitting units that were not analyzed in the initial permit application. And that had not been -- you know, the public had not had an opportunity to look at those emitting units, we didn't have an opportunity to analyze those emitting units, and so we issued a draft permit -- or a supplemental draft permit dealing only with those emitting units. The rest of the draft permit stayed

the same.

And what those units were, were called refractory brick curing heaters, natural gas-fired units that cure the refractory brick which lines the inside of the boiler.

Q. Did the Department hold public hearings on the supplemental draft permit for the HGS?

A. Yes.

Q. Did the Department receive comments on the draft permits?

A. Yes.

Q. And during your review of SME's permit application, did you receive any comments from the petitioners in this case?

A. I'm sorry, during my review of the application?

Q. Of SME's permit application. Did you receive comments from the petitioners in this case?

A. We received comments from the petitioners on the draft air quality permit.

Q. And did you consider all of the comments that the Department received from the public, including the petitioners?

A. Yes.

Q. In issuing the department decision on SME's permit application, did the Department grant all of the permit conditions requested by SME in its permit

application?

A. No.

Q. How is the lowest achievable emission rate or LAER applied in air quality permitting?

A. LAER is a program -- a permitting program which applies to sources proposing to construct and operate in areas which are out of attainment with the national ambient air quality standards for a given pollutant.

Q. And did LAER apply to particulate emissions from the HGS?

A. No.

Q. What is the difference between BACT and LAER?

A. LAER is -- simply applied, means the lowest emission rate that's being achieved, the lowest achievable emission rate. So that emission rate, that is the lowest that is actually being achieved by a facility in practice. It's not a process.

Whereas BACT is a process where you evaluate all of the available controls. You then evaluate technical feasibility of those controls for a specific emitting unit. You then rank the remaining technically feasible control technologies. You then consider other factors, such as environmental, economic, energy impacts. And then you select BACT, typically in a five-step process. So it's a process leading to an emission limitation, whereas

LAER is simply what's being achieved, the lowest limit.

Q. Must a BACT-determined emission limit be achievable constantly?

A. Yes.

Q. In making a BACT determination, do you try to determine the lowest emission limit that can be achieved constantly, then?

A. Yes.

Q. Referring to the document admitted as DEQ and SME Exhibit 4 and, I believe, MEIC C in your exhibit binder, can you identify that document for the Board.

A. This is a portion of the application for air quality and operating permit submitted by SME.

Q. Okay. And did SME submit a BACT analysis with its application for a permit for the HGS?

A. Yes.

Q. And did you review that BACT analysis?

A. Yes.

Q. Did SME's BACT analysis include evaluation of controls for PM10 emissions from the HGS?

A. Yes.

Q. And did SME's permit application include evaluation of filterable PM10?

A. Yes.

Q. Did SME's analysis include identification of the

control technologies available to control PM10 emissions?

A. Yes.

Q. Can you point out to the Board where that identification of control technologies is found in SME's BACT analysis.

A. If -- if you refer to the second page, actually, of that exhibit, 5-20, in the middle of the page, Section 5.3.2.1, the caption is, "Identify Filterable PM/PM10 Control Technologies." And then they're listed below in bullet points.

Q. Did SME's BACT analysis also include an evaluation of the technical feasibility of technologies available to control filterable PM10 emissions?

A. Yes, it did. Turning to page 5-23 of that exhibit, again, in the middle of the page, Section 5.3.2.2, captioned "Eliminate Technically Infeasible Filterable PM/PM10 Control Technologies."

Q. Did SME's BACT analysis include a ranking of the technically feasible filterable PM10 control technologies by control effectiveness?

A. It did. And just down from -- just the next section down, 5.3.2.3, on page 5-23, that ranks the available control technologies and technically feasible control technologies.

Q. Did SME's BACT analysis include an evaluation of

the cost effectiveness of the technologies available to control filterable PM10 emissions and their energy and environmental impacts?

A. Yes. Turning the page to 5-24, under Section 5.3.2.4, captioned "Evaluate Filterable PM/PM10 Control Technologies," the middle of the page, again, in bold, "Economic Impacts."

Q. What did SME propose to the Department for a filterable PM10 emission limit?

A. SME proposed, from the CFB boiler, a filterable PM10 emission limit of 0.015 pounds per million Btu of heat input to the boiler.

