BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

JAMES A. GLASGOW, VICKIE L. GLASGOW,
BILL HOPPE AND PAT HOPPE,
Complainants,
vs. No. PCB 00-221
GRANITE CITY STEEL,
Respondent.

Proceedings held on July 11, 2001 at 9:05 a.m., at the City Hall, 2000 Edison Avenue, Mayor's Conference Room, Granite City, Illinois, before Hearing Officer Steven C. Langhoff.

VOLUME II

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P R O C E E D I N G S

(July 11, 2001; 9:05 a.m.)

HEARING OFFICER LANGHOFF: Okay. Good morning everyone. Welcome back. This is day two of the hearing PCB 00-221. It is July 11th, and it is 9:05 in the morning.

Mr. Zak is on the stand, and he is reminded that he is under oath. And Mr. Muskopf has some preliminary matters he wishes to discuss. Go ahead, Mr. Muskopf.

MR. MUSKOPF: Thank you. The first one is I want to make a motion to exclude witnesses. I guess Granite City Steel is entitled to have a corporate representative, but when their other witnesses arrive I would like to have them outside of the presence of the other people giving testimony.

HEARING OFFICER LANGHOFF: Yes, Mr. Babst?

MR. BABST: The witnesses that we are presenting from the company are not testifying on the same issues. I would prefer them to be here so that they can hear Mr. Zak testify and also be in here for the rest of the testimony. I mean, no differently than we did with the complainants yesterday as well as when we took the complainants' depositions. As far as I understood, when we took those they were all allowed to sit there and participate. So I would ask that we be accorded the same treatment.

HEARING OFFICER LANGHOFF: Okay. Thank you.

MR. MUSKOPF: I mean, parties, obviously, have an absolute

right to be in here the entire time. It is just the lay witnesses. And experts can be here, too. It is the lay witnesses that don't have the right to be present for all of the testimony.

HEARING OFFICER LANGHOFF: Okay. I understand your argument, Mr. Muskopf. I am going to overrule your objection.

MR. MUSKOPF: Okay. The next issue I have is a late disclosure problem. I had sent 213(f) and (g) interrogatories at the outset of the case. I got a response on January 3rd of 2000 to Interrogatories and Requests for Production. My problem here is with the late designation of 213(f) witnesses, which would be fact witnesses. Mr. Siebenberger was disclosed at that time in January of 2000. There was a supplemental response to my request for production in February of 2001 and it didn't disclose, obviously, any fact witnesses, 213(f) witnesses, because it was simply supplementing a request for production.

Then I got a disclosure of opinion witnesses in June of 2001. Mr. Studholme was then disclosed as a 213(g) witness, and that is not my complaint at this point. But what I am complaining about is on June 27th of 2001, about 12 days before the hearing yesterday, for the first time I was given the names of Joseph Ribbing, and unnamed Surdex, S-U-R-D-E-X, representative, a gentleman by the name of Jerry Pais, P-A-I-S, a

Joseph Wehner, W-E-H-N-E-R, and Bob Holleran, H-O-L-L-E-R-A-N.

I don't know how many times it was represented to me and the Hearing Officer that all discovery had been completed. This case has been in the stage where discovery had essentially been completed. The only thing we needed to do was wrap up a couple of experts. And then a very, very short time before this hearing I get notice that there are one, two, three, four, five fact witnesses that I certainly had no chance to take their depositions if I wanted to or really do a decent job of evaluating what they were going to say.

I didn't -- before I received the disclosure, less than two weeks ago, I got no indication that there was going to be one. It simply showed up in my office one day. I pointed out to the Hearing Officer in the final pretrial that this could be an issue. So, I mean, clearly the rules call for disclosure of these kinds of witnesses 60 days before the hearing, and there has been -- there is really no reason why -- no reason to justify the late disclosure, and I don't think those witnesses should be allowed to testify.

HEARING OFFICER LANGHOFF: Thank you. Mr. Babst.

MR. BABST: I am honestly surprised at Mr. Muskopf's motion here. In our prehearing conference on July 3rd Mr. Muskopf did discuss this, but it is certainly not my recollection that he

said this could be an issue. In fact, he said that he could, if he wanted to, have objected to that, but in cases where he is as

confident as he is, that he didn't see that as a problem and voiced no concern and no objection at that time.

I have spoken with Mr. Muskopf on at least two occasions since that time. We discussed the witnesses that I was going to call. I discussed with him the scope of the testimony, and it was certainly my very clear understanding that he had no problem with those witnesses testifying. So the motion that is being presented this morning is certainly inconsistent with everything that he has represented, I believe, to the Hearing Officer and to me over the past week, and I would request that his motion be denied.

HEARING OFFICER LANGHOFF: Okay. Thank you. Anything else, Mr. Muskopf?

MR. MUSKOPF: Yes. The only agreement that we had was with regard to exhibits, and with regard to the stipulation as to expert qualifications. I certainly never said that I am going to allow Mr. Babst to put on these witnesses, even though they have been disclosed untimely. And, I mean, the issue is not when I am making my motion to exclude these witnesses. The issue is when these witnesses were disclosed.

HEARING OFFICER LANGHOFF: I am going to overrule your motion, Mr. Muskopf. Do you have anything else?

MR. MUSKOPF: Yes, I do. These fact witnesses were not disclosed as opinion witnesses. They were disclosed as fact

witnesses, but the truth of the matter is that I expect Mr. Babst is going to try to elicit opinions out of them. For instance --

HEARING OFFICER LANGHOFF: Is there any other argument other than that, without giving me for instances?

MR. MUSKOPF: No. I mean --

HEARING OFFICER LANGHOFF: It would be appropriate to object at that time when we have them on the stand.

MR. MUSKOPF: As opposed to a motion in limine, as I am making now?

HEARING OFFICER LANGHOFF: Go ahead and make your motion if you want to.

MR. MUSKOPF: Okay. My motion in limine is simply that these witnesses who have been designated as fact witnesses should not be allowed to offer opinion testimony. And, for instance, Mr. Babst moved to exclude testimony from Mr. Zak on the economic reasonableness of moving the piles, or on the cost of moving the piles. He specifically refers to that as opinion witness -- as opinion testimony.

When you look at the motion in limine that I received for the first time yesterday, in the early morning, however, Paragraph 12, respondent hereby seeks to exclude any opinion

testimony from Zak dealing with the following areas:

A, testimony regarding the cost of moving coal piles or designing, constructing, and maintaining a sound barrier.

B, testimony regarding the economic reasonableness of Granite City moving coal piles or designing, constructing, and maintaining a sound barrier. Paragraph 13 --

HEARING OFFICER LANGHOFF: Thank you, Mr. Muskopf. I can read Mr. Babst's motion in limine. I am afraid I don't understand your argument. What exactly are you seeking to exclude?

MR. MUSKOPF: Any opinion testimony from the witnesses Mr. Babst has designated as fact witnesses. He has taken the position that Mr. Zak can't give opinion testimony on these matters that clearly call for opinion testimony, like the economic reasonableness of moving the coal piles. But, yet -- so he is saying that that is opinion testimony. But he has designated fact witnesses on his side to testify to the same thing. And he has taken the position that when his witnesses testify to the matter it is a matter of fact. But when Mr. Zak testifies to it, it is a matter of opinion and it should be excluded because he has not been designated as an opinion witness on those subjects. I am simply moving -- I would like a level playing field in this hearing.

HEARING OFFICER LANGHOFF: Thank you. Anything, Mr. Babst?

MR. BABST: Yes. My objection to Mr. Zak was not that he was not designated. In fact, I think, the attempt was not to designate him. My issue with Mr. Zak was with respect to those

areas he is not an expert. So if the coal pile issue becomes an issue, and we have somebody that has looked at that, if that individual has qualifications that Mr. Zak does not have, then I would intend to show those qualifications. But I came here not knowing and I still don't know what he is going to say with respect to alternative means of reducing noise. So I am at somewhat of a disadvantage and have to be able to respond to what I hear Mr. Zak testify to.

HEARING OFFICER LANGHOFF: Okay. Thank you. Anything else, Mr. Muskopf?

MR. MUSKOPF: Well, I guess my --

HEARING OFFICER LANGHOFF: Any additional argument?

MR. MUSKOPF: No.

HEARING OFFICER LANGHOFF: Okay. Thank you. I am going to overrule your motion in limine. Anything else this morning?

MR. MUSKOPF: Yes. I would ask that the Hearing Officer reconsider his ruling on the motion in limine with regard to Mr. Zak in compliance with noise regulations or specifically on the subject of whether Mr. Zak can express the ultimate opinion that the noise constitutes an unreasonable interference. And my

support for that is in Mr. Studholme's disclosure he is designated as -- in respondent's disclosure of opinion witnesses in which Studholme is the only expert disclosed, Mr. Studholme is expected to testify that the respondent is currently in

compliance with all applicable Illinois laws and regulations which are relevant to the allegations made by complainants in this matter.

Well, I am just at a loss to understand why Mr. Studholme can testify to those things. Mr. Babst has said in his disclosure I intend to call Studholme to say that Granite City Steel is in compliance with all Illinois laws and regulations. That necessarily calls for the opinion that, since this is a nuisance case, that the noise does not constitute an unreasonable interference. So I am not sure why Mr. Babst's expert should be allowed and why he can say that I intend to have my expert testify to this matter and then on the other hand say that Mr. Zak is not allowed to do such a thing.

HEARING OFFICER LANGHOFF: Thank you. Mr. Babst?

MR. BABST: If it helps Mr. Muskopf, I do not intend to ask Mr. Studholme whether he is of the opinion that there has been a -- I am trying to think of the way to say this without double negatives. But I am not going to ask him to testify to the reasonableness of the interference.

HEARING OFFICER LANGHOFF: Okay. Thank you. I am going to

overrule your motion, Mr. Muskopf.

MR. MUSKOPF: All right. Shall we proceed with Mr. Zak, then?

HEARING OFFICER LANGHOFF: Please. Just briefly, Mr. Zak

had just finished testifying concerning recommendations to the back up beepers and the bulldozer. I believe you stated that there were three categories of the bulldozer that you were going to testify about, back up beeping, tracks, and engine. I believe he is finished with the back up beeping. But that's where we were so everyone remembers where we were.

DIRECT EXAMINATION (continued.)

BY MR. MUSKOPF:

Q. Mr. Zak, when we last talked, we were talking about your suggestion that Granite City Steel disconnect the back up beepers on the Caterpillars and instead have an observer that would be in compliance with -- I guess it would be the federal regulations. Do you recall that?

A. Yes. I think specifically it would be the OSHA regulation for worker safety.

Q. Is there any cost associated with disconnecting the back up beepers?

A. In my experience, having dealt with a number of contractors, it generally has been simply -- a simple solution,

such as putting a switch on there for probably a few dollars or even just temporarily disconnecting a wire at virtually no cost.

Q. Okay. Is there a cost associated with having an observer present?

A. Again, it has been my experience that typically if there

is enough personnel around the area where there is a danger of somebody being injured one of the people on the ground can be designated as an observer. In that case the cost would be -- it would be minimal really. And in those situations where there really aren't the personnel there, in that kind of situation you would not need the observer because there is nobody there to get injured. Of course, then the cost in that situation would be essentially zero.

Q. Okay. I guess that covers the back up beeper issue. We were talking about the bulldozer and the three different noise sources from the bulldozer. We talked about back up beepers. We have not discussed it yet, but we did mention the clatter of the tracks, and the engine noise. Do you have any solutions in mind for the clatter of the tracks and the engine noise?

A. As far as the clatter of the tracks, I am not aware of any retrofit kit that can be put on a machine like that to, in essence, reduce or silence the clatter from the track. I believe there may be some newer machines now that do have rubber tracks as opposed to metal ones. But I would tend to rule that out

because of the cost of replacing the machinery. So the track problem, I think it would best be addressed by a noise barrier wall between the Granite City facility and the complainants in this case.

Q. Can you give me some more detail about this acoustic

barrier that you just mentioned and what its specification would be, how tall it needs to be, how long, the materials it should be made of, where it should be positioned?

A. To answer your question, the noise barrier would be located I would say as close to the coal pile as possible. On a noise barrier we want to locate it in one of two locations for maximum effectiveness. And that would be either as close as possible to the noise source or as close as possible to the receiver. In this situation it does not seem like it would be very feasible to locate it very close to the receiver. So I would say that what I would suggest would be to go with -- to be located as close as possible to the coal pile.

In addition, the height, we need sufficient height on the barrier to achieve what we call breaking line of sight. We have got two homes there, both of which have second floor windows. I would suggest breaking the line of sight to the second floor windows from the machinery operating on the coal area, a barrier of, say, perhaps 22 feet high and several hundred feet long could

accomplish that with the understanding that there would also have to be some modification to the coal pile. The current height of the coal pile is such that the machinery, when it climbs near the top of the coal pile, even if we had a 22 foot barrier there, would still be in the line of sight of the houses and then would still have virtually the same noise problem.

In order to minimize that, what I would suggest would be to maintain the height of the coal or the coal piles or however it would be stacked there, to maintain the height such that when the machinery is not operating on top of the coal it would still be hidden by the barrier as one was looking out the second floor windows of the homes, or conversely, if one was sitting on one of the machines, for example, the Caterpillar, and looking over at wall, they would not be able to see -- the operator would not be able to see the second floor windows on either of the two homes, the Glasgow home or the Hoppe home.

Q. Okay. Would it be helpful to look at the aerial survey for you to draw on that map where you think the -- in terms of the length, where you think the acoustic barrier should be positioned?

A. Yes.

Q. Okay. Here is a blue pen. Can you give us a rough indication on there, understanding that it is not to scale or to indicate the precise length of the barrier but, rather, to

propose a general idea as to where the barrier should be?

HEARING OFFICER LANGHOFF: For the record, that is C34?

MR. MUSKOPF: Yes. Thank you.

HEARING OFFICER LANGHOFF: Thank you.

THE WITNESS: I will go ahead and draw in the approximate dimensions needed. My drawing here is such that the length of

the barrier is determined by how wide it has to be in order to break the line of sight from the three coal piles to the residential area, specifically the homes of the Hoppes and the Glasgows. I have drawn a line on the aerial photograph with a small perpendicular line to indicate the extent of the barrier, and that is located just a little bit southwest of the three Xs indicating the coal piles.

Q. (By Mr. Muskopf) If the coal piles were moved from their present location, which is indicated by several Xs on Exhibit C34, assuming those are the present locations, if those coal piles were moved further along Edwardsville Road, away from the Glasgow and Hoppe residences, and I guess that would be in sort of a northeasterly direction, would the barrier then also need to be extended to break the line of sight between the coal piles and the Glasgow and Hoppe residences?

A. Yes.

Q. And tell me about the materials, the most cost effective

set of materials that would be needed to construct this barrier?

A. The most cost effective material is normally wood, and you would want a wooden barrier that had a minimal thickness of approximately one inch, and would have a weight per square foot of at least two pounds or two pounds plus, and the -- one of the most common materials I have seen used outdoor grade plywood. Typically it comes in a half inch thick sheet, doubling the

sheets over to produce one inch of thickness, and using that as the material.

The key factors of doing this is the barrier has to be totally air tight and it also has to be, in essence, sealed to the ground so there are absolutely no gaps of any kind at the ground. So we are looking at a structure I will often describe as being virtually water tight because if we have any holes, cracks, imperfections, that would be the point where we would have sound leaking through and would greatly diminish the effectiveness of the barrier.

Q. Have you seen this type of barrier work in an effective manner and approved by the Board in other cases?

A. Yes, I have. There have been a lot of cases, and I have made no attempt to try to memorize all of the cases, but a few that do come to mind would have been Thomas versus Carey Companies in Decatur, Illinois. And in that case the company built a barrier a few hundred feet long and something on the

order of approximately 15 feet high. In that case I estimated the cost at $50,000.00. They bid it out and got it done for $12,000.00.