Q. Okay. And there's some discussion of this already, but based on your review of SME's permit application, did SME inform the Department of facilities that were permitted at a lower filterable PM10 emission limit than the .015 heat input limit proposed by SME?

A. Yes.

Q. Did you conduct independent research of the filterable PM10 emission limits applicable to similar facilities?

A. Yes.

Q. Did you find higher limits?

A. Yes.

Q. And did you find lower limits in your research?

A. Yes.

Q. Can you describe how SME's proposed limit fell in the range of higher and lower limits for other facilities, that you were aware of.

A. Near the top or -- near the top of the controlled facilities, I believe in the application, there were facilities that were achieving lower emission rates, and I think that I may have found one or two others in my own research. However, SME's was generally near the top of the best controls or the best controlled emission rates found in the RACT/BACT/LAER Clearinghouse and other places.

Q. Did SME's permit application also include a BACT analysis for condensable PM10?

A. Yes.

Q. Did SME's BACT analysis include identification of the control technologies available to control condensable PM10 emissions?

A. Yes.

Q. And can you point to the Board where that identification of control technologies for condensable PM10 is found in the BACT analysis.

A. Yeah. If you flip just a couple pages up to 5-46, in Section 5.3.6.1, "Step 1 - Identify Control Options for Sulfuric Acid Mist, Acid Gases, Trace Metals,

and Condensable PM10."

It's important to note here that those pollutants are precursor emissions to condensable PM10.

Q. Did the Department's permit include a summary of the Department's evaluation of SME's BACT analysis for particulate matter?

A. Yes.

Q. And referring to DEQ and SME Exhibit 7, the Department's final permit, can you point out to the Board where the Department's summary of the BACT analysis is found.

A. Yes. This exhibit is the Department's final Montana Air Quality Permit, and if you go -- this is -- The first 29, I think, or so pages are the permit itself, and if you go past that, you're going to see some attachments, and then the permit analysis starts over at page 1. And then beginning on page 24 of the permit analysis, I have a summary -- in item 2, about the middle of the page, I have a summary of filterable PM emissions.

MR. MARBLE: I'm not clear where you are.

Q. (By Mr. Rusoff) Could you restate to board members where you're looking --

A. Sure.

Q. -- for the beginning of the summary of the BACT analysis of filterable emissions.

A. Sure.

The first 29 pages or so of the document are the permit itself, and then it will start over at 1. Go to page 24 of that portion of the document

MR. MARBLE: Thank you.

THE WITNESS: Uh-huh.

Q. (By Mr. Rusoff) Okay. So did you make a BACT determination for PM10 emissions from the HGS?

A. Yes.

Q. And where is that determination found in your summary of the BACT analysis for filterable PM emissions?

A. If you turn to page 28, there's a filterable PM BACT determination, Section E, and that provides a discussion of the determination for filterable PM emissions.

Q. And did you separately evaluate BACT for filterable PM10 and condensable PM10?

A. Yes.

Q. In their comments to the Department that they submitted on the draft permit, did the petitioners submit any comments concerning the format of the Department's BACT determination?

A. No.

Q. In the Department's draft and final BACT determination for the HGS, did the Department use a BACT

determination for PM10 as a surrogate for a PM2.5 BACT determination?

A. Yes.

Q. In their comments to the Department concerning the draft permit, did the petitioners submit any comments concerning the Department's --

MS. DILLEN: Objection; I believe this is irrelevant. Exhaustion is not a requirement under Montana law, so I'm not sure what this is going to.

MR. RUSOFF: Well, I think the comments that the Department received from the petitioners are very relevant to the ability of the Department to respond and clarify any issues that the public, including the petitioners, might have and to potentially consider a different approach.

MS. DILLEN: Well, I'm going to maintain my objection, because if you're going to raise this as an issue now, there was correspondence between my clients and the Department regarding PM10 and PM2.5. And if we need to call a witness to testify to that, that's fine. But since it hasn't been a contested issue, you don't have exhibits on it, and I don't have exhibits on it either.

MR. RUSOFF: I guess I would just say that the prehearing memo clearly identifies the Department's reliance on the surrogate policy for PM10 as an issue in

this case, and I think that whether the Department received any comments concerning its reliance on that policy is very relevant to the adequacy of the process that the Department followed in making a BACT determination for 2.5.

MS. DILLEN: I don't see how that's true, and I just want to clarify that there's no mention in the prehearing memo of my clients' comments in this -- in this regard.

MR. RUSOFF: The prehearing memo --

MR. ROSSBACH: I move to sustain the objection.

MR. RUSOFF: -- is not intended to be an exhaustive statement of every piece of evidence that will be presented in the case.

MS. SHROPSHIRE: Second.

CHAIRMAN RUSSELL: It's been moved and seconded to sustain the objection. All of those in favor.

(Vote.)

CHAIRMAN RUSSELL: Opposed.

(No response.)

Q. (By Mr. Rusoff) Mr. Merchant, at the time you were reviewing SME's permit application, were you aware of any EPA guidance addressing BACT for PM10 in a PSD permit?

A. Yes.

Q. Referring to the document in the exhibit binder

admitted as DEQ and SME Exhibit 2 and MEIC Exhibit L, can you identify that document for the Board, please.

A. This document is titled -- the subject line is, "Interim Implementation of New Source Review Requirements for PM2.5," authorized by John S. Seitz, director at that time of the Office of Air Quality Planning and Standards.

Q. Okay. And referring, again, to that Seitz memo, just so the Board has an understanding of the contents of that memo, in the first paragraph, would you read the third sentence, starting with the words, "In view of the significant technical difficulties."

A. "In view of the significant technical difficulties that now exist with respect to PM2.5 monitoring, emissions estimation, and modeling," in parentheses, "described below," "EPA believes that PM10 may properly be used as a surrogate for PM2.5 in meeting NSR requirements until these difficulties are resolved."

Q. Okay. Moving down on page 1 of that document, would you read the first sentence of the last paragraph on page 1, which begins with the words, "Of specific concern."

A. "Of specific concern is the lack of necessary tools to calculate emissions of PM2.5 and related precursors and project ambient air quality impacts so that sources and permitting authorities can adequately meet the

NSR requirements for PM2.5."

Q. And moving down to the end of that paragraph, would you please read into the record the last sentence, beginning with the words, "Emissions factors."

You may have a different version than what I have --

A. I do.

Q. -- but it's the last sentence in the same paragraph that you were reading from before.

A. Okay. "Emissions factors for the fine particles emitted directly by stationary sources and for some important precursors," in parentheses, "ammonia," "are largely unavailable at the present time."

Q. Turning to the next page of that document, will you please read the first sentence of the paragraph, which starts out, "For the reasons stated above."

A. "For the reasons stated above, EPA believes that it is administratively impracticable at this time to require sources and State permitting authorities to attempt to implement PSD permitting for PM2.5."

Q. Could you skip the next sentence and then read the following sentence, which begins, "Until these deficiencies are corrected."

A. "Until these deficiencies are corrected, EPA believes that sources should continue to meet PSD and NSR program requirements for controlling PM10 emissions," in

parentheses, "and, in the case of PM10 nonattainment areas, offsetting emissions," "and for analyzing impacts on PM10 air quality."

Q. And, I'm sorry, I should have asked you at the same time to finish that paragraph by reading the last sentence.

A. "Meeting these measures in the interim will serve as a surrogate approach for reducing PM2.5 emissions and protecting air quality."

Q. And then finally, would you read the third sentence of the next paragraph, which starts with the words, "When the technical difficulties are resolved."

A. "When the technical difficulties are resolved, EPA will amend the PSD regulations under 40 CFR 51.166 and 52.21 to establish a PM2.5 significant emissions rate, and EPA will also promulgate other appropriate regulatory measures pertinent to PM2.5 and its precursors."

Q. Referring to the document in your binder which has been admitted as DEQ and SME Exhibit 3, can you identify that document for the Board, please.

A. This document is a memorandum -- EPA memorandum, and the subject line is titled "Implementation of New Source Requirements in PM-2.5 Nonattainment Areas," authored by Stephen D. Page, director, and dated April 5th, 2005.

Q. Turning your attention to page 4 of that document --

CHAIRMAN RUSSELL: Are you going to read a lot of this into the record?

MR. ROSSBACH: This is all admitted, David.

CHAIRMAN RUSSELL: It's all here.