MR. BABST: I would object to that on the basis of -- that's providing hearsay responses or giving information based on something that he has been told by someone else.

MR. MUSKOPF: We have already covered this. I don't have

any other argument to make.

HEARING OFFICER LANGHOFF: I am going to overrule your objection.

THE WITNESS: To continue on, another case using this type of barrier was in the case of Rokey versus LTD Commodities. In that situation I was one of a number of consulting type people. I represented the Illinois EPA. We had some private consultants there also. It was a case before the Board. And we were looking at a barrier in that situation of, oh, perhaps 10 to 14 feet high, and having a length of several hundred feet. I think probably in excess of 500 feet. The cost on that was in the area of $100,000.00 to $300,000.00. I think that most of the estimates -- there were some estimates of $100,000.00 to $300,000.00, but most of the estimates were $300,000.00 on that barrier.

Another situation where this solution was to be used was at

the complaint of Cohen versus Overland Trucking. And in that situation I specified a barrier of 22 feet high, and several hundred feet long. The barrier, however, was not constructed, as the facility decided to move their trucking operation.

The other situation I had for a noise barrier was one of about 15 feet high, approximately 200 feet long at a landfill. The landfill was using heavy construction equipment, large bulldozers, scrapers, the typical equipment you see for highway

building, and was hauling, very, very large amounts of material. Actually it was much larger than what I had seen over at Granite City Steel. And that 15 foot high barrier in that case gave us quite a bit of noise reduction, reduced noise to much less than half of what it was.

As far as the equipment was concerned, with that situation I was asked by the landfill to go over the equipment in detail and make any engineering recommendations for quieting the equipment. The tracks, they were metal tracks. There was very little I could see to do with the metal tracks. On the actual equipment, though, they did improve the exhaust systems on there. They went from standard heavy equipment exhaust mufflers to the best available technology for a very, very quiet noise muffler.

So with the improved muffling and the wall with the heavy equipment there we were able to bring the facility down into compliance. And that case was heard before the Circuit Court in

Springfield, Illinois, and it was People versus Sangamon Valley Landfill.

(Whereupon documents were duly marked for purposes of identification as Complainant Exhibits C43 and C44 as of this date.)

Q. (By Mr. Muskopf) Okay. Speaking of the amount of noise reduction that this barrier would achieve, let me show you what has been marked as C43 and C44.

HEARING OFFICER LANGHOFF: I don't have those documents. Does Mr. Babst have those documents?

MR. BABST: Yes, we have a full set.

MR. MUSKOPF: That's where I got them.

HEARING OFFICER LANGHOFF: Okay. Wait a second. I am sorry.

Q. (By Mr. Muskopf) These exhibits -- have you seen these before?

A. No.

Q. Okay. These were provided to me by Mr. Babst. C43 is entitled complainant videotape noise measurements. C44 is --

MS. CHRISTMAN: I think you are referring to those different numbers.

MR. MUSKOPF: I am sorry?

MS. CHRISTMAN: What are the numbers marked on your

exhibits again?

MR. MUSKOPF: C43 and C44.

MS. CHRISTMAN: Okay. The Hearing Officer may have them marked as -- as far as the Hearing Officer trying to locate them --

MR. MUSKOPF: Well, then they would be Number 28.

MS. CHRISTMAN: Mr. Hearing Officer, for your reference.

(Ms. Christman passing documents.)

HEARING OFFICER LANGHOFF: Thank you.

MR. BABST: This is a set for you, sir.

HEARING OFFICER LANGHOFF: Thank you.

Q. (By Mr. Muskopf) I want you to assume that the figures, the values -- excuse me. Exhibit C44 is entitled, BCCZ noise analysis for 20 feet from Edwardsville Road on Alexander Avenue. Now, I want you to assume that the noise level measurements on these two exhibits are correct.

A. Okay.

Q. Assuming that we have the back up alarm and the bulldozer engine noise on the coal pile reaching noise level measurements of 77 dB(A) and over 70 dB(A), in that range, what kind of noise reduction -- and I was taking those values from C43. On C44, in the second column, we simply see maximum piles events, which is the fourth row, and there is a value of 71.6 dB(A), with these measurements supposedly being taken on

Alexander Avenue, 20 feet from Edwardsville Road.

So assuming that that is basically the range of -- or the -- yes, the range of sound level measurements that we are getting from the bulldozers on the coal piles at the Hoppe and Glasgow residents, what kind of noise reduction, in decibels, could we expect to achieve by the barrier that you have proposed?

A. The barrier -- well, the barrier working in conjunction with the lowering of the height of the coal.

Q. Right.

A. So we basically break the line of sight from the equipment to the residential area. And, say, we used a barrier of about 22 feet, which I basically got that information from having actually measured, observed tollway barriers up in the Chicago area. But using that 22 foot height, I would estimate that you would probably see about a 15 dB(A) reduction in sound level.

Q. Okay. That would be sufficient, in your opinion, to substantially reduce the perceived noise level at the Glasgow and Hoppe residence?

A. Yes, it would reduce it significantly. It may still leave it somewhat above the actual Board numeric standard, but it would bring it -- again, with the modifications, say, to the mufflers and -- are we still just talking about the bulldozers?

Q. Yes.
A. And we are limiting it to that?
Q. For the moment.
A. Okay. Yes. Then that's what I would say, that you would have a reduction down to probably just slightly above the numeric standard.
Q. Have you covered the costs thoroughly of this kind of barrier?
A. Yes. In several -- in quite a few cases. Because a function of my position has always been to contact various

vendors, explain the details of the project, and ask for a quote for what it would cost to install that. And a case in point was the one in Decatur, Illinois, of Thomas versus Overland Trucking. I contacted an acoustic fence --
Q. Cohen?
A. -- firm.
Q. You said Thomas versus Overland. Do you mean Cohen?
A. Oh, I am sorry. I stand corrected. I should have said Thomas versus Carey Companies.
Q. Okay.
A. In that particular case I actually got a written bid from a -- one of the -- well, really the only company in the area that specializes in building noise barriers. And their bid was $50,000.00. And then, like I say, subsequent to that, the

company, by its own bidding process, was able to find a company that would do it for $12,000.00.

Q. If Granite City Steel did not want to reduce the elevation of their coal piles such that the line of sight would be broken by a 22 foot barrier, would they simply need to increase the height of the barrier to break the line of sight?

A. They could. But it has been my experience that you don't normally see barriers much higher than about 25 feet. Now basing this upon both the excessive amount of barriers used by the Illinois Department of Transportation, I work with IDOT quite

a bit, and they tend to limit it -- I have not seen any that are over 25 feet. The Tollway Authority does have some that exceed 30 feet in height. They are extremely expensive.

So in looking at the cost here, it would seem to me that 22 feet is about as high as you can go and still not have a tremendous cost burden for building that barrier. Typically in a situation like this we are looking at probably $100,000.00 to $300,000.00 depending on the cost of materials at the time and depending on the bids received from the various contractors.

Q. Okay. So Granite City Steel would need to limit the elevation of the coal pile to such that it -- so that the line of sight between the top of the pile and the Hoppe and Glasgow residences are broken by the 22 foot barrier?

A. That's correct.

Q. It is not going to do any good if they build a 22 foot barrier and then have coal piles so high that you can see the bulldozer from the Glasgow and Hoppe residences?

A. That's correct.

Q. Okay. What about the engine noise on the bulldozers?

A. Again, I addressed the engine noise. The main component of the engine noise is the exhaust. If you treat the exhaust, the mechanical noise of the engine itself, the turning of the radiator fan blade creates some noise also. But by far and away the dominant source of noise is the exhaust. And, again, there I

have suggested a number of times that a Nelson Model 400 muffler be used to alleviate the problem and that has been adopted by the Board in quite a few cases.

Q. How much do those cost to purchase and install per unit?

A. It has been a few years since I checked, but I think the cost was around $500.00 and, you know, depending upon who did the work, usually those things are done -- when you have those larger companies, they just usually do it internally so that your installation costs are not very high.

Q. All right. What about the -- let's go on to the other pieces of heavy equipment that we see operating on the coal piles, specifically what has been referred to as a high lift or a front loader. Do you recognize either of those terms? Or would

you like me to show you a picture to tell you what --

A. No, I know what you mean.

Q. Okay.

A. I usually just refer to them as a front loader.

Q. Okay. So what do we do about the -- what is the solution you are proposing to minimize the front loader noise?

A. Again, the barrier and reducing the elevation of the coal pile and, say, potentially improving the exhaust system on the front loader.

Q. Can we use the same type of muffler on the bulldozer that you recommended, this Nelson? Can you put --

A. Yes, it is a Nelson Model 400, and as a matter of fact, in Hoffman versus Columbia, in the Board's final decision on that they ordered the company to -- or the city, because it was actually a citizen versus city type of suit there. But the Board ordered the city to install a Model 400 Nelson muffler on some of their equipment there.

Q. Okay. Any other solutions that you see to the problem with the noise from the front loaders? Barrier and muffler, are those the two that --

A. Yes, that would be my suggestion.

Q. Okay. Then there are basically the dump trucks into which the coal is loaded and it is carried around that area.

What do you see as the solution to that noise problem?

A. Again, since the trucks are operating on the highway, on and off the highway --

Q. Actually, I was -- I am sorry. I didn't mean to -- let's make sure that we are talking about the same trucks. What I am not talking about is the type of truck that is depicted in C42, which is a semi-truck with a dump bed on the trailer.

What I am talking about are -- I don't think I have a picture of it. You may recall in one videotape there was -- well, it is essentially a large dump truck and it is not used on the roadway. It is only used around the coal piles and I believe it is loaded from the coal piles and then taken to the coke oven?

A. Okay. Help me out a little bit on the question. I am very familiar with the operations around quarries and coal mines, and they have basically what they call a haulage truck. The haulage truck does not leave the facility, and it is not street legal, you might say. Are we talking about a vehicle similar to that, where it is not really licensed for highway operation?

Q. Yes, that is my understanding.

A. Again, with that type of vehicle, the typical noise treatment on that would be, again, improving the muffling system. One thing I might add is for all of the vehicles there is to kind of reiterate my suggestion on the back up beeper. What I have seen done with some of our contractors years ago when we were

doing a lot of incineration work is they would put a switch on their back up beeper. When they were operating in the facility they would switch it off, and if they had highway operation after that they would switch it back on again.

Q. That kind of switch is relatively minimal to purchase and install, the cost?

A. Yes, a few dollars for the switch and I am sure less than $100.00 to have someone cut a wire and insert the switch in there and they are ready to go.

Q. What about the solution to the engine noise and the tailgate banging from a truck like we see in C42?

A. On the tailgate banging, I have ran into that in a

number of other cases. And it has been my experience that operation controls, say, telling the folks operating the equipment, well, don't bang the tailgate has limited if very poor results.

My suggestion on that would be to go with some type of a rubber material that would still allow the gate to close but would, in effect, cushion the gate as it comes down so it has to strike the rubber material before it can latch. And then actually by removing the metal on metal contact and having it basically being a metal on rubber on metal type contact, that would either totally eliminate or at the very least greatly

reduce the noise impact from the tailgate banging.

Q. Assuming that most of the trucks or a number of the trucks used around the coal piles, like the one in C42, are not owned or operated by Granite City Steel but, rather, by an independent company that contracts to do the work for Granite City Steel, how would -- how would we require them to install that type of device?

A. Well, I was not aware of that, as far as I thought they were all owned by Granite City Steel. Independents, what we did on several of our construction sites was to put in the contract of the outside vendor that was supplying trucks or whatever they were supplying and the drivers, that they would not do certain noisy operations. For example, we didn't really have much in the

way of tailgate problems. But if we had something like that, what we would have done is put in the contract that the company is not to allow the driver -- to instruct the driver to not bang that tailgate, and if this does happen with any frequency that we would terminate the contract then.

Q. Could you also specify in the contract that the trucks used would have the type of rubber fitting that you have described?

A. You could. You could do it that way also.

Q. Would that increase the cost of the contract, do you think? For instance, if the trucking company is going to have to

install these, are they going to then want to pass that cost back to Granite City Steel?

A. I would think so. If I owned the trucking company I would not want to pay for it myself. I would want the person requesting it to pay for that type of modification.

Q. Do you know about how much that modification would cost per truck?

A. Looking at the material involved and we were talking about, say, a relatively thin and very tough rubber, the material would be very inexpensive. The installation might be a little more involved. I would say we are looking at something in the order of $100.00 to $500.00.

Q. Per truck?

A. Per truck.

Q. Okay. Have we covered the engine noise from the semi-trucks?

A. Again, in a case like with the semi-trucks is simply requiring -- again, I am assuming that we are still talking about subcontractors and not Granite City Steel proper. And in that situation you would, again, require that the mufflers on the trucks meet state law, which state law says that the muffler on any vehicle has to be equal to or better than the muffler that came with that vehicle from the factory. And in the last ten

years most semi mufflers are pretty well designed. So assuming that the trucks are not significantly more than ten years old, the -- that would take care of the exhaust problem.

Q. Okay. Do you recall hearing some kind of metallic screeching noises from the videotape or any testimony that there has been such -- that there have been such noises?

A. Yes.

Q. Did you make any -- come to any conclusions as to what the source of that metallic screeching noise was?

A. It sounded to me very similar to a situation I had with the Agency about 20 years ago. We had a case of People versus Illinois Terminal Railroad Association in Venice, Illinois. They had a hump yard where they were classifying trains. In other words, to put it in simpler terms, they were actually

constructing rail trains to go to all parts of the United States. All the cars would go over a hump and after they passed over the hump the tracks would begin to divide and subdivide and sub subdivide, much like the roots on a tree.

The cars, as they were coming down there on a uniform hump, some cars would be going too fast. And they were going too fast and when they got to the train that they were going to couple to, they would be going too fast and would actually cause damage to that particular car or other cars.

To prevent that, they had a braking system on there. It

was a steel on steel braking system. It was a metal bar that moved and actually squeezed against the rail wheels on the car to slow it down, much like a disk brake does on a car nowadays. What that would do was set up a tremendous squeal.

We had complaints from virtually almost the entire population of the City of Venice on this situation. We looked into all different types of solutions. We were not the only ones. There was quite a bit of research done at that time on that; lubricating the wheels, lubricating the braking bars; adding water. There was a number of things that were tried, and nothing worked very well.

What finally ended up happening there was a barrier was used to contain the noise at the brakes. Again, that barrier was a 14 foot high barrier, inclined at about 45 degrees, toward the

retard or the braking area. And that gave us a sound reduction of approximately 30 decibels. We were dealing with a very high frequency sound and also the barrier itself was lined with fiberglass.

The configuration was a little bit unusual because in that particular case the railroad was given a written bid, which they showed me, from one of the major companies in acoustics for a quarter of a million dollars to construct the barrier system. And they asked our Agency if we had any ideas. I worked on that

one for several weeks and came up with a solution of using recycled materials that the railroad had on hand. And they were able to build a barrier with the same acoustic properties as this company that had bid a quarter of a million dollars to do.

The net result there was we got the cost down from a quarter of a million dollars to $60,000.00. And that did solve our problem, almost. Actually, what happened there is they were still a couple of decibels over. They had to go back to the Pollution Control Board for a variance. I testified in that case and explained to the Board why the company should be given a variance, simply because they had done everything reasonable that could be done to solve the noise problem.

Q. So the barrier that you have already described should take care of the squealing of the brakes on the train cars in this case?

A. I think it would. That squeal is a high frequency squeal, and as long as we keep the point where that squeal is coming from below the line of sight, it should be really reduced by that barrier.

Q. Do you recall testimony that there is a noise associated with the train cars coupling, the railcars on the far side of the coal piles in this case?

A. Yes.

Q. What do you see as a solution to that problem?

A. Now, my understanding is that the coupling is taking place south of the piles.

Q. (Nodded head up and down.)

A. What I would suggest from a noise control point would be using the coal itself to block a lot of that sound. And the problem I can see, both when I was there and from all of the photographs shown, is that we have distinct piles. If it is feasible, what I would suggest doing is to basically level out the top of the piles to create a coal barrier, so that your operations on the other side with coupling and uncoupling would largely be reflected away from the residential area. Right now since we have distinct piles there is big leaks or valleys between these piles and that's where the sound would come through and then impact the residential area.

Q. Okay. Do you recall the noise that was -- that Vickie

made and we were trying to put it into words describing the noise that she heard over at the coal piles. I think she ended up describing it as perhaps a fast Jackhammer. And I think another witness may have -- assuming that another witness testified that it was a vibrator of some kind on the trucks to loosen the coal, do you recall testimony along those lines?

A. Yes.

Q. What is the solution to that?

A. What I would do there is go back to my experience in Christiansen versus American Milling. There was a Board decision on that case, and the main problem at that location was vibrators. It was an operation that processed raw feed stock for making animal food. The material they used for making the food was called gluten. I would describe it as a wet floury mixture that arrived either by semi-truck or by railcar and was extremely hard to go out of either one. They had a hard time unloading it.

What they would do to unload it is they had a device where the semi-truck would pull in there, and the trailer on the semi-truck would be rotated 180 degrees. It was upside down. And then they would apply a large vibrator to the truck and shake it in order to get all of the gluten to fall out.

For the railcars it was exactly the same thing, a larger device, the same configuration. They would flip the railcar 180 degrees and also they would shake that. The noise was

tremendous.

The solution finally used in that case, because they also had air emission problems with the operation. So they had to solve it both from the air pollution standpoint and from the noise standpoint. And this is documented in the Board decision. They went ahead and enclosed the operation. I had initially suggested that they use a relatively small building for the railcars and a small building for the trucks at a cost of, say,

$50,000.00 or thereabouts. This was ten years ago.

What that company did was they decided to build a very large building, well over $100,000.00 and, again, it is documented in some of the reports. And that did solve the problem. But it involved enclosing the area where the shakers or vibrators were being used to unload material.

It is a situation where the noise is loud enough that barriers are just not terribly effective in getting the kind of reduction that folks living in the neighborhood really want. A barrier will reduce it, say, 10 or 15 decibels. But that still is usually not enough to really avoid that very irritating type sound.

Q. So what do we do? Just discontinue the use of the vibrators in this case?

A. I would suggest looking into some type of enclosure for the vibrating operation. In other words, even dumping the main

load and then having a structure or a building wherein the last little bit could be removed with a vibrator system. And what the company did, what American Milling did is they had a metal floor with slots in there and the material would then fall in the floor and go through the slots. And then they would just remove it from there.

And in this case using the same type of idea, the coal that

is remaining in the semi or even possibly railcars, could then be augured out from underneath the building and put in the regular stock pile.

Q. How much would a structure like that cost? Let's assume it is just exclusively for the semi-truck trailers at this point and not the railcars.

A. Given today's prices, I think they are significantly higher than they were back in 1990 when we had the Christiansen case against American Milling. I would say probably something in the neighborhood of $100,000.00.

Q. What about another type -- that same type of enclosure for the railcars?

A. Probably $150,000.00.

Q. Now, are there any other distinct types of sound that we have not discussed in terms of the problems that they have been causing or the solution that come to mind?

A. My understanding is that we are talking about just the

coal piles?

Q. Right. I think we covered yesterday the plant itself.

A. That's all I can recall.

Q. Vibration, I guess we don't want to leave that out, the vibration that there has been testimony about.

A. My comments on vibration, first of all --

MR. BABST: I would object. I would at least ask that a

question be asked of Mr. Zak rather than just throwing up a general category for him to go off on a monolog.

MR. MUSKOPF: I think I asked him -- I have been asking him a series of questions in list fashion, what about this problem, or what about that problem, with the same --

HEARING OFFICER LANGHOFF: I will overrule the objection. I believe the question was what about vibrations.

THE WITNESS: On the vibration topic, I need to add a little bit of explanation to that. I have a very strong suspicion that the problem in the houses when people are describing vibration is the house actually shaking. But the assumption has been made, and in my opinion quite probably incorrectly, that what the people are experiencing is ground-borne vibration going from the operation of the coal pile and traveling to the residential area.

I reviewed the Vibra-Tech data, which indicated to me that the ground in that area is a very poor conductor of vibration.

It has also been my experience when I did extensive studies in the area of blasting vibration, back in the mid 1970s for the Agency, that the ground does not do a good job of conducting vibration. However, the air does a tremendously good job of conducting infrasonic sound. Infrasonic sound is sound that is below 20 hertz, which is below what the human ear can pick up.

But that sound that can go from, say, one hertz to 20 hertz, in that area, will shake a structure, such as a house, and it can shake it quite violently.

On one of my incineration projects, we had an extremely large incinerator, that due to a flow problem, began to vibrate. And it vibrated as its fundamental frequency, which turned out to be eight -- 16 hertz. That 16 hertz was inaudible, yet we had all the structures within about a quarter of a mile of that incinerator were shaking. The geologists were convinced that it was ground-borne.

I had taken extensive vibration measurements in my career and also tens of thousands acoustic measurements. I had an analyzer that could do both simultaneously and I began checking to see if there was ground-borne vibration and what was being carried in the air. The ground-borne part, once we got a few feet away from the incinerator would disappear. It was not there anymore. But the airborne was running about 90 decibels.

We got into the neighborhood and, again, there was

absolutely nothing in the ground, but we are measuring, again, about maybe 88 decibels in the residential area. I then went ahead and used my vibration pick up on a window that was vibrating back and forth, and it also gave me exactly the same frequency as the microphone did, which indicated that what was exciting the window and exciting these homes was infrasonic sound

waves.

This was not surprising to me, because when I had done the blasting work years before we found that by far and away the greatest force impacting most noise complaints for blasting, either from coal mines or from quarries was the air blast wave and not the ground shaking. The air wave typically carries out for several miles, and is very unsettling when you get hit by it in a home. Whereas, the ground vibration, like I said, dampens out very quickly.

There was one clue in the testimony of Mrs. Glasgow, where she said that when she went in the basement the vibration was not bad down there, but when she went upstairs the vibration was bad. In the studies that I did back in the mid 1970s, and we did publish a couple of papers on that, and they are available, we found in those situations that there was one easy way to tell if it was ground-borne or airborne without taking measurements. Was if the basement was relatively stable and not shaking and the house was, it was probably airborne. If the reverse was true,

where it was worse in the basement than it was in the house, then it was a good chance that it was caused by ground vibration. And I have done measurements in upwards of 20 or 30 different homes in that period of time and have experienced it myself many times, and her testimony did remind me very much of my experiences when

I was doing that study.

Q. (By Mr. Muskopf) So this is an acoustic and not a seismic event that the Glasgows and Hoppes are complaining of?

A. That's my conclusion. And what needs to be done is using a -- I would suggest a real time analyzer that will go from, say, one hertz to, say, 40 hertz, and look and see how much energy is present at those times that the people are complaining about their houses shaking. Again, that is one thing that I have done over all these years, is try and coordinate with both companies and with people who are complaining about things so that everybody is in sync. And the residents will say, yes, the vibration or the noise or whatever it is, it is bad right now, and then take the measurement at that time. And then take measurements at the company property and figure out which piece of equipment is causing the problem. And once that is known, then looking to see what can be done to reduce the problem. At this point in time there is really no way we can tell what piece of equipment over there is causing this affect.

Q. I assume that the noise -- the acoustic barrier that you

described, the 22 foot acoustic barrier, would not take care of this vibration problem?

A. Not at all. The reason it won't is that barriers are effective for high frequency sound. The higher the frequency, the more effective the barrier. Conversely, the lower the

frequency, the less effective the barrier. And once you get down into the area of what I would describe to a layman as a rumbling type sound or a bass sound, barriers really don't work because the sound, due to the long waves you have present in that type of sound, they can refract around and over the barrier. They are very flexible and they can bend very easily. The high frequency waves are much more directional and they can be controlled by a barrier.

Q. There are consultants within the state or within this area who are technically capable of doing the real time analysis and setting up that equipment that you have described to determine how to solve the vibration problem?

A. Yes. I mean, I can think of one individual who is fairly close, Dr. Paul Schomer has done this type of thing many times and has the equipment to do it.

Q. Do you have any idea how much an analysis like that would cost?

A. Probably about $2,000.00.

Q. Okay.

A. That would be my guess looking at what Schomer normally charges. I would say probably in the area of $2,000.00.

Q. Do you have any opinion as to whether a continuous noise monitoring system would be appropriate in this case?

A. I would suggest against it. My experience with the long-term monitoring systems is one where airplanes can cause you to get data that is not -- that does not really apply to the problem at hand. There are too many extraneous noise sources that can impact that kind of system. So I really don't -- I don't like long-term systems simply because of the fact that you generally don't know what you are actually measuring.

Q. Okay. I would like to change topics for a moment. You talked about the classification under the Illinois regulations of both the Granite City Steel property and the Glasgow and Hoppe property. Would you say that the Granite City Steel operations are accurately classified as an industrial noise source?

A. Yes. I think it would fall under the classification of the Appendix B in the Board's noise regulations as a Class E property, or in simple terms, an industrial noise source.

Q. Okay. How would you classify the Glasgow and Hoppe properties?

A. That would fall under the land classification of Class A and, again, the simple term for it would be residential.

Q. What are the numerical limits for an industrial noise

source to a residential noise receiver?

MR. BABST: I am going to object as far as this line of questioning. I don't believe it is relevant. The case has been brought under the nuisance provision and not under the objective

standard provision unless Mr. Muskopf is changing his position on that as well today.

HEARING OFFICER LANGHOFF: Okay. Mr. Muskopf?

MR. MUSKOPF: We have already been through this and the relevance is not that I am establishing a numerical noise violation case, but Mr. Zak has testified at length to the relevance of the numerical standards to determining the nuisance violation.

HEARING OFFICER LANGHOFF: How is it relevant, Mr. Muskopf?

MR. MUSKOPF: Mr. --

HEARING OFFICER LANGHOFF: The Board knows what the residential noise limits are, and we have -- we have heard testimony of what those noise limits are, and this is a nuisance case and we know that the Board can take into some consideration the decibel readings when they make their decision on a nuisance Board case. But how is this line of questioning, you know, relevant to that?

MR. MUSKOPF: A simple question as to what the numerical limits were for a foundation for has Mr. Zak seen any evidence that there are noise level measurements that were above those

measurements.

HEARING OFFICER LANGHOFF: Okay. I am going to overrule the objection on that ground, on the grounds of relevance there.

Can you answer that question?

THE WITNESS: Yes, Mr. Hearing Officer. Could I have the question read back, please?

HEARING OFFICER LANGHOFF: Can you repeat the question, Mr. Muskopf?

MR. MUSKOPF: I don't remember what it was.

HEARING OFFICER LANGHOFF: Would you please read the question back?

(Whereupon the requested portion of the record was read back by the Reporter.)

THE WITNESS: Those limits would be under the -- under Section 901.102(a) and (b), which are broken down into nine octave bands for daytime and nine octave bands for nighttime. I don't have all 18 numbers memorized. But what I could tell you is the dB(A) equivalent of that, of those numbers, would be 61 daytime and 51 nighttime.

Then in addition another rule that would come into play would be 901.104, which is the impulsive noise regulation, and the limit there, which is measured in dB(A), would be 56 daytime and 46 nighttime. Impulsive noise would be any type of clanging, banging, explosions, anything of that nature, a very short

duration type of noise.

Q. (By Mr. Muskopf) Have you seen any evidence that any of the noise level measurements taken in this case were in

exceedance of -- in excess of those limits?

A. Yes.

Q. Okay. Basically on -- can you describe some of the measurements that you recall seeing and how far in excess of the limits they were?

A. Yes. On the videotape the ones -- Mrs. Glasgow took those, that videotape and those measurements, and I did not make an attempt to memorize all of the numbers that she got. I believe for, like, the back up beeper which would also classify as an impulsive type sound, the measurements that I observed there ran anywhere from 60 to 75 dB(A). The other areas, I believe the nighttime emissions from the coke plant were running about 70 dB(A), and that would be during the Board's nighttime hours. So we are looking at at least a 20 decibel exceedance of that.

Q. I was just asking for a general range, not particularly categorized or itemized by a particular noise source, but a range of values that you remember seeing that were in excess of the limits?

A. The ones that I have just given you, and just to kind of put them in perspective, you know, we are looking at levels that

approximately 100 times higher than the regulations would allow.

Q. Okay. So this is substantial exceedance, in your

opinion?

A. Yes.

(Whereupon a document was duly marked for purposes of identification as Complainant Exhibit C36 as of this date.)

Q. (By Mr. Muskopf) By the way, Exhibit C36, is this the Vibra-Tech material that you recall reviewing?

A. Yes.

Q. Mr. Zak, is the testimony that you have heard and the evidence that you have seen -- is the testimony that you have heard from the complainants consistent with all of the evidence you have seen in terms of the types of noise sources, the level of -- the sound level measurements, have you seen any -- well, I will just let you answer that question.

A. I am sorry. I didn't quite follow the question. Could you please give it to me again?

Q. Sure. The testimony that you have heard from the complainants as to the various noise sources and the levels, the sound levels of those noises, is that testimony consistent with the other evidence that you have seen in this case, either in the way of videotape, or noise level measurements, or documentary evidence? Are the two consistent with one another?

A. Yes. It appears to me that it all fits together quite well. And one compliments the other. And I didn't see any

discrepancies in there, where any of the evidence was contradicted with some other evidence. It all fit together well.

Q. Okay. Is the noise that has been discussed in this case, is it of the type that is capable of causing the vibrations that the complainants have described?

A. I think it would be and, again, I am basing that assumption on my feeling that we are looking at an airborne phenomenon coming from the Granite City facility over to the residential area.

Q. Is the noise of the type that -- that it could cause -- that it could awaken the complainants from their sleep, as they have described?

A. Yes. When the Pollution Control Board was in the process of having public hearings on passing the regulations back in 1972 and 1973, there was a lot of testimony given as far as why our limits were reasonable. Industry wanted them higher. Some of the environmental groups wanted them lower. I think what we ended up with was a very good compromise designed to protect people from -- the average person from being awakened at night from sound or having an unreasonable disturbance in their house or their backyard from sound emissions from another piece of property. So, yes, I would say so.

Q. Okay. Is the noise described by the complainants of the

type sufficient to interfere with reading or concentration in an otherwise quiet room in their homes?

A. Yes. From the levels I observed and the testimony, I would say that we have a situation where these sound levels are well over what would normally be considered intrusive.

Q. Is the noise that you have seen -- is the noise that you have seen in this case of the quality and quantity that it could be heard in every room of the complainants' houses as they have described?

A. Yes.

Q. Is it -- is the noise of the type that it could cause stress, as the complainants have described?

A. Yes. I would base that on having done this type of work for the last 29 years, and having heard hundreds of people testify as to the affects of noise and also knowing what the noise level was that we were dealing with. In this situation here these levels are very high compared to most cases. So, yes, it would, I think, cause stress and, again, I am basing that on the literature that is out there right now and also the testimony of the complainants.

Q. Is the noise of a quality and quantity such that it could depress the value of the complainants' properties?

A. Yes. And, again, what I would say in that situation is,

again, having dealt with all of the cases, many times that does

come up and it has come up for all these years that I have been doing this type of work as to what the impact the noise can have on property values. And I have never had a situation where somebody said, well, it increased the property value. But I have heard many people testify that it did decrease property values. And I have also been present at a hearing where we have had a realtor under oath testify that, yes, this would have a negative impact on the property value.

MR. MUSKOPF: Okay. I would like to make an offer of proof consistent with the Hearing Officer's motion in limine ruling.

HEARING OFFICER LANGHOFF: Okay. Go ahead.

OFFER OF PROOF EXAMINATION

BY MR. MUSKOPF:

Q. Mr. Zak, do you have an opinion as to whether Granite City Steel is in compliance with the Illinois regulations on noise as it affects the Glasgows and the Hoppes?