MR. RUSOFF: Well, it was my understanding, Mr. Chairman, members of the Board, that the Board intended to deliberate on this case if there was sufficient time at the conclusion of the evidence. So I'm merely pointing out to the Board the sections of these documents, many of which are fairly lengthy, especially the Federal Register Notices that we're relying on in our case. Otherwise, I'm not sure how that information will be before the Board.

CHAIRMAN RUSSELL: Well, the prehearing memo, did it not bring out some of these points, that we were asked to read this morning?

MR. RUSOFF: Well, the point of offering this evidence is to point out to the Board the basis for EPA's surrogate policy.

CHAIRMAN RUSSELL: Well, let's continue. Let's just not try to read the whole document into the record.

Q. (By Mr. Rusoff) Based on that, I won't ask you to point out the pertinent provisions of the Page memo,

but can you summarize the comments in the Page memo relevant to PSD permitting for PM2.5.

A. In short summary -- I would try to go fast, but the court reporter may not let me.

MS. DILLEN: I'm sorry, I don't want to be a fly in the ointment, but I think characterizing a document that speaks for itself -- I'm wondering if there's another way to go about this, but I think having a witness characterize what a document says when we have them here as exhibits is unusual.

MR. RUSOFF: And I agree, and my preferred approach would be to have him read the pertinent provisions.

MS. ORR: Mr. Chairman.

MR. ROSSBACH: The document speaks for itself.

MS. ORR: The document speaks for itself. And a recommendation would be that the counsel, in closing argument, if they see a portion of an exhibit or an exhibit that they wish to emphasize for the Board, that they go through the exhibit list and point out what is significant about it. And I think that can be done in closing.

MR. RUSOFF: We could try to do that. I guess my concern would be we have 15 minutes each for a closing argument, and there are numerous documents, many of which

are fairly lengthy, in the record. And if the Board is to deliberate upon our closing arguments -- Again, my concern is just to inform the Board of the relevant portions of these documents, many of which, again, are quite lengthy. But we'll proceed in any manner that --

CHAIRMAN RUSSELL: But you also -- in your prehearing memorandum, these points are also brought out in this document. So if we're going to do this, let's summarize and keep moving. But we've already stipulated to this, we're moving, we're trying to get this thing -- And I understand and appreciate your points, but we also had this in our -- this was also discussed in the motions for summary judgment. I mean, we're all here and we've heard it.

MR. RUSOFF: That's correct.

I just want to make sure that the information is evidence in the case, because the portions of the prehearing memo outside of the agreed facts are not evidence in the case.

MR. ROSSBACH: But the document is evidence in the case.

MR. RUSOFF: I agree.

MR. REICH: Mr. Chair, I think we can assist the Board by simply pointing out, either now or at the end of the case, specific paragraphs and things and the Board can

look at it if they need to.

CHAIRMAN RUSSELL: Well, by the time -- since we've argued this, he could have probably read those pertinent highlighted points. So let's keep moving.

MR. RUSOFF: And I don't think I'm going to take any longer with our one witness than the other parties are going to take with their witnesses. It's my intent to proceed as -- to go fast.

Q. (By Mr. Rusoff) Mr. Merchant, were you aware of the Seitz and Page memos when you reviewed SME's permit application?

A. Yes.

Q. And did you rely on those memos in evaluating BACT for the HGS?

A. Yes.

Q. How did you rely on them?

A. I relied on them in conducting -- or reviewing a BACT analysis and a determination for PM10 as a surrogate for PM2.5.

Q. Are you familiar with the EPA's permit for the Deseret facility which the EPA issued after the Department issued its final permit on the HGS?

A. Yes.

Q. Did EPA include a PM2.5 specific emission limit in that permit?

A. No.

Q. And how do the limits imposed on the Deseret CFB boiler compare to the limits the Department determined to constitute for BACT for the HGS?

A. The filterable PM10 limit in the Deseret permit is the same as the filterable PM10 limit imposed on SME in their final air quality permit, and the filterable plus condensable PM10 limit in the Deseret permit is a higher limit than that imposed on SME in their air quality permit.

Q. In making a BACT determination, is it necessary to know the predicted uncontrolled emissions of the pollutant in question?

A. Yes.

Q. Why is that?

A. The entire analysis is based on the reduction of the pollutant in question; that is, what are the available control technologies to reduce that pollutant. You need to know what's going into the control technology to determine what's -- you know, what the percent reduction is, what the cost-effective value is in dollars per ton. Those are just a couple of examples. But it's absolutely imperative that you understand what the uncontrolled emission rate is in order to evaluate the top controls.

Q. And how are predicted uncontrolled emissions

determined for a proposed new coal-fired boiler that hasn't been constructed yet?

A. You would use what is generally termed an emission factor, an uncontrolled emission factor, which is going to be, for a project like this, based on the fuel, the unit combusting the fuel, several different factors -- many different factors.

Q. Okay. And at the time you made a BACT determination for the HGS, did you have emission factor information regarding predicted PM2.5 uncontrolled emissions from the CFB boiler?

A. No.

Q. Do you know why that was?

A. To the best of my knowledge and understanding -- First and foremost, I should say those emissions were not estimated in the application. And to the best of my knowledge, those emissions factors, to determine what uncontrolled emissions are, are not available.

Q. In your experience as an air quality permitter, where would emission factor information for a CFB boiler normally be found?

A. There are various published databases, a compilation of air pollution factors. For example, EPA's AP-42 Compilation of Air Pollutant Emission Factors provides emission factors for stationary sources on

controlled, uncontrolled. There are other databases with published information. You might find them from similar source testing, you might find them from a vendor, you might -- There are a number of sources you can find those.

Q. So during your review of SME's permit application, did you conduct any research to determine whether emission factors were available for PM2.5 emissions from the CFB boiler?

A. I did.

Q. What did you find?

A. I was unable to find any emission factors for PM2.5 from a CFB boiler.

Q. Referring back to the Deseret permit documents included in the exhibit binders, can you tell from this -- from those documents whether EPA used a BACT determination for PM10 as a surrogate for PM2.5 in the Deseret permit?

A. What item number are they in the exhibits?

Q. Referring to DEQ and SME Exhibit 12.

A. I probably didn't need to refer to the actual exhibit.

They did conduct -- or did analyze a BACT analysis for -- What was the question?

Q. I just was asking whether or not you could determine from that document whether the EPA, like the Department, used a BACT determination for PM10 as a

surrogate for a BACT determination for PM2.5.

A. Yes, they did.

Q. Referring to the document admitted as DEQ and SME Exhibit 14, can you identify that document for the Board.

A. This is an EPA Federal Register Notice dated Friday, September 21st, 2007, titled "Prevention of Significant Deterioration for Particulate Matter Less Than 2.5 Micrometers - Increments, Significant Impact Levels and Significant Monitoring Concentration; Proposed Rule."

CHAIRMAN RUSSELL: What exhibit is this?

MR. REICH: 14.

CHAIRMAN RUSSELL: 14.

Q. (By Mr. Rusoff) And can you -- You identified the document. Can you just briefly explain to the Board members what that document represents, what it's intended to do.

A. It's a proposed rule providing information on how to -- in the context of new source review PSD permitting --

MS. DILLEN: Again, I'm going to object; I think that the document does speak for itself.

CHAIRMAN RUSSELL: Well, describe the document, let's not recite it.

MS. DILLEN: Well, with all due respect, Mr. Chair, members of the Board, to the extent that

Mr. Merchant is being asked to characterize a document which is there for you to see, I would -- I do find that objectionable to the extent that it mischaracterizes the document.

MR. RUSOFF: And I can ask a more specific question. It probably wasn't a very good question.

CHAIRMAN RUSSELL: Try again.

Q. (By Mr. Rusoff) Mr. Merchant, does this notice of proposed rulemaking relate to PSD -- proposed PSD regulations for PM2.5?

A. Yes.

Q. And I won't ask you to recite the exact language out of the document, but does that document include any statements concerning the status of EPA's surrogate policy?

A. It does.

Q. And does that document indicate that states may continue to rely on that surrogate policy?

A. Yes.

MR. RUSOFF: I'm trying to eliminate some of my questions to save some time here, that's why I'm pausing.

Q. (By Mr. Rusoff) Is BACT an emission limitation?

A. BACT manifests as an emission limitation. However, just as important as that emission limitation is the process conducted to achieve -- or to determine that

emission limitation.