A. No, I don't believe they are in compliance. I believe that they are very significantly exceeding the -- what would be considered the acceptable noise level.

Q. Do you need to elaborate on that at all, or have we essentially covered the basis for that opinion?

A. Basing my testimony up to this point, it seems to me that we have pretty much covered it pretty thoroughly.

MR. MUSKOPF: Okay. I am out of my offer of proof.

HEARING OFFICER LANGHOFF: Okay.

DIRECT EXAMINATION (continued.)

BY MR. MUSKOPF:

Q. Have you seen any evidence that Granite City Steel has taken any significant steps to reduce the impact of the noise on the Glasgows and Hoppes?

A. I believe in some of the testimony a statement was made by several of the folks that one of the noise sources had not been very bad for the last month or two. It seems to me it might have been the tailgate banging problem. But, again, there did seem to be some effort on one aspect of the noise emissions from the facility. But other than that, I really can't think of anything that has been done there that is of a very significant nature to reduce the noise.

Q. How long has this noise problem been going on? Is it a short or long-standing duration?

A. Well, I need to understand the question better. Are we looking at from the time the complaint was first made or are we looking at the last 20 years or the last 40 years? The testimony we had here was from one lady who lived there for 40 years and then other folks who lived here for, say, four years. So what type of time frame are we looking at.

Q. Simply the time frame as it affects the Glasgows and the

Hoppes?

MR. BABST: I am going to object with respect to I think Mr. Zak is certainly qualified to testify as to the measurements that he has seen and interpreting those. The only other basis he would have to respond to this question is basically to repeat the observations of the complainants in this case. I don't think we need an expert to say I heard what they said and opine as to that. He does not have any objective measurements beyond the last few months.

HEARING OFFICER LANGHOFF: Mr. Muskopf?

MR. MUSKOPF: I don't have a response to that.

HEARING OFFICER LANGHOFF: I am going to sustain the objection on the grounds of relevance. It has been testified to and we don't need Mr. Zak's expert opinion on how long the, quote, unquote, noise problems have been occurring.

Q. (By Mr. Muskopf) Mr. Zak, have you seen any evidence that Granite City Steel has taken the complaints of the Hoppes and the Glasgows with regard to the noise seriously?

MR. BABST: I object. That calls for a very subjective determination that is certainly outside his area of expertise.

HEARING OFFICER LANGHOFF: Mr. Muskopf?

MR. MUSKOPF: Mr. Zak is very expert in noise problems and solutions and abatement, and he is eminently qualified to discuss whether the actions taken by one noise violator are of the type

that would indicate that they are taking the problem seriously or not.

HEARING OFFICER LANGHOFF: I am going to sustain the objection on that question. Will you ask another question, please?

MR. MUSKOPF: I don't have any more.

HEARING OFFICER LANGHOFF: Okay. Are you finished with Mr. Zak?

MR. MUSKOPF: I will pass the witness.

HEARING OFFICER LANGHOFF: Okay. Thank you. Mr. Babst?

CROSS EXAMINATION

BY MR. BABST:

Q. Mr. Zak, just to make sure that I understand things before we get into discussing your opinions, the basis of your opinions today, as I understand it, are the two videos, the photographs you have seen, the deposition transcripts, a financial statement of National Steel, logs and calendars prepared by the complainants, correspondence between the complainants and Granite City Steel, the Vibra-Tech study that you spoke about a few minutes ago, answers to interrogatories, the testimony that you have listened to over certainly yesterday, and a visit to the area for about a half an hour, which occurred about two months ago.

MR. MUSKOPF: I would --

Q. (By Mr. Babst) Is that a complete summary of what you would have based your opinions on?

A. Yes.

MR. BABST: I am sorry. I was asking Mr. Zak a question. I didn't --

MR. MUSKOPF: I was trying to make an objection.

MR. BABST: Oh, I thought you were --

HEARING OFFICER LANGHOFF: Do you have an objection, Mr. Muskopf?

MR. MUSKOPF: Well, the question has been asked and answered very thoroughly. I don't think we need to go over it again.

HEARING OFFICER LANGHOFF: All right. The objection is overruled.

Q. (By Mr. Babst) I would like to confirm, the day that you did visit the site, am I correct that you were there for approximately a half an hour; is that correct?

A. That's correct.

Q. And you took no noise measurements yourself, did you, Mr. Zak?

A. That's correct.

Q. You did not witness the complainants taking noise measurements in this case?

A. No, I did not.

Q. You have testified that the majority of cases in which you have testified in the past have been under the nuisance regulation, correct?

A. Yes.

Q. In how many of those cases did you conduct measurements, just a rough percentage?

A. I need a little bit of help here. Are we talking about 29 years, 20 years, the last five years? I am a little bit --

Q. Well, over the time that you have testified in these cases. I think you said in your deposition that you have testified in 100 of these cases?

A. Over 100.

Q. Okay. Over 100. How many of these cases did you actually take measurements yourself, a rough percentage?

A. Fifty percent.

Q. You are testifying today under a subpoena that was served on you; is that correct?

A. That's correct.

Q. If you would have finished testifying last night, would you have returned today under that subpoena?

A. Yes.

Q. Are you required? Would you have been required to return?

A. I would assume so. I typically -- in all these cases I

typically attend from the very beginning of the case to the very end of the case. The only time I can ever remember leaving early was a situation where each expert went in and testified and then left and was not allowed to attend the proceeding, which is one case out of perhaps 180 cases, and in this particular case I did not attend the whole hearing. That was the only exception.

Q. Do you view yourself as an objective evaluator of the noise conditions of this site or as an advocate for the complainants?

A. No, I really try to be neutral on it and just simply look at the facts, and if a solution is needed then I will suggest what solutions, based on past experience, should work.

Q. So in the course of these cases if you hear evidence elicited that you had not heard before, might you change your mind on some of your opinions?

A. Yes.

Q. And if you, during the course of either your examination or listening to somebody else, would conclude that you had a misimpression about the facts of the case, would you be inclined to change your opinion?

A. Yes.

Q. Now, in cases where individuals from the State of Illinois contact you, what do you advise them? How do you advise them? How do you get involved in this?

A. Typically what happens is I will receive a phone call from a citizen that believes that they have a noise problem. The person is not quite sure if there are even noise regulations in Illinois, and they are not quite sure how loud the sound has to be to really be a nuisance. I will talk to the person on the phone, explain basically different things they can check.

One of my standard questions is, well, when you hear the sound, is it as loud as a conversation between two people about three feet apart, and in a lot of cases they will say, yes, it is. And the normal level for a conversation three feet apart is 60 dB(A). And with the industrial daytime being 61, if they say well, yes, it is louder than that, then we have a somewhat subjective but something to go on there as far as the loudness or intensity of the sound.

Then I will explain to the folks what they really want to do is get together with whoever is emitting the noise, usually it is industry, but not always, and try and work out a mutually agreeable solution to the problem. I explain to them that it takes a little bit of a give and take there. It is kind of a negotiation process where, you know, both sides may not totally like the end result, but that is far and away the best approach to take, to try to work it out with the company.

If they -- I also advise them to send a letter, like a one page letter to the company, if they have not talked to them yet,

explaining what the problem is, keeping it very friendly and basically asking the company if they would be willing to solve the problem, and if they are willing how long will it take to solve it, how will they solve it, and then please respond to this letter within 15 days. I also advise them to send the letter by certified mail, return receipt requested.

Q. Let me ask you a question in what you just said. I am a little bit confused. You say the industrial daytime level is 61 dB(A), and I am certainly not a noise expert. Could you just point to me where that appears in the Illinois regs? I can't find it.

A. You won't. It is not there. What that is, the numbers that I gave you are the dB(A) equivalent of those nine octave bands.

Q. Where do you find those? I don't find them here? Have you calculated those?

A. Yes, I calculated those.

Q. Okay. Now, just to finish very quickly on the process here, when you tell them to send a letter, do you tell them specifically what to say in the letter?

A. If I could kind of sketch it out a little bit, I do tell them a number of things to say in the letter. I stress in the very beginning -- people will always ask me can you send me an example. I will say I would rather not. Actually, I don't. I

don't send examples. I want the first letter to be the way that that particular individual communicates, the way they write, keep it on a one-to-one basis as much as possible with the company. I will advise them basically to keep it -- ask a few questions, ask to get together with the company.

I tell them that they are free to mention my name, that they talked to me. And if the company has questions as far as what noise is acceptable and what is not acceptable, or if they have questions on what they can do to solve their problem, I ask folks to put my name and phone number in the letter. And quite often I get calls from the company saying the neighbor complained and they gave us your phone number. And then we will get together and discuss the problem.

There has been quite a few situations where I have told the company basically the process to take to solve the problem, and in some cases it is a very low cost and in some cases it is a little more cost.

Q. Let me just -- I will try to ask my questions to be more direct to allow for a shorter answer. The only reason I say this is I have a plane and Mr. Muskopf said he was going to take 20 minutes with you, and that was about an hour and a half ago. So I just want to make sure that we can finish today.

A. I apologize for being too verbal.

Q. That is fine. Let me just ask you, at some point in

time do you advise these people that if they don't receive an acceptable response to send a more formalistic letter with specific legal citations in it?

A. Yes.

Q. Do you provide them with that information, or do you provide them about a draft letter to use?

A. I provide them with an example that was prepared by an attorney a few years ago.

Q. Was that attorney someone that works for the IEPA or was that a private practitioner?

A. No, that was a private practitioner. Her name is Barbara Norman and she was --

Q. I am not interested in her name. I just want to know whether --

A. I am sorry.

Q. That is what I mean. I would just like to ask you if they worked for the IEPA, is it a private practitioner, and all you had to do was tell me --

A. Yes, private practitioner.

Q. -- it was a private practitioner. If Mr. Muskopf feels that it is important for us all to know what her name was, I am sure that he will take care of that when I am finished.

Now, in the complaint here, in this particular case, did you assist in preparing that complaint or reviewing and providing

comments in that complaint?

A. I take it you mean the formal complaint?

Q. Yes.

A. I provided an example done by the private practitioner. I don't remember reviewing a draft of the complaint that the Glasgows were going to send in. Once in awhile somebody will just be very insistent upon my taking a look at it. I always explain I am not an attorney, but I will look at it, if they really insist that I do. But that is a very rare occurrence for somebody to ask me to -- that they are very insistent upon my reviewing the complaint.

Q. So your response is that you don't remember doing that in the case of this complaint?

A. That's right.

Q. Okay. Now, you did visit the Glasgow and Hoppe property. What was the purpose of that visit?

A. The purpose of the visit was since I was under subpoena, to be prepared to testify, I think, in a more credible manner by having actually been to the site and also going to the site is very useful. It is -- there is no substitute for actually going to the site as opposed to looking at videos and pictures and reading written documents. I always make a -- every case I have ever testified in I have gone to the site to look the site over.

Q. But you don't go for the purpose of identifying all

sources of noise in the area, do you?

A. No.

Q. And do you attempt to make sure that the complainants in the cases that you get involved in measure all sources of noise impacting their home?

A. I may suggest that they take a number of measurements and measurements of the noise that is most bothersome to them.

Q. But you don't necessarily go through a list of potential sources of noise in addition to the particular source that they have identified?

A. No.

Q. Now, help me here. I would like to get into some of your conclusions. You have said a number of times over the past two days that in your opinion there was a significant exceedance of the Illinois numerical standards, and because of that you felt that that was some evidence of an unreasonable interference in this case; is that correct?

A. That's correct.

Q. And I think you just told me that your conclusion on the exceedance of the Illinois numerical standards is based not on the regulations in the measurements we have seen, but what I need is to understand your methodology, I guess, in making that equivalency comparison between the IEPA regs and the

measurements; is that correct?

A. I don't understand the question.

Q. Well, let me ask you this. I have not focused on the Illinois objective standards, because the pleadings didn't allege a violation, and that had not been raised by Counsel. But in looking at these standards last night, I was curious why the allowable levels seem to go down so much as frequency increases, but they don't go down in a set pattern.

I was wondering if you could explain that to me very briefly? Please don't give me a treatise but if you could explain briefly what that is. What do these attempt to reflect?

A. If we look -- again, trying to keep it -- I will try to give it to you as general as possible. The frequencies go from 31.5 to 8,000.

Q. Nine bands, right?

A. Nine bands.

Q. Okay.

A. And it is obvious that at 31 and a half there are -- for example, the daytime limit is 75 decibels at 31 and a half, and when we get down to 8,000 we are only allowing 40 decibels. So, or course, the question is, well, why do you allow so much at one band and not so much in another band.

Q. Right.

A. The reason is it is largely based upon the noise

response of the human ear.

Q. Uh-huh.

A. At 31 and a half, the human ear would hear a 75 more as a 35, because the human ear will be unable to hear it very well and the actual amount has been measured. The actual measured amount of hearing drop at that low frequency for humans is approximately down by 40 decibels. So where I arrived at 35, I subtracted the 40 decibels as a normal response of the human ear to that frequency of the sound, and the actual -- that 75 would be heard as a 35 to the average person.

Q. Let me stay with -- where are the nighttime limits? Because that's what we talked about last night.

A. Here.

Q. Okay. So that I understand, now, at 31 and a half hertz, the limit is on -- what did we say, we are on Class A land?

A. Yes, Class A.

Q. Is 63?

A. Yes.

Q. And then as we go -- as the frequency increases, the decibel level decreases?

A. That's correct.

Q. But my understanding is that these numbers, in terms of

the human ear and loudness and how the human ear will perceive it, actually will give the same loudness to an individual; is

that correct?

A. I am not quite understanding your question.

Q. My question is that these numbers are different because they are attempting to reflect the affect of sound at these decibels on the human ear?

A. Yes. To elaborate a little bit, what we are basically saying is that the low frequency end, which is 31 and a half, 63, 125 hertz, that particular area of sound is -- the human ear is not very sensitive to it.

Q. Right.

A. So we allow somewhat higher numbers. The higher frequency, say, 500, 1,000, 2,000, the mid frequency range there, the ear is very sensitive to that.

Q. Uh-huh.

A. We get into, say, 4,000 or 8,000 hertz, the ear is still fairly sensitive to that, too.

Q. But what you were doing when you developed this reg is you were trying to get decibel levels for these various octave bands that reflected basically the same level of annoyance for the human ear?

A. Well, that's not all of it. Also --

Q. Is it part of it?

A. That's part of it, yes.

Q. Okay. So, I mean, am I incorrect that there is an

attempt here to correlate loudness to the human ear at different frequency bands?

A. A little more goes into it than that. I think I can answer it very shortly.

Q. Okay.

A. Typically the reason the low frequencies are important is because when they -- you have a house like, for example, say, we have a house, you know, in a city and there is a factory next door and the factory is putting out quite a bit of low frequency sound.

Q. Uh-huh.

A. That low frequency sound, when it hits the house, will go right through it. Now, all the mid frequencies and the high frequencies are filtered out by the house. So the person that is inside the house what they are going to hear is the 31 and a half hertz, and the 63 hertz, and possibly the 125 fairly distinctly. But all of the other sound has been filtered out. If the person is trying to sleep, and that's -- if a person is trying to sleep, and they can hear this rumbling sound, it may keep them up. As a matter of fact, there is a good chance it will keep them up. That's why Illinois decided to go with octave bands as opposed to

a single dB(A) measurement.

Q. Are you suggesting that these bands were developed with taking into consideration some general concept on what a house

does to affect sound waves as they hit the house?

A. Yes.

Q. So there was actually -- this contemplates someone in bed with a certain type of structured home, with a certain percentage reduction in loudness; is that right?

A. Yes.

Q. Okay. But in the end result what these are attempting to do is give us the same perceived sound at these different octave bands?

MR. MUSKOPF: I will object. It has been asked and answered.

HEARING OFFICER LANGHOFF: Overruled.

THE WITNESS: No, it is not.