Q. Is a control technology typically associated with a BACT emission limit?

A. Yes.

Q. And why is that?

A. It's important to include a condition requiring the specific control technology analyzed as BACT through the BACT process because that control technology is followed through the five-step process in determining what the emission limit is; what is the appropriate maximum achievable reduction associated with that technology deemed the top control considering all aspects, environmental, economic impacts, costs, other aspects of the process. So it's very important that that emission control technology be included as a condition in the permit as well as the emission limitation itself.

Q. What control technologies did you review in making the Department's BACT determination for filterable PM10?

A. Wet scrubbing devices, electrostatic precipitators, wet and dry, and fabric filter baghouses.

Q. Did you say you reviewed wet ESP?

A. Yes.

Q. And is that shown expressly in your BACT determination?

A. Yes.

Q. Did SME's permit application include information regarding uncontrolled PM10 emissions from the HGS?

A. Yes.

Q. And how does a fabric filter baghouse rank in terms of control efficiency for PM10 in relation to the other available control technologies you reviewed for filterable PM10?

A. Based on the information in the application and my independent research, the fabric filter baghouse, in this case, a Teflon-coated baghouse, constitutes the top technology from a control efficiency standpoint.

Q. And in your approximate nine years of experience in air quality permitting, have you regularly reviewed information concerning the relative control efficiencies of available particulate control technologies?

A. Yes.

Q. Is there an advantage to Teflon-coated bags over uncoated fiberglass bags for a fabric filter baghouse in terms of control efficiency?

A. In this case, and based on the information provided in the application, the Teflon-coated bag had a 99.85 percent control efficiency associated with it, whereas the fabric -- the fiberglass fabric filter baghouse had a 99.81 percent control efficiency associated

with that control.

Q. What was SME's conclusion in its permit application regarding Teflon-coated bags?

A. SME concluded that Teflon -- while they were the top control technology, the Teflon-coated bags were not cost effective, and therefore, they proposed an emission limit associated with the lower or not quite as good control technology, the fabric filter.

Q. In your evaluation of SME's application, did you agree with SME that Teflon-coated bags were not cost effective for the HGS?

A. I did not.

Q. And ultimately, what control technology did you determine to be BACT for filterable PM10?

A. The fabric filter baghouse.

Q. And why did you determine BACT to be a fabric filter baghouse for the HGS?

A. Because it represented the top control -- the top available control for controlling PM10 emissions.

Q. I don't know that you need to actually look at the document, but referring to DEQ and SME Exhibit 12, which has been admitted, which is the final statement of basis for EPA's Deseret permit, did EPA rank the control efficiencies of fabric filter baghouses and wet ESPs for the Deseret CFB boiler?

A. Yes.
Q. And what do you recall EPA's conclusion was?
A. EPA ranked the fabric filter as the top control for the available control technologies.
Q. Over wet ESP?
A. Over wet ESP, yes.
Q. Okay. Based on your evaluation, did you agree with SME's proposed BACT limit of .015 pounds per million Btu?
A. No.
Q. And I believe there's been testimony in the case already that your determination of BACT for filterable PM10 was .012 pounds per million Btu; is that correct?
A. That's correct.
Q. In making that BACT determination of .012 pounds per million Btu, did you factor in the limits that you were aware of for other similar facilities?
A. I did.
Q. And how did you consider those other limits?
A. Let me just try to explain the process -- It's probably going to be in better context if I explain the process itself.
In going through a BACT analysis -- in reviewing a BACT analysis and making a determination, we, again, look at all the available controls, eliminate the technically

infeasible control options, rank the remaining technically feasible options, and then consider environmental, economic, and other costs, energy costs, energy concerns, those kinds of things, and then we select BACT. In this case, the top control was deemed the fabric filter baghouse, Teflon coated, at 99.85 percent control from an uncontrolled emission factor specific to this boiler and the coal source.

And so I went through that process, determined that a 99.85 percent reduction from this top control technology will result in 0.012 pounds per million Btu. I then took that number, analyzed the available information for other similar facilities, a few of which, again, were slightly lower than that, but, in general, this was -- my consideration in general was this was definitely within the range of the permitted and recently permitted similar sources. And, actually, it was near the top of those control technologies in limiting the emission rate of PM10.

Again, consideration for those other control technologies, but BACT is not the lowest achievable emission rate.

Q. Are there operating variables that may differ from one facility to another that are relevant to a BACT determination?

A. Many. Yes.

Q. Can you just briefly describe some of those variables.

A. Different-sized boilers, different fuel sources, different plant configure -- I mean, there are a myriad of different factors that can impact the emissions from a given source. That's why BACT is conducted on a case-by-case basis specific to the proposed project.

Q. In your years of experience as an air quality permitter, was it common for you to find a range of emission limits for similar permitted facilities?

A. Yes.

Q. So can you just briefly summarize the basis for your determination that .012 pounds per million Btu constituted BACT for filterable PM10 emissions from the HGS.

A. In summary, it represents a 99.85 percent reduction from the uncontrolled emission rate specific to this project, and that is the top control efficiency associated with the available controls.

Q. Does a fabric filter baghouse control PM10 as well as particulate larger than PM10?

A. Yes.

Q. Does it also provide control for PM2.5?

A. Yes. Filterable PM2.5, yes.

Q. Would requiring a wet ESP downstream of a fabric filter baghouse be similar to requiring installation of more than one fabric filter baghouse?

A. Yes.

Q. Have you ever seen that required in a BACT determination?

A. I have not.

Q. And does a fabric filter baghouse provide co-benefit control of other pollutants besides filterable particulate?

A. Yes, it does.

Q. I think some potential impacts from a wet ESP have been described already, but can you describe the potential problems with requiring a wet ESP as BACT for the HGS.

A. I would just generally state that, you know, you're not going to get -- one of the problems is you're not going to get the co-benefit control that you would get with a fabric filter baghouse through buildup of a filter cake. You're going to get additional SO2 control, but you're not going to get that with the wet ESP. And with the wet ESP, you're going to have an additional waste stream, wet waste stream to deal with. So that would be my general summary of the differences and issues.

Q. In your review of particulate control BACT

information over your nine years as an air permitter, have you ever seen reference to a membrane technology being required as BACT?

A. I have not.

Q. After submitting its permit application, did SME continue to propose a higher filterable PM10 limit than .012?

A. Yes.

Q. And is that shown in any of the documents that are in the board members' exhibit packet?

A. I believe it is.

Q. I'll ask a more specific question.

Referring to DEQ and SME Exhibit 16, can you identify that document for the Board.

A. Yes. These are comments submitted by Bison Engineering on behalf of SME on the Department's draft air quality permit.

Q. And in that letter, did SME ask the Department to eliminate a separate filterable PM10 limit?

A. Yes, it did.

Q. And did the Department grant that request?

A. No.

Q. Can you refer the Board to the page in DEQ and SME Exhibit 16 that you're referring to in reference to the request to eliminate the separate filterable PM10

limit.

A. I'm referring to page 2 of this exhibit, at the bottom, item 8, captioned as "Air Quality Permit Section II.C.4."

MR. RUSOFF: And I just have a few more questions.

Q. (By Mr. Rusoff) What was your BACT determination for condensable PM10?

A. The BACT determination for condensable PM10 was actually expressed as a total PM10 limit, which included the filterable PM10 limit of 0.012 pounds per million Btu and then a condensable fraction of 0.014, for a total PM10 limit, filterable plus condensable, of 0.026 pounds per million Btu of heat input to the boiler.

Q. And what was the basis for the .014 limit for condensable PM10?

A. The basis was that the 0.014 pounds per million Btu condensable fraction is made up of the precursor condensable PM10 emissions that are expected from the boiler after control.

Q. Are there control technologies specifically designed to control condensable particulate emissions?

A. Not directly. They are controlled through the control of precursor emissions, including sulfuric acid mist -- generally, or primarily including sulfuric acid

mist, acid gases, HCL and HF, trace metals, and other constituents -- or precursor constituents.

Q. And what control technologies did you review in making the Department's BACT determination for condensable PM10?

A. Generally, the available control technologies for these precursor emissions or condensable PM10 emissions are those available control technologies for SO2 and filterable PM10 emissions. So we, in this case, analyzed -- and I think I'll get this without referring, if I lose track -- wet and dry flue gas desulfurization units or FGDs in combination with a fabric filter baghouse or a wet ESP, a dry ESP. We analyzed a number of controls. Again, these were the controls that were generally -- or that were available for SO2 and filterable PM, and they act as a co-benefit control to condensable PM precursor emissions.