Q. (By Mr. Babst) Let me ask it a different way.

A. Sure.

Q. Have these regulatory standards been designed to reflect human response for loudness?

A. Partially.

Q. So you are saying the loudness would not necessarily be the same for each of these levels? Ignoring pitch. I am just talking about loudness?

A. Right. Loudness and if we look at the various studies of the -- the curves of the various studies done upon the human ear sensitive to the various frequencies of sound. Our

regulations do not fit the actual -- those curves. It is something of a compromise between those curves and the potential impact of low frequency sound in structures.

Q. Is this the curve you are talking about? Are you familiar with this?

A. Very much so, yes.

Q. Okay. I figured you would be. Now, could you do this for me. Would you look at -- these are dB(A), and that's what you are talking about, isn't it, in terms of making corrections in a dB(A) decibel reading?

A. Yes.

Q. Okay. So your lower frequency is, what, 31 and a half?

A. Yes.

Q. What correction is made at that frequency if you could tell from that chart?

A. Okay.

HEARING OFFICER LANGHOFF: For the record, is that an exhibit of yours?

MR. BABST: Yes. I am sorry. I will make it one. It is the Federal Interagency Committee on Noise, and it is figure B4,

and it is entitled, Frequency Responses for Sound Level Weighting Characteristics.

HEARING OFFICER LANGHOFF: Thank you.

(The witness reviewing document.)

THE WITNESS: Well, for example --

Q. (By Mr. Babst) What I would like you to do is at the lower frequency, which is 31 and a half, what is the correction factor?

A. Minus 40.

Q. Minus 40. Okay. Then would you look at your upper range, which is 8,000 hertz. And what is the correction?

A. Approximately -- it looks like a minus two.

Q. Minus two, minus three?

A. Yes, something in there.

Q. Okay. Tell me what the difference is between the limitation for 31.5 and 8,000 in the Illinois reg?

A. About 38.

Q. Is it coincidental that the difference here is also 38?

A. I am not quite -- if you could kind of explain to me what you mean by the difference.

Q. You will agree that the difference in the range regulated under your standard is the same as the correcting factors under this graph; is that correct? We are talking about a 38 decibel difference?

A. We can't really draw a line and say we are comparing, say, 31 and a half to 8,000, and then just using that to kind of cast over the entire regulation and say, well, we are stating that the corrections -- the difference between two frequencies in

the EPA regulations versus the standard A-weighting frequency chart happens to be -- at two points happens to coincide.

Q. What I am trying to establish here, Mr. Zak, is that both the EPA methodology and the Illinois reg do reflect and they were designed to reflect human response for loudness?

MR. MUSKOPF: I have got an objection. I don't know what the relevance of the federal regulation could be to this case. It is not governed -- this case is governed by the Illinois regulation.

HEARING OFFICER LANGHOFF: Okay. Overruled.

Q. (By Mr. Babst) Do you remember my question?

A. No. Could you please repeat it?

Q. Yes. Both -- in this case a guideline, and in this case a standard, both of them are designed to reflect human response to loudness. Do you agree or disagree with that?

A. Now, the actual --

Q. Now --

A. Well, I can't agree.

Q. Okay. Okay.

A. I have a question. Once I get it clarified, I will be glad to answer the question.

Q. Okay.

A. This particular chart, while I am familiar with this -- with the actual graph itself, the Federal Interagency Committee

on Noise does not ring a bell off the top of my head. I am just kind of wondering, you are saying, well, this is a regulation and this is regulation.

Q. No, no. I said these are guidelines.

A. These are guidelines?

Q. Yes.

A. Okay.

Q. And you used this chart to come up with your 61 and 51, didn't you?

A. Well, not exactly that chart. I actually go back to ANSI standards and get it from there, which is not a chart. It is actual numbers.

Q. But it is the same thing?

A. Yes.

Q. Sure.

A. The same basic idea, yes.

Q. So you use this same basic idea to come up with the Greg Zak dB(A) limits for Illinois, did you not?

A. Yes, exactly.

Q. In looking at the video we had one value, and last night you looked at a nighttime value of 70, as I recall?

A. Yes.

Q. DB(A)?

A. Yes.

Q. What is the meter doing in the Radio Shack noise meter that you suggested that the complainants' purchase? What is it doing with respect to the sound waves that it receives?

A. Well, I think perhaps we could best describe it by the chart we have got here wherein at the lower frequency end the meter is subtracting quite a bit of measurement or sound level. As we get into the -- as we go up the frequency, the meter subtracts less and less and less until we get to 1,000 hertz where the meter then reads it exactly. So it is a filtering process with A-weighting wherein the low frequencies are discriminated against more heavily than the mid and high frequencies are.

Q. So the meter is basically making these subtractions, correct?

A. That's correct.

Q. At the different octaves?

A. That's right.

Q. And it is doing that, again, to reflect the human

response to loudness? That's what this is intended to do?

A. Yes.

Q. Okay. Does the meter average the octave band levels or does it sum them in the meter itself? When it takes this and gives us this one number, is it averaging all of these once it makes the subtraction or is it summing them?

A. It is summing them.

Q. Okay. Before it does this, it does make this correction? At the different octave levels it makes this subtraction? I think you just said that.

A. Yes.

Q. Okay. Is the number then a weighted and cumulated number of the various decibels at different frequencies?

A. Yes.

Q. Okay. And this dB(A) scale corrects for human response for loudness?

A. Yes.

Q. Then unless I am wrong, and you said there may be some additional things we have to talk about here, both the Illinois regulation, which deals with these separate nine octave bands, and this dB(A) system with the meter, both of them correct for human response to loudness?

A. Yes.

Q. Okay. Now, would you explain to me how you get -- and

let's take the nighttime level -- 51 is the equivalency between the regulatory standards and a single dB(A) value?

A. Yes.

Q. If you would explain to me how you did that?

A. Taking the nighttime regulations --

Q. Which is Class C, right?

A. We have got -- yes, for Class C.

Q. Okay.

A. And we have got a level of, say, 69 and 31 and a half hertz. The equivalent after it is A-Weighted, if we A-Weight that 69 then we have 29.

Q. Now, how do you A-Weight it?

A. Subtracting 40 decibels from it.

Q. From this? Or something similar to this?

A. Something similar to this.

Q. You just said on this chart at 31 and a half the correction --

A. Uh-huh.

Q. -- is 40?

A. That's correct.

Q. Which you just said?

A. That's right.

Q. Okay.

A. So at 31 and half hertz what I would do is subtract 40 from the 69 leaving a 29.

Q. Uh-huh.

A. I would go to 63 hertz -- and I don't have these memorized.

Q. That is all right.

A. So whatever the correction would be over here.

Q. I understand.

A. It would be less than 40. It would give me another number. It is a fairly low level number.

Q. Right. And you would go through and do that with each of --

A. Yes, and go through that with all nine octave bands.

Q. Okay.

A. Then I would have nine numbers and I would take those nine numbers then and add them up logarithmically.

Q. Uh-huh.

A. And keep combining and combining and combining numbers until I finally got down to a single number.

Q. Uh-huh.

A. That number would be 51.

Q. Okay. So what you have done is you have taken the regulation numbers that have already been corrected for human response to loudness? You have already agreed to that?

A. Yes.
Q. And you have then used this and you have applied this published table that also corrects for human response to loudness, correct?
A. Yes.
Q. So you have actually double counted the correction to come up with your 51? It is already here, and you have taken it

again and you have subtracted it out once again? You have done it twice, haven't you?
A. No.
Q. But it was done here first, correct? It is already corrected?
A. That is not A-Weighted correction there.
Q. No, no, no. But it is already corrected to give us the -- to reflect the human response to loudness? You have said that?
A. Yes.
Q. The subtraction that takes place here is to give us that same number to respond or to reflect the human response to loudness? You have said that, too? That's what this correction is to do?
A. Yes.
Q. So since it has already been done here you have now done

it -- you have taken this and you have done it again? You have done it twice? You have taken an already adjusted number and you have once again corrected it using this table; isn't that right?

A. That could be -- yes, I will -- I would like to have some explanation, though, of that.

Q. But you do admit that you have basically done it twice? It has been done here to start with and you have done it again here in your calculation?

A. Yes.

Q. Okay. Now, suppose that you only want to count once for human response to loudness, and you -- in that regard you assume that the Illinois regulation, as you have said, has appropriately done this. But you still want to get a single number to compare with the 70 dB(A). What I would like to ask you is could you do this. Listen to me carefully. Could you take each value and convert each of these values into total energy? Are you with me on that?

A. Yes.

Q. Could you then add these total energy values arithmetically, take the log base ten of the sum of those numbers and then multiply the result by ten? And my question to you is if you did that, wouldn't that give you a dB(A) which is weighted and cumulated with -- I am going to call this the dB I, the Illinois standard -- which is also weighted and cumulated, and

then you would be able to compare apples to apples?

A. I am not following you.

Q. Okay. Let me go back then. The step that I just -- the four-step process that I gave you --

A. Right.

Q. -- would that not be an appropriate way to derive a single digit from the Illinois regulations that weights and cumulates these values so that you could compare it with this,

without double counting, as you have admitted that you have done in your calculation?

A. My honest answer to you, from the four-step process you went through there, is without sitting down and going through it, I don't know.

Q. But you do see that since it has already been taken into account here and you are then taking that same correction here, you are backing out what was already done in the regulatory process?

A. No.

Q. But you have already admitted and agreed that you do double count. You have admitted that it is already corrected here, right?

A. Well, again, the double counting that we are talking about here is apples and oranges.

Q. I think what --
A. These numbers are not based on the A-Weighted --
Q. I understand that, but what we are trying to do is we are trying to get to a situation where we can actually look at the -- you have taken an A-Weighted number 70 --
A. Correct.
Q. -- and you have tried to convert this so that you can compare apples to apples?
A. That's correct.

Q. And what I am suggesting to you is that in your calculation what you have done is you have double counted the correction that was made in the original regulation, you have taken it out again, from utilizing this chart, and you have -- as a result you have ended up with a low number that does not compare apples to apples, correct?
A. That's not correct.
Q. Okay. You have said that at Granite City the prominent noise source in the area, in this particular case, is the steel plant; is that correct? I think that you said in your deposition that --
A. I would say it was the whole operation, the coal piles and the plant.
Q. I said -- I am sorry. The steel plant is what I thought I said.

A. I mean -- now I am still confused. So I want to be sure I answer your question correctly.

Q. Is it your conclusion that the steel plant, the coal piles, and the coke plant, the blast furnaces --

A. The facility.

Q. The facility is the prominent noise source in the area of the complainants' homes?

A. Yes.

Q. I think you said during your deposition that you felt

there was some street -- some street noises from Edwardsville Road?

A. Yes.

Q. That was based, I am taking it, on your one half hour visit to the site?

A. No, that -- my visit to the site and also my viewing of all of the videotape.

Q. Okay. Now, during -- let's deal with both of those independently. During your site visit, did you feel that you were able to evaluate all of the noise sources in the area?

A. Are you talking about in general terms?

Q. I am talking about -- well, I mean, do you -- just answer my question. Do you feel that you were able to evaluate all the potential noise sources in the area?

A. No.

Q. Okay. Are you sure that the complainants' tape focuses on all of the noise sources in the area?

A. No.

Q. Would you want to have measurements of all of the sound sources impacting an area before rendering an opinion in a nuisance case?

A. Yes.

Q. And to follow-up on that, hypothetically, if I contacted you regarding a noise issue I had and sent you tapes and I

described noises coming from Mr. Muskopf's operation but I failed to mention that Mr. Langhoff was also doing something in the area, that would, obviously, give you misleading information for you to form an opinion, correct?

A. That's correct.

Q. I would also think it would make it difficult to design a remedy?

A. Yes.

Q. Now, do you know if other noise sources were emitting noises in the area in which the measurements were taken by the Glasgows at the time that they took those measurements?

A. I would say any extraneous noise source would have been minimal.

Q. But you don't know that?

A. Yes, I do. Because the videotapes are clear enough and the sounds are clear enough, and the lack of traffic when the measurements were being taken was very visible on Edwardsville Road, so that I am confident that the data they have there is good data.

Q. Any other possible sources of noise that could influence? Could a plane have been traveling overhead?

A. I would have heard it.

Q. Even though you were shooting directly at the steel plant?

A. Sure. The meter itself is not very directional.

Q. When you watch these videos and looked at the meter, you are making this decision based upon you listening to the video on your television set?

A. That's a portion of it. What I am seeing and any sound I can hear on the tape.

Q. Sure. Let me ask you this. When you do watch the video, do you try to correlate the sound being reflected in the meter in front of Mrs. Glasgow with sound that you would be picking up from the video? I mean, wouldn't you need a sound meter to basically correlate those levels with what you are hearing or didn't you ever even think about that?

A. I don't understand your question.

Q. Are you satisfied that a television set, like the one Mr. Muskopf had yesterday, is going to give you the same perceived noises, sound levels in your ear, as Mrs. Glasgow was perceiving and the meter was perceiving at the time that she took them?

A. Close enough.

Q. So you feel that the sound systems on these TVs are pretty sophisticated?

A. The reason I say that is I spent about two years testing various speakers in systems, so I am very familiar with systems like that and checking to see if the fidelity is reasonable or

not.

Q. It would not be affected by how high you turned the sound on your TV?

A. I didn't say that.

Q. I will ask you that. Would it be affected by how high you turned the sound on your TV?

A. Yes. If you turn it up high enough, and it is designed in such a way, you can overload the speaker and you will have a big degradation in sound quality.

Q. Are there different quality of speakers in different TVs?

A. Yes.

Q. So would you make your adjustment and your sound based

upon your expert knowledge about the sound system in a particular TV set?

A. And the sound quality. I would typically turn it down to the point where I can hear some distortion. I spent quite a bit of time doing this in anechoic chambers and adjusting it downwards to reach the point where fidelity was the best.

Q. You are saying that your ear is kind of the equivalent of another meter?

A. Yes.

Q. Based upon the tapes that you saw, was there any attempt to record the sound levels from the traffic going by the homes of

the complainants?

A. I did not notice any -- I can't say that I noticed any attempt to record it or not record it, although I did notice that there was very little traffic present on the tapes.

Q. Does that mean that there would be very little traffic on the road or would that mean that the tape could have been at a time when no traffic was going by?

A. Either one.

Q. You wouldn't know?

A. That's right.

Q. Okay. If you were trying to conduct a scientific study of this area to give yourself a full set of data to make an

intelligent and expert opinion, would you want to have some data on the level of noise coming from traffic as it goes by this four-lane road?

A. In Illinois we call that establishing the ambient, and I would like to have some ambient information.

Q. If you were set up to evaluate the potential impact from traffic going by their homes, how would you do that?

A. I would do it both once in the daytime and once at night. Typically early afternoon in the daytime and typically around 2:00 in the morning at night.

Q. What would you do?

A. I would set my instrumentation up, and I would take a --

in my case it would be a third octave band scan for a period of about -- a period of ten minutes. And then I would exclude any intermittent noise sources. An intermittent noise source would be a few cars passing by on the road. That would be deleted from the data. And conversely, measuring the plant noise, if a car goes by, I stop measuring before the car sound -- before there is any noise from the car. And after the car has passed by I go back to measuring again. So the ambient is measured in the same manner as the noise source is measured.

Q. There was no ambient taken in this particular case, as far as you know?

A. I would say, yes, there was. The reason I am saying

that is there were periods where there would be a significant drop in noise at the Granite City facility where the meter would just drop from let's say 60, and it would say low on there which is below 60. Those periods of time there was virtually no noise on the road. There was -- the plant noise was no longer as loud, although it was still the significant noise source in the area, but yet we could see the levels were below 60.

Q. This assumes --

A. That would be ambient.

Q. For you to be, I think, comfortable with that you would have to be certain that the readings that the Glasgows took were reflective of normal activity; is that fair?