Q. So can you briefly summarize for the Board how you analyzed control of condensable PM10.

A. Generally -- or in summary, what we did was we analyzed the available controls for condensable PM. Again, these were the controls that were available for SO2 and filterable PM. And we determined that the top controls for the condensable PM precursors were, in fact, the top controls for SO2 and filterable PM, which had

already been deemed BACT for those specific pollutants. Therefore, we're getting co-benefit control for the condensable PM10 emissions.

Q. At some point in your review of SME's application, did SME ask the Department to omit any emission limit for condensable PM10 -- to omit any emission limit for condensable PM10 from the permit; do you recall that?

A. I do recall that. I think that -- It's understood at this point, and I've even seen, I guess -- I've seen some EPA correspondence as well that says condensable PM limits should not be included in permits until such time as some of these issues have been taken care of that we've talked about this evening. And based on that, I believe that was the basis for SME requesting that permit limit be removed.

Q. Did the Department eliminate a condensable PM10 limit from the final permit?

A. No.

Q. You don't need to look at the document, I don't think, but referring to the Deseret permit shown in DEQ and SME Exhibit 11, are there any provisions in that permit that provide for potential upward adjustment of the total PM limit of .030 pounds per million Btu?

A. Yes. The Deseret permit provides or includes a

condensable -- or a total PM10 limit, filterable and condensable, of 0.03 pounds per million Btu, with the provision that the affected facility has a period of time to optimize, and if they do not realize that limit, that that limit can be increased to 0.045 pounds per million Btu as a ceiling, the maximum limit.

Q. Did the Department include in the permit for the HGS any provisions allowing for potential upward adjustment of the total limit of .026 for the HGS?

A. No, we did not.

Q. And I just have one final question. Were the filterable PM10 and condensable PM10 emission limits you found to constitute BACT for the HGS the lowest limits you believe the HGS reasonably could be expected to consistently achieve?

A. Yes, based on the project's specific information, I believe that those limits constitute BACT, which must be achievable on a constant basis.

Q. I just have one -- I've been asked to ask one short question. You referred to your determination that a fabric filter baghouse constituted BACT for filterable PM10. How does the Teflon bags that you analyzed relate to that BACT determination?

A. The Teflon bags constituted the highest or the -- the best or top control at 99.85 percent control, and

the .012 pounds per million Btu limit is directly related to that 99.85 percent control efficiency. I didn't specify a Teflon bag in the condition because, you know, there could feasibly be some technology that didn't -- you know, they may install a bag that they're able to achieve that limit that, you know, used some other product other than a Teflon coating, and I didn't want to limit them to -- I knew that fabric filtration was a top control. I saw that there was a bag in the analysis able to achieve that limit of 0.012 pounds per million Btu, and, in fact, it was based on that, but I didn't want to limit them to the Teflon product itself, and therefore, I required a fabric filter baghouse.

MR. RUSOFF: Thank you. I don't have any further questions on direct for the witness.

MS. DILLEN: Mr. Chair, members of the Board, I can represent that I do not have an extensive cross that I'll need to do for Mr. Merchant. But in the interest of going fast and the hour and when we had lunch and my fatigue and, I suspect, yours, I propose that we take up a cross in the morning. And I will make you a deal, I promise that it will be expeditious.

CHAIRMAN RUSSELL: I look around at the board members and I think it's time to recess. So we'll take this up at 8 o'clock in the morning or soon thereafter.

But let's try to get started at 8. And if we stick to the four hours and we're done with Eric in an hour, that will be just fine.

All right. We'll see you in the morning.

(The proceedings were adjourned at 6:32 p.m.)

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COURT REPORTER'S CERTIFICATE

STATE OF MONTANA)
ss.
COUNTY OF LEWIS AND CLARK)

I, CHERYL ROMSA, Court Reporter, Notary Public in and for the County of Lewis and Clark, State of Montana, do hereby certify:

That the foregoing proceedings were reported by me in shorthand and later transcribed into typewriting; and that the -58- pages contain a true record of the proceedings to the best of my ability.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this 29th day of January 2008.

CHERYL A. ROMSA
Court Reporter - Notary Public
My Commission Expires 8/4/2011