A. No.

Q. I mean, if I went out, Mr. Zak, and I just -- I know there is a time when there is very little traffic on the road, on a heavily traveled road, and I take some shots aiming at a different source with not much traffic coming, you are satisfied that that gives you the ambient levels you need to objectively evaluate that property?

A. Yes. The reason that would be the case is under our measurement procedures that we use we take ambient for ten minutes. Typically we like to take that ten minute period when the noise source of interest shuts down or goes off line for a

short period of time and then get the background sound.

But, again, like on traffic noise, if traffic is light, we would not -- we would, in essence, erase all of the traffic sound, both when we take the ambient and the noise source. However, if we were next to a large highway that is heavily traveled, then although traffic going by is continuous, since it is continuous then it would be counted as part of ambient.

Q. You heard the testimony of some complainants yesterday that truck traffic going by their house -- and I think it might have been Mr. Glasgow -- awaken him?

A. Yes.

Q. It is a perceived noise in the house?

A. Yes.

Q. On the tapes that you saw, are you satisfied that you have data that reflects the noise levels from these trucks, particularly these trucks that hit the bump, I guess, somewhere near the Glasgow or Hoppe house?

A. Could you help me out? Could you repeat the question?

Q. What I am saying is you heard there is a noise level. You know the source because they testified what it is. My question to you is are you satisfied that you have adequate data with respect to that source of sound that allows you to make this -- to draw the opinions that you have?

A. Since that source is intermittent, it would not even

apply in our regulations. That data -- I would not need that data.

Q. I am not talking about your regulations right now. I am talking about trying to evaluate the data taken by the Glasgows that was not taken pursuant to your regulation, and took the A-Weighted average; is that correct?

A. Yes.

Q. Okay. To get to -- again, looking at the dB(A) levels, wouldn't it be helpful for you to have dB(A) values of other sources in the area?

A. The specific example you used with the trucks hitting the bump, that would be, from all of the testimony, intermittent enough that it would not fall under the category ambient or the

noise source of interest, and so, therefore, that data would be something -- it would be data that we wouldn't want.

Q. I have read where in general if you look just worldwide probably the greatest noise concern that raises these issues more often than anything else is traffic; is that right?

A. That's correct.

Q. As a result of that wouldn't you have some interest in potential impact of traffic on these homes?

A. As long as it didn't impact the ambient as it is defined in measuring procedures, it would not be relevant to what we are

doing.

Q. Have you observed or did you get any information on traffic count on Edwardsville Road?

A. No.

Q. So you have no idea whether it is one truck that goes down there a day, or it is very busy? You have no idea about traffic flow, is that fair, other than your half hour observation?

A. That's correct, other than my half hour observation.

Q. Do you know what the speed limit is in front of the homes?

A. I believe it is about 45 miles an hour.

Q. Do you know what the weight limit is?

A. I would have to kind of surmise. I would guess 80,000

pounds.

Q. So pretty heavy vehicles can go down that road?

A. Yes.

Q. Did you, in your half hour visit, notice any defects in the road, any bumps, any indentations that could have the affect of magnifying the sound as a truck or a car went by?

A. No.

Q. Hypothetically, if you have a source 450 feet away from a home and there is a second source of equal or greater value, in terms of impact on the home, would you recommend constructing a

sound barrier or wall 300 feet away from the home?

A. I am little bit confused on the second source. Help me out. You are looking at two sources?

Q. Two sources, right. And they are of equal value, equal levels. Or let's say the closer source may be a little bit higher. Would you be inclined to recommend constructing a sound barrier in a situation like that?

MR. MUSKOPF: Let me put an objection on the record first. I don't -- the question, I think -- I object to the form of the question. It is very vague and unclear as to whether it is in the context of another noise source that is subject to the Illinois regulations that is in the proceeding before the Pollution Control Board, and whether Mr. Zak would recommend that for what purpose, to keep the house completely quiet, to get the

other noise source in compliance with Illinois regulations. What does the question mean?

HEARING OFFICER LANGHOFF: Mr. Babst?

MR. BABST: Mr. Zak said he is expert not only in understanding and explaining to us what different noise levels mean, but he is also expert in designing solutions. I assume when you design a solution you have a goal in mind, that you want to reduce the impact to a particular source.

HEARING OFFICER LANGHOFF: What about the form of the

question?

MR. BABST: I am sorry. I didn't find it to be difficult to understand. I will rephrase it.

HEARING OFFICER LANGHOFF: Thank you.

Q. (By Mr. Babst) Hypothetically, if you have a source that is let's say -- let's use the Glasgows home as an example, and 450 feet away from that house is a steel plant, and you have dB(A) readings from activities going on at the plant. You have another source, let's say it is road traffic, and you have also major readings of the traffic which is equal in terms of just looking at dB(A) values, equal or greater levels than the source at 450 feet. Would you recommend that a sound barrier wall be an efficient way of addressing the noise problem experienced by the people in the home?

MR. MUSKOPF: The same objection. If you are going to

design a noise solution it has to be with a particular goal in mind. Is the goal to bring --

HEARING OFFICER LANGHOFF: Is your objection to the form of the question?

MR. MUSKOPF: Yes, the same objection.

HEARING OFFICER LANGHOFF: Overruled.

THE WITNESS: To answer your question -- I will repeat to make sure I have a clear picture of what we are saying here. We are basically saying we have a noise source that is 450 feet away

and a noise source that is 300 feet --

Q. (By Mr. Babst) That is 100 feet away and the wall at 300 feet.

A. Okay. 100 feet away on the noise source. And you are saying the -- both noise sources, as far as impact on the houses, are about the same?

Q. Uh-huh.

A. What would be the effectiveness of putting the barrier up for the one noise when we still have the other noise source present? And the answer in that case would be adding the barrier is going to reduce the total noise impact on the house, so it is going to have some beneficial affect.

The other thing that is always looked at in a case like that is what are the people complaining about. Again, keeping this a hypothetical, but that is always a concern, what is --

what is the complaint. In this case -- in the hypothetical example, if the complaint is about the sources 400 feet -- 450 feet away, then the barrier becomes much more important. If, however, the complaint is the source that is closer, and there is no complaint about the one that is 450 feet away, then there would be no point of building the barrier at the 450 foot mark.

Q. So the goal, when you talked about the barrier wall, you had talked about, at least my understanding was that you were

saying the reason why you were suggesting this is because it would have a major impact, a positive impact on the home?

A. Yes.

Q. Under my hypothetical you are telling me that even if that is not the case, then I look at it a different way, I don't look at it from trying to evaluate the dB(A) impact on the home, I then rely on what the individuals who have said it bothers them say. If they say it is the source 450 feet away, then I would basically look at that as being what I wanted to address in terms of my proposed remedy?

A. I would look at both. It is not a black or a white. We are dealing with an area here where both would be considered, both the measurement and also what are the complaints in the area being directed at.

Q. So if I --

A. We run into this all of the time in noise.

Q. Sure. So if at the end of the day when we are finished testifying and Mr. Studholme is finished testifying, as you sit there, if you are convinced that the impact in dB(A) values on the home is nothing like what you are talking about or what you assume in designing the remedy, could that affect your conclusions that you have given today?

A. That is very hypothetical, but assuming -- that normally would not happen. But taking it as a hypothetical only, I would

say yes.

Q. Okay. Because I think that in talking about the sound barrier, and maybe you could help me, what was your projected benefit in terms of noise reduction to the complainants' homes?

A. Approximately 15 dB(A).

Q. Okay. If you -- this is merely a hypothetical. If you were satisfied that the impact would be more in the line of a decibel and a half, could that affect your opinion with respect to the solution that you have given this morning?

A. If I understand what you are saying, you are saying the actual reduction would be one and a half decibels?

Q. Correct.

A. Then I would say the barrier is not a practical solution.

Q. Thank you. Now, are there generally recognized methodologies for making land use compatibility determinations

that you are familiar with?

A. Well, what I have been doing for 28 years would be basically using what we call our Appendix B. The question has occasionally arisen as far as how to determine land classifications, and I have dealt with that from time to time.

MR. BABST: I would like this Federal Interagency Committee on Noise document marked as Exhibit 32, and this Title 35, Part

901 marked as Exhibit 33.

(Whereupon said documents were duly marked for purposes of identification as Respondent Exhibits 32 and 33 as of this date.)

MR. BABST: Thank you.

Q. (By Mr. Babst) Mr. Zak, I am just showing you a cover page from something entitled, Guidelines for Considering Noise in Land Use Planning and Control, dated June 1980, and it has the seals on the bottom of the United States Environmental Protection Agency, the United States Department of Transportation, the United States Department of Housing and Urban Development, and the United States Department of Defense, and the Veterans Administration. Have you ever seen this document?

A. No.

Q. So you are not familiar with it at all?

A. No.

Q. So you are not familiar, then, with any methodology

other than your use of Appendix B for attempting to deal with land use compatibility determinations?

A. I wouldn't say that, because I had been subpoenaed and testified as an expert in several zoning hearings as far as determining what various land uses would have on each other, especially the aspect of noise.

Q. Uh-huh, but in doing -- in preparing for that testimony

you never took a look at any available federal guidance on that topic?

A. Generally I found it to be unreliable because they tend to strictly look at transportation noise.

Q. So you have -- I assume, then, since you found them to be unreliable that you have read them, or did you make your decision or form your opinion that they were unreliable based on something that someone told you?

A. I have done extensive reading, not that particular -- I assume it is a publication that you have there?

Q. Uh-huh.

A. It is one or two pages?

Q. This was just the cover page. I wanted to know if you were familiar with it?

A. That particular document I am not familiar with, but as far as a lot of research studies that have been done on noise and land use, land use planning related to noise, yes, I have done a

fair amount of reading as far as the ANSI standards, as far as a lot of the publications put out by the IMA research lab on that.

MR. MUSKOPF: I would like to make an objection to the use of that document and to the use of Respondent's 32. They have not been disclosed to me. It is not any different than me cross-examining Tic Weissenburger in the Young case with the St.

Louis Business Journal. It was not disclosed and --

HEARING OFFICER LANGHOFF: I am going to overrule your objection at this time. You can make your objection when they are offered into evidence.

MR. BABST: Is Tic Weissenburger something I should know, or is that --

MR. MUSKOPF: (Shook head from side to side.)

Q. (By Mr. Babst) Again, looking at you as an expert in noise and what you are asked to do in these nuisance cases is to balance the affects that are discussed by people that give you a call, and the Board also looks at a number of other criteria so that it is a balancing regulation; is that fair?

A. Oh, I think very fair, yes.

Q. Your experience, then, in looking at -- trying to keep up with this balancing, you only apply the Illinois Appendix B standards; is that fair?

A. For these kinds of cases, yes.

Q. Can you tell me, based on being an expert in this area,

is the Illinois standard commonly used to make land use determinations, compatibility determinations?

A. No.

Q. More often I think in a vast majority of cases isn't the dB(A) weighted average methodology certainly more prevalent?

A. Yes.

Q. And you are familiar with that methodology, are you not?
A. Yes.
Q. And what you have told us in this case what you do is in order to try to deal with the fact that most people and most methodologies deal with this dB(A) weighted average basis, you have come up with your own way of converting the Illinois standard to a dB(A) value so that you can make determinations?
A. Well, it is not exactly my way of doing it. It is in compliance with the ANSI standard and in compliance with all of the major publications that relate to noise control engineering.
Q. Your method that you explained to me in terms of taking these values and backing out these correction figures, correct?
A. In other words -- so I understand the question, if I am not explaining it the way --
Q. I know what you did.
A. Okay.
Q. You took each of these?
A. Yes.

Q. And you backed out from -- not from this chart, but from something that you said is the same thing?
A. Yes.
MR. MUSKOPF: I would renew my objection to the document. It has never been provided in discovery and has never been

disclosed to me.

HEARING OFFICER LANGHOFF: Overruled.

Q. (By Mr. Babst) And that is basically how you try to come up with an apples to apples comparison?

A. It is not in the case of trying. What I did is used the major publications, actually books on noise control engineering, for example, by Harris.

Q. Okay.

A. And by Boranic (spelled phonetically) and -- I have to apologize. I have a mental block. Those are two of the major publications.

Q. Let's deal with those two.

A. Sure.

Q. They both recommend that -- to take the Appendix B system, the dB I system?

A. All right.

Q. To convert that to a dB(A) system, they explain how you do it?

A. Exactly.

Q. They tell you in that -- in that, Mr. Zak, do they start with these numbers that are already corrected to account for the sensitivity of the human ear?

A. Yes.

Q. Okay. So you would agree that those publications

endorse double counting of that correction factor?

A. The whole world does it. It is how it is done.

Q. All right. Could I ask you, Mr. Zak, is this -- I am showing you -- and certainly take your time. Is that Appendix B?

A. No.

Q. Or is there more to it than that?

A. This is 951. This would be the -- it appears to be one of the diagrams out of our Rule 951, which is an Agency rule only for measurement of sound published in 1980 and, no, it would not have anything to do with the language you were quoting.

Q. Appendix B, I am assuming, is a published document?

A. Yes.

Q. Is it a promulgated appendix or is it a guideline? Is it a regulation or just a guideline?

A. Oh, no. It is a regulation. That is part and parcel of the Board's noise regulation.

Q. So that I am clear, in making a land use determination for purposes of compatibility, you would not recommend nor would you engage in an analysis on a dB(A) weighted basis?

A. I would prefer not to. I would prefer to go with either -- at the very minimum the octave band as opposed to A-Weighted measurement.

Q. In conducting an analysis in your way, can you construct

a model which would allow you to essentially determine the impact of individual sound sources in an area?

A. What do you mean by model?

Q. Well, I mean, where you would have the overall affect, you are going to end up with -- maybe not. I assume you would end up with a single number value impacting a home, or you would not?

A. That could be done.

Q. Okay. If you did that then you would -- what I am asking you is can you construct a model whereby you said, okay, I am going to treat this source over here and if I do that, what will the impact be back to the homes, how would you do that or could you do that?

A. Oh, yes, that has been part of the procedure for the last 29 years. What is normally done is measurements are taken at the residence in third octave band, and normally with the cooperation of the facility measurements are taken at the facility and so we have both the measurements at the house and the facility, and we can compare what I call the acoustical fingerprint of knowing the frequency breakdown, the two

measurements. And then, say, we are going to put a barrier in there, we look at the barrier and the amount of sound reduction that we get for that barrier at various octave bands and then that gives us a very reliable predictor of what the sound

reduction is going to be at the house.

Q. And no accounting under what you just described for me for any source that would be between the industrial facility and the home, traffic, for example?

A. Traffic could be -- could enter into that.

Q. It didn't in what you just described to me, but you --

A. I gave you a very simple explanation. You told me to keep it short. I could explain for an hour and a half to go through a really good setup.

Q. You can tell what I am interested in. I want to know whether you have just looked at a source without comparing -- without taking into consideration other sources that are out there?

A. Oh, no. I take into consideration all sources.

Q. You have said that you did not measure the impact from traffic in this case?

A. That's correct.

Q. And you feel they may have, but you are not sure that the Glasgows measured traffic in this particular case?

A. There was some traffic on the tapes. Again, being very

late at night I would not expect there to be a lot of traffic in an area like that.

Q. So because of your expectation about the area, without

consulting any traffic maps, you were satisfied that what they did was representative of the traffic noise impacting their home?

A. I have been through that area many, many times in the last 29 years, and I am familiar with it both at night and daytime. Just the general vicinity, and especially that area around Granite City Steel, I feel that what they had on the tape was reasonably accurate for times of, say, midnight, 1:00 in the morning.

Q. I would like to talk about some of the remedies that you discussed with Mr. Muskopf. Let's start first with the back up beepers. Your statement, I believe, was in terms of the cost. It was very inexpensive, just put a switch in there and then it is pretty much done?

A. Yes.

Q. Now, in response to questions concerning the cost of an observer you said typically if there are enough personnel around that one person can be the observer?

A. Yes.

Q. And this assumes that there are excess personnel to undertake a very important task, correct?

A. Based upon my experience of doing this type of work for

a number of years for the Agency, it has never been a significant personnel problem to have somebody do it.

Q. So, I mean, the cases that you dealt with obviously have

had people that are under utilized, so they can be taken and say, look, I know we are paying you eight hours a day and you do so little that we want you to observe the trucks or whatever it is backing up?

A. It has been my experience in all of the situations I have dealt with where the concern is where you have got the possibility of striking one of the individuals there with a piece of machinery, that situation only arises infrequently. Normally there is nobody anywhere near the machine. Where the danger would arise is when the machine moves from one area to another, and so for those short periods of time we would use an observer to make sure that as the machine was backed up and moved to turn it around and get it to another location that when it got to the new location any back up it had to do there that an observer was present.

Q. So if you would hear testimony in the respondent's case that there are a significant number of people in vehicles moving around in this area, could that change your view at least with respect to the cost of an observer?

A. It could, yes.

Q. And if you hear testimony that there are multiple pieces

of large equipment and individuals walking around an area and that it could create a safety problem or certainly a safety

concern, would that change your opinion with respect to the acceptability of disconnecting the back up alarms?

A. No, I would say that the observer would take care of that. So if there were a lot of people in the area, the observer would still be able to warn anybody that there is a machine backing up.

Q. With a sound horn, or how does the observer take care of letting this truck know that this Caterpillar is backing up, letting the individual over here know that? I am unclear how that is done.

A. I have seen it done with a red flag where the person -- when the vehicle is backing up, he is staying at a fairly short and safe distance there and watching the people in the area so the person may get out of the way when the machine is backing up.

Q. Would you want the job of the person who has the red flag with the vehicles the size you saw yesterday driving around?

MR. MUSKOPF: I would object. I don't know what could possibly be relevant with --

MR. BABST: I will withdraw the question.

Q. (By Mr. Babst) If you hear testimony that a union safety committee would have great concern about disconnecting the back up alarms in areas where the members are working, would that have

any impact on your conclusion that this is a practical way to address the noise from the back up alarms?

A. That question has never come up before. My concern would be compliance with state and federal regulations. As far as any union impact on that --

Q. You are a problem solver here. I am throwing another variable to you. You are an expert. I am sure you don't get the same set of variables every time. I am giving you another one and asking you whether it could change your view?

A. I would doubt it. I mean, if there are very extreme circumstances, something could be worked out. But overall I would say that I would not expect there to be a union problem. If there was a union problem it would be a case of sitting down with management and labor and working the problem out.

Q. Do you understand how coal is used in the steel making process?

A. No, I don't.

Q. Do you understand how a coke battery works?

MR. MUSKOPF: I will object. What is the relevance?

HEARING OFFICER LANGHOFF: Overruled.

THE WITNESS: No.

Q. (By Mr. Babst) Do you understand what is done in a blast furnace?

A. Yes.

MR. MUSKOPF: The same objection.

HEARING OFFICER LANGHOFF: Overruled.

Q. (By Mr. Babst) Have you ever been in the Granite City plant?

A. No.

Q. I think that Illinois probably has as many steel mills as any state in the country. Have you ever been in any integrated steel plant where steel is made from coke, limestone and iron ore?

A. No.

Q. So your opinion as to the practicality of disconnecting back up alarms is done with absolutely no understanding of the source; is that fair?

A. No, it is not fair, because we are talking about a situation where we are dealing with coal piles, not the plant where the steel is being produced. If I could just kind of -- since you asked the question on that, I have been through a number of foundries and have been through the whole process as far as molten steel and various types of steel being used to manufacture both large and small parts.

Q. I have been through many foundries and steel plants and I don't believe there is much of a comparison.

MR. MUSKOPF: I would object. If you want to swear yourself in and ask yourself some questions, then I --

HEARING OFFICER LANGHOFF: That is enough, Mr. Muskopf.

Is there a question there, Mr. Babst?

MR. BABST: No.

HEARING OFFICER LANGHOFF: Do you have any further questions?

MR. BABST: I do.

Q. (By Mr. Babst) In terms of this wall that you have proposed, you propose that it be 22 feet high?

A. Yes.

Q. Which means that some of this coal has to be moved elsewhere? I mean, assuming the piles are greater than 22 feet high, that means some coal has to go someplace else; is that fair?

A. It could go between the piles, because part of my suggestion was leveling off the tops of the piles in order to provide some shielding for the rail operation where the railcars are creating noise with the coupling and uncoupling.

Q. You understand from the testimony yesterday that these piles are constant and the coal is brought in and taken out and fed into the coke batteries, and that these are not permanent walls that would provide -- I don't believe would provide what you had suggested in your testimony with Mr. Muskopf?

A. Yes, I realize that.

Q. But if -- let me ask you this. If there is no room to

move this excess coal as they lower the piles as you have suggested in this area, have you taken into account how that issue would be dealt with?

A. No.

MR. BABST: Could I have your exhibit back again, Mr. Muskopf?

MR. MUSKOPF: Which exhibit?

MR. BABST: The map, the aerial. Thank you.

Q. (By Mr. Babst) I am referring to Complainant's Exhibit Number 34. I believe you drew in blue a rough approximation of where you would propose to put this sound wall?

A. Yes.

Q. And what you are saying is that the coal piles would be directly behind the sound wall?

A. Yes.

Q. And I don't know if you know this, but I am asking. Do you know that this is the road that the coal trucks come in to bring coal to the coal piles?

A. That is what I would call a haulage road. You mean on --

Q. Yes, the trucks come in this way.

A. -- Granite City Steel's property?

Q. Yes.

A. Okay. Yes, I can see that that is what it is.

Q. Now, did you pick up from the testimony yesterday that these trucks come in and they dump their loads on this side of the coal pile?

A. Yes.

Q. Could you tell me or did you take into account how the trucks would be able to continue to bring coal in and dump in this area of the coal pile with this wall here?

A. Until you pointed this out, I was not aware of where the haulage road was. So it would require somewhat of what I would call a minor route change in order to bring the coal in. I would suggest myself, as just a suggestion, would be to see the feasibility of dumping on the back side as opposed to dumping on the front side.

Q. If I told you that there were railroad tracks on the back side that would prohibit that from happening, would that change your suggestion?

A. It could change it. If the only way to do it is the current configuration, then it would be necessary to move the wall a little bit closer to -- in other words, it would be moving the wall -- let's see. This would be north over here. So it would be moving the wall a little bit to probably the southwest, I guess.

Q. Toward the haul road?

A. Toward the haulage -- actually, I would suggest to move

the wall just to the north of the haulage road.

Q. So you now -- I will let you do it, so I don't mess this up. Where would you put the wall now, assuming the --

A. This is based upon the fact that this is the only way that it is feasible to do this.

Q. I understand.

A. Okay.

(The witness drawing on exhibit.)

HEARING OFFICER LANGHOFF: Could you label that maybe HW for hypothetical wall or any other way that you want to?

THE WITNESS: Okay, Mr. Hearing Officer, with HW.

HEARING OFFICER LANGHOFF: Let the record reflect it is marked HW.

Q. (By Mr. Babst) By moving that wall, assuming that it maintains its 22 foot height, would the coal piles now have to become lower, or would that not affect it by moving toward the Edwardsville Road?

A. The piles would have to be lowered. The reason for the lowering would be the equipment would be working on top of the -- that would be working at the top of the coal piles would have to break the line of sight to the residential area. At the present time, the coal piles, the 22 foot high wall would not be sufficiently high enough to break that line of sight.

Q. You recommended, I believe, that a wooden barrier,

approximately one inch of outdoor grade plywood would be used for this wall?

A. As a minimum, yes. There would be -- they could use masonry. They could use steel. I usually initially recommend the wood wall simply because it is the least expensive.

Q. I recognize that. How practical do you think a one-inch plywood wall would be with the size of this equipment, both in terms of working these piles, trucks coming in here, spray trucks coming down here? Would you feel, as an expert, that a plywood fence would be a good application in a coal field with that type of equipment?

A. I have seen it used in a landfill using heavier equipment than that effectively.

Q. Was the landfill road running right -- basically abutting the wall that you are talking about?

A. Yes, within about three feet of the wall.

Q. What would happen if one of these trucks bumped that wall, that one-inch thick plywood?

A. A carpenter would have some -- would have a job to do.

Q. You feel that even with the size of that equipment and with the possibility of coal being -- or some piece of rock being thrown up, that this is a practical way to approach a sound wall in this type of plant?

A. Being offered as the least expensive solution, there are

a number of other ways to do it that I have been involved with in the past. The base of the wall could start out as masonry for the first six feet or, conversely, it could be a combination of steel and masonry. Another alternative I have seen used would be a guardrail that would run the length of the wall. There are a number of --

Q. Of course, any piece of equipment with anything hanging over, a guardrail, which would be a few feet high, would bump that and would create the same problem, would it not?

A. Yes. But we would have a problem whether we made it with steel or even if we had masonry, which is, say, a concrete wall several inches thick, and if the equipment bumps that it is going to severely damage the equipment then.

Q. Another factor to throw into your equation here, I think the Glasgows and the Hoppes testified that there is a -- there is a drainage ditch that runs along here. Would you have any concern with water, storm water, that would be heading in this direction sitting in this area with its affect on one-inch plywood? Do you think plywood is a pretty good application in an environment like that?

A. I would say that your outdoor plywood that has been -- that is either painted or some other coating put on there would normally last -- have an outdoor lifetime of around ten years. Masonry or steel would have a very, very long lifetime.

Q. Your opinion, then, is that a plywood fence, 22 feet tall, along the side of this haul road in a steel plant, an active coal pile area, would last about ten years?

A. Yes.

Q. Do you have any idea how far down that wall would have to be sunk to withstand the type of wind pressure that I would imagine would affect it?

A. Are you referring to the wall, or are you referring to the supports?

Q. Well, I guess the supports for the wall?

A. That would depend upon soil type and it also would depend upon the actual design of the wall itself. There is a myriad of designs and, again, as far as the amount, how far down it would be necessary to go under the soil, that would all depend upon the nature of the soil itself.

Q. Would that be a cost factor, how far down you would have to go?

A. That's a cost factor contained in my $100,000.00 to $300,000.00 estimate, yes.

Q. You assumed it would go as deep as any set of footers that you could imagine?

A. If it went very deep it would be maybe perhaps close to a $300,000.00 wall. If they didn't have to go very deep at all, it may be closer to the $100,000.00 end. The biggest expense

here is not the plywood. The biggest expense is the support to hold the plywood up.

Q. I would imagine. In the Carey case, the 200 foot by 15 foot high wall, what type of process, what type of business was the Carey company in?

A. Trucking. It was a truck wash and a truck parking area.

Q. And the -- was it LTV, the second example you gave?

A. Oh, I am sorry. LTD.

Q. LTD. I am sorry. I just didn't hear you.

A. D as in dog.

Q. Okay. That was about a 10 to 14 foot high, and about 500 feet long, and you said that was closer to $300,000.00?

A. Yes.

Q. And you said the other one, the 200 feet by 15 feet was ultimately done for $12,000.00?

A. Yes. That was documented. There is actually -- it was not a case of somebody telling me that on the phone. It was a case of actual documentation being submitted that had that price on it.

Q. Did it raise any questions with you that in one case you have a slightly higher fence, a little bit shorter, but that cost $12,000.00, and then you have -- I am sorry -- a taller fence. And then you have a shorter fence that runs a little bit longer that goes up to $300,000.00. What is the variable there? I

mean, that --

A. Oh, there is a number of variables. I can explain them to you. The Carey Company's fence is in Decatur, Illinois. It is an industrial area. It is the type of area where when they put that particular fence up they were not concerned about aesthetics at all. It was just a case of whatever would do the job, period. It is rough construction, is what it really is.

It was exactly the opposite thing with the situation with LTD. LTD is located in one of the more exclusive areas in Chicago. The homes in the area typically run from $500,000.00 to a million dollars. LTD has spent millions of dollars on their building to make it as aesthetically pleasing as possible and, again, they wanted their barrier to reflect the same aesthetics as the building. So we are looking at a lot of cost there to make it look pretty.

Q. Okay. You said that you would anticipate a 15 dB(A) reduction. Could you tell me what the basis of that calculation was?

A. The basis of the calculation would go back to a lot of the published barrier data that is out there right now. Places like the Wall Journal has been very helpful to me in the last several years to determine barrier height and effectiveness. Also, there are some publications by the Illinois Department of Transportation that can provide good estimates as far as how much

noise reduction they expect for various barrier heights, depending upon where the residential receiver is and depending upon where the noise source is actually emanating from.

Q. And did you take those variables into consideration in coming up with your 15 dB(A) estimate or did you just pull that out of the Wall Journal?

A. Oh, no. It actually comes from several sources. Those two sources. Also, I checked with the Noise Control Handbook by Harris, and there is also a publication put out -- it was in The Journal of the Acoustical Society of America back about 1974 that went into great detail on how effective a barrier would be for various octave bands. I used that also.

Q. Did you have the octave bands in this particular case to consider in analyzing that?

A. No.

Q. But you were able to, nevertheless, make that judgment without that piece of information?

A. It was an approximation, because I didn't have the octave bands.

Q. You work a lot with the Illinois Department of Transportation. Are you aware of guidelines that they have with respect to highway project noise analyses and the use of noise walls?

A. Yes.

Q. I will show you this document and ask you if you have ever seen it?

MR. MUSKOPF: I am going to object to the use of the document. It has not been provided previously in discovery.

MR. BABST: Would you mark this, please, as Respondent's Exhibit 35.

HEARING OFFICER LANGHOFF: Okay. I am going to -- do you have any argument? I am considering Mr. Muskopf's objection.

MR. BABST: I did not know until I heard Mr. Zak testify that he worked with and he has used as a reference his work with the Illinois Department of Transportation. It seems to me that if he has raised that, I am entitled to ask him questions about it.

HEARING OFFICER LANGHOFF: Mr. Muskopf?

MR. MUSKOPF: I don't have any further argument.

HEARING OFFICER LANGHOFF: Okay. I am going to sustain Mr. Muskopf's objection.

Q. (By Mr. Babst) In your work as -- as an expert in your work specifically with the Department of Transportation in Illinois, are there any criteria that you apply when you determine whether a sound barrier is appropriate?

A. Yes. I can give you an example. In the case of Melon versus IDOT, a case before the Pollution Control Board, the case did not go to hearing. It was settled. The initial plans

drafted by IDOT were submitted to me for comment. And basically there we were looking at a noise barrier of 15 foot height constructed of outdoor grade plywood, and the length was somewhere between 300 to 500 feet long. The projected cost by IDOT was in the neighborhood of between $100,000.00 and $130,000.00.

Given the information on the type of equipment used by IDOT, the nearness of the neighbor, I had a few concerns as far as the barrier concern to the extent that I thought it would be better to move the operation within their property to the far side. They did a cost analysis on that and the cost was considerably higher than the cost of the barrier, to move part of the operation.

So going with the barrier, and then the complainant and the complainant's attorney asked my for an opinion of the final version of that, and I went over the final version, which is very similar to the initial proposal, and I agreed that in all likelihood that would solve the problem.

Q. Let me ask the question again, Mr. Zak. All I wanted -- all I asked you is in working on matters with the Illinois Department of Transportation are there criteria that are applied in determining whether a sound wall is an appropriate noise abatement technique? And, please, I am not interested in anecdotal tale. I want to know whether there are criteria that

are applied in those cases in your work with the IDOT?

A. Now, are you asking me if I applied criteria or do they apply criteria?

Q. To your knowledge, do they apply criteria?

A. Yes, I am sure they do.

Q. Do you know what they are?

A. In general terms, yes.

Q. What are they?

A. I have a publication that is about 15 years old, so it may not be totally up-to-date. In their publication they basically look at cost. They look at materials. They look at, obviously, the amount of sound reduction needed, and the feasibility of the barrier in that location versus an alternate way of attacking the noise problem.

Q. Do they have a minimum decibel reduction that they find must be established before they would recommend that noise abatement technique?

A. The ones that I have seen are usually in excess of 6 decibels.

Q. Do you feel that that is a fair standard to apply in evaluating cases like this?

A. No.

Q. Do you have a standard that you apply?

A. Yes.

Q. What is it? And I am talking now about a decibel standard?

A. Yes, a minimum of 10 decibels reduction.

Q. And so that I understand, when you say a minimum of ten decibel reduction, are you talking about the overall impact of noise on a source? And in this case we are talking about these two homes.

A. Could you kind of clarify your --

Q. Yes. I am curious whether your 10 decibel reduction is based upon the reduction of a measured source here or whether it is a 10 decibel reduction in the total amount of decibel level of sound that is affecting these two homes?

A. Now, the problem I am unclear about is what you mean by total decibel impact on the homes.

Q. The dB(A) -- taking a dB(A) reading. Calculating a dB(A) reading for all of the sources of noise that affect these homes, are you looking for a 10 decibel reduction?

A. Now, again, you are not -- I am not clear on all sources of noise. Are we talking about --

Q. I am talking about traffic and --

A. -- airplanes flying over or not?

Q. Sure. Everything. Airplanes, being taken into account.

A. The 10 decibel reduction would apply to the noise source

of interest. In this case it would be the coal piles at Granite

City Steel. That's where we want the 10 dB reduction.

Q. I think you said earlier, though, that it would be relevant to you what the overall reduction would be at the home, taking all sources of sound into consideration?

A. That would be -- that would be true, but not in all cases. The more universal case would be to look at the noise source of interest and apply the ten dB there.

Q. But you did say earlier that you would take into account all sources in evaluating whether that was a reasonable abatement technique?

A. Yes, I would.

Q. I am just curious, on the tailgate solution that you proposed, the rubber material to allow the gates to close without metal on metal --

A. Yes.

Q. -- is that available and you have used that in other cases? Or is this something that you think could be done?

A. No, it has been used. That particular acoustic application has been used. I can't go into detail where it has been used.

Q. No, my question was is it available or is it something that would have to be basically designed?

A. There really is not any significant amount of design work there. But you are asking is there a kit out there where

you just buy the kit and --

Q. I just want to make sure that it does not affect the effectiveness of the trucking operation, so if there are people out there using these types of rubber tailgates or rubber-lined tailgates?

A. It is a technique that is usable, but as far as being able to give you specific examples of some company right now that is using that, I can't.

Q. Okay. I believe you have suggested that there be another barrier wall constructed to address this, for lack of a better term, this metallic screeching noise?

A. Well, no. That, perhaps, is a little unclear. My idea there was the wall where you have been talking about all this time would also take care of the screeching noise.

Q. So there is no second wall?

A. Not for that, no. No second wall.

Q. You are suggesting, though, then, the construction of enclosures in areas where shakers are used, whether it is with trucks or with railcars?

A. Yes.

Q. And your estimate there is about $100,000.00 for the tractors and about $150,000.00 for railroad cars?

A. Yes. It would basically be a simple pole building.
Q. With some subsurface area constructed to drop material

into, as I understood it?
A. Yes.
Q. And an auger system to move it out into, I guess, a conveyor or some other means of removal?
A. That's correct.
Q. You took all of that into account in your price?
A. Yes.
Q. And your price is based upon your one experience in this case ten years ago?
A. Yes.
Q. As an expert in the Illinois Noise Act and its regulations, do you apply that statute and those regulations to indiscernible sound waves, basically sound waves that can't be heard by the human ear?
A. That's what we have the nuisance standard for.
Q. Mr. Zak, if I showed you evidence or -- I am not going to show you. But when Mr. Studholme testifies, if you hear evidence that there are single event levels of 81 to 83 decibels at the property lines that we are talking about, would you consider these sources to be a potential threat to sleep?
A. Yes.

Q. Mr. Zak, in your testimony regarding your opinion regarding depressing property values, you don't know whether the property value in this case, these two homes, has been affected

at all, do you? You made no inquiry to determine whether they are affected?

A. In general terms I would have an idea that noise sources tend to lower property values, but in this specific case I don't have any direct knowledge of "X" number of dollars of depreciation --

Q. Right.

A. -- for the noise source.

Q. And as far as whether Granite City has taken any significant steps to reduce noise, your testimony is based upon your observations and your listening to the complainants testify; is that right?

A. Yes.

Q. You have not talked to anyone at Granite City Steel to determine what, if anything, they may have done?

A. No.

MR. BABST: No more questions.

HEARING OFFICER LANGHOFF: All right. Thank you. Mr. Muskopf?

MR. MUSKOPF: Can we talk about taking a lunch break?

HEARING OFFICER LANGHOFF: I think we are going to take a quick break after we are done with Mr. Zak.

MR. MUSKOPF: Okay.

REDIRECT EXAMINATION

BY MR. MUSKOPF:

Q. Mr. Zak, is there anything that came to mind that -- you were -- Mr. Babst was insistent that you answer his question and that he keep you on a short leash with your answers, and he said that I would have the opportunity to clear things up with you after he was through. So I was wanting to take that opportunity at this point.

Is there anything that you were asked by Mr. Babst that you didn't get to give a full answer to that you would like to address at this time?

A. Well, without being able to read the transcript -- it has become a long session -- I really can't think of anything at this time.

Q. Okay. Are there -- is there anything that you would like to add or clarify with regard to the testimony that you just gave on cross-examination?

A. Yes, there is one area that I would like to kind of clarify a little bit, and that is the whole question of dB(A). The dB(A) equivalents that I provide are simply designed to allow

somebody that does not have an octave band meter to come up with an idea of whether or not they are in compliance with the State noise regulations.

As far as the statement about double counting, it is not --

in my opinion and in the opinion of the experts that I am familiar with, I have never heard the term come up about double counting on the dB(A). But the dB(A) numbers that I have given out are the ones that are recognized and used by all of the prominent authorities in the acoustics field. The method of calculating out the dB(A) equivalent for the various octave band rules is the same methodology used by all of the experts that I am familiar with that both sit on the ANSI committees and that have published a number of publications on that topic.

Q. So would you say that methodology is widely accepted in the scientific community?

A. I would say it is virtually used by the whole world.

Q. Is it -- are there competing methodologies, or is that basically the standard methodology?

A. This is the first time I have ever came across a statement about double counting in my 29 years.

Q. Okay. Is there anything else you would like to clear up or add to?

A. I am sure I will think of it after I am done, but for right now, no, I can't think of anything.

MR. MUSKOPF: All right. Nothing further.

MR. BABST: Nothing further.

HEARING OFFICER LANGHOFF: Okay. Mr. Babst, you might want to mark any of your exhibits that you might want to offer.

MR. BABST: Okay.

HEARING OFFICER LANGHOFF: Thank you, Mr. Zak.

THE WITNESS: Thank you.

(The witness left the stand.)

MR. BABST: Can we take a short recess?

HEARING OFFICER LANGHOFF: Yes. Let's go ahead and go off the record.

(Discussion off the record.)

HEARING OFFICER LANGHOFF: It is 12:25. We will take about a half hour break, and we will be back at five till 1:00.

(Whereupon a lunch recess was taken from to 12:25 p.m. to 1:00 p.m.)

A F T E R N O O N S E S S I O N

(July 11, 2001; 1:00 p.m.)

HEARING OFFICER LANGHOFF: Okay. We are back on the record. Welcome back from lunch. It is one 1:00.

Mr. Muskopf, do you have anything else for your case-in-chief?

MR. MUSKOPF: I rest my case-in-chief.

HEARING OFFICER LANGHOFF: Thank you. Mr. Babst, you had indicated that you wished to make an opening argument.

MR. BABST: Yes. Thank you. The steel making operation of the Granite City Steel Division of National Steel Corporation has been in its current location for about 100 years. During that long period of time the company has developed a number of programs to reduce noise and fugitive dust emissions.

Specifically with respect to dust, we will explain the evolution of the Granite City Division fugitive dust control plan. We will show that last year Granite City Division received an NOV from -- a Notice of Violation from the Illinois EPA specifically dealing with the fugitive coal dust emissions based

upon the complaints of the complainants. During the discovery stage of this matter the Granite City Division met with the IEPA's fugitive dust specialist, and as a result of those discussions, the Granite City Division agreed to modify its fugitive dust control plan to further enhance the control

practices on and around the coal piles.

The Illinois Environmental Protection Agency reviewed this situation carefully and agreed that the proposed changes resolved the issue raised in the Notice of Violation.

From a noise perspective, we will agree that the complainants live in a noisy environment. Like complainants, we conducted an investigation of the area in which they live. What we did differently is we evaluated all noise sources consistent with the methodology that is utilized for land use purposes by the EPA, the FAA, and the Department of Transportation. Based upon this more thorough analysis we will show that the dominant noise source in the area of the complainants' homes is the heavy traffic on Edwardsville Road and not the coal pile activities.

We will show that even the complete elimination of the coal piles would have less than a two decibel impact on complainants' property. We will show that single event levels of noise from passing trucks and cars exceed the single event levels from coal pile activities and that the likelihood of having sleep

interrupted remains unchanged.

We will show that the Granite City Division provides enormous economic and social value to this area. We will also show that the domestic steel industry is fighting for its very existence because of foreign steel dumping. We will show how 17 steel companies are in bankruptcy at this time, and that many of

those companies have plants in Illinois. And we will show that National Steel has lost approximately 260 million dollars over the last two and a half years, and that is taking -- and that they are taking an extreme -- they are taking extreme steps towards cost-cutting measures in an attempt to survive. Thank you.

HEARING OFFICER LANGHOFF: Thank you, Mr. Babst.

MR. BABST: I would like to call as my first witness Mr. Ned Studholme.

(Whereupon the witness was sworn by the Notary Public.)

N E D S T U D H O L M E,

having been first duly sworn by the Notary Public, saith as follows:

DIRECT EXAMINATION

BY MR. BABST:

Q. Mr. Studholme, would you please give your full name for the record.

A. Ned Studholme.

Q. And your current address?
A. It is P.O. Box 59, Batesville, Virginia, 22924.
Q. Are you employed, sir?
A. Yes.
Q. By whom?
A. Science Applications International Corporation.

Q. And where is that located, or where is your office located?
A. Charlottesville, Virginia.
Q. What is the size and type of business that SAIC is involved in?
A. SAIC is a very large science and technology firm, employee owned, with approximately five billion dollars in revenues and 45,000 employees.
Q. How long have you been with this company?
A. Seven years.
Q. Can you briefly explain what your job responsibilities are at the current time?
A. Yes, my title is Program Manager for Environmental Planning, so I am responsible for a wide range of analyses and evaluations that have to do with the affect of different actions on the environment and for designing and evaluating solutions to environmental problems.

Q. Would you explain to us your educational background, please?

A. Yes. I have a Bachelor's Degree from George Washington University in 1967, and a Master's Degree in urban and regional planning in 1972 from George Washington University.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 26 as of this

date.)

Q. (By Mr. Babst) Mr. Studholme, I am going to provide you with what has been marked as Respondent's Exhibit Number 26, and ask if you would identify that document?

A. Yes, this is my resume.

Q. Mr. Studholme, I would like to just briefly take you through this and ask you if you could explain what you did when you were employed by the United States Environmental Protection Agency?

A. I was a consultant to the Environmental Protection Agency, retained shortly after the Noise Control Act of 1972 was enacted. I was primarily responsible for evaluating regulatory approaches dealing with land use compatibility with noise.

Q. And would you go on and explain to us what you did when you -- in your position as a research assistant at George Washington University?

A. At George Washington University I was a research

scientist and I developed a document titled, the Role of State Governments in the Regulation of Civil Air Carrier Airports and Land Use for Noise Abatement Purposes.

Q. Moving on to your position as a Senior Planner between 1980 and 1987 with the EDAW Company, could you briefly tell us about any noise related work that you did while with this employer?

A. That employer did a very large volume of what is known as NEPA compliance work. That is compliance with Section 1022(c) of the National Environmental Policy Act of 1969. My primary responsibilities there with respect to NEPA were to evaluate noise and air quality affects from proposed development projects or large governmental programs.

Q. In between 1987 and 1992 you worked with another research corporation. Would you explain what you did as a Program Director for that company?

A. That was much more of a technical position. While I was there I developed the Area Equivalent Method Noise Model for the FAA and continued to do NEPA compliance work. One of the documents I developed was the Environmental Impact Statement for the Deregulation of the Airline Industry.

Q. And finally I would ask in your position with Science Applications International Corporation, if you could tell us a

little bit about in particular serving on the Interagency Environmental Technology Office Program as a Special Advisor?

A. That was a program developed by -- then by President Al Gore, and as a consultant -- as an SAIC consultant I was detailed to the Interagency Environmental Technology Organization for one year to develop better processes for the commercialization of environmental technology in the private sector. There were other people in the same organization who were trying to do the same

thing in the government. My job was to basically interview the private sector concerns that had notable success or failure in the development and commercialization of environmental technology and to come up with reasons for success and failure and apply those to the federal programs.

MR. BABST: I would like to offer Mr. Studholme as an expert in evaluating noise measurements and the effectiveness of available noise abatement technology.

MR. MUSKOPF: I think our stipulation covers that.

HEARING OFFICER LANGHOFF: Yes, the stipulation does cover that. Thank you, Mr. Babst.

Q. (By Mr. Babst) Mr. Studholme, have you done any enforcement related work in the area of noise abatement?

A. No, I typically don't do enforcement work.

Q. What is the nature of your work and how does it differ from enforcement related work?

A. As a planner I tend to develop noise management plans or in some cases specific noise abatement procedures for individual projects. More commonly, though, a large noise management plan for a major installation.

Q. How does your work experience differ from the work experience of Mr. Zak?

A. My understanding of Mr. Zak's experience is that he is much more focused on a project by project analysis, almost an

engineering type evaluation application of standards and developing solutions. Mine is much more oriented, in my opinion, to developing solutions that reflect comprehensive -- address comprehensively the problem of noise at a given location.

Q. Are you familiar with methods used to evaluate noise in land use issues?

A. Yes.

Q. Have you been asked here or to appear here today to contradict Mr. Zak's testimony?

A. No.

Q. Is SAIC being paid by National Steel for your work?

A. Yes.

Q. Are you a salaried employee of this company?

A. Yes.

Q. What hourly rate is SAIC charging for your services

today?

A. $195.00 per hour.

Q. In order to do compatible land use planning, you obviously need some type of approach or methodology. Is there any accepted methodology for making land use compatibility determinations?

A. One of the biggest efforts that has gone on in the Federal government in the noise arena has been to try -- or in the early days after the Noise Control Act there were a number of

methodologies, metrics and models, and it became very difficult to compare apples with oranges then. So there once was -- there was formed the Interagency Committee on Noise, and they initiated the process of gaining consensus. There is as of 1980 and more recently updated in 1992 now a consensus among the important federal agencies about exactly what metrics should be used to determine land use compatibility and what models, how they should be applied.

Q. Would you explain the methodology you have used in the present case, beginning with an explanation of sound pressure and frequency?

A. Yes. To go back to the basics very quickly, the two most basic components are the sound pressure level, which is measured in decibels, and the frequency of the sound, which is measured in cycles per second or hertz. I think the Illinois

regulation has been in evidence. The Illinois regulation is a good example of the combination of sound pressure level and frequency to determine the affect on the human being. So you have the decibel, which is sound pressure, and the pitch is the cycles per second.

Basically what the federal agencies have agreed to is that the weighting network to be used in meters that measure sound level is to be the A Scale, which was discussed earlier today, and that would be applied very closely to the same set of octave

bands that we have seen today, and it is the result of the sound level meter using the A Scale to measure sound. It is mimicking the human response to loudness.

So instead of just measuring sound pressure level with almost no deference to the human response to the different pitches, the A Scale has been determined to be very close to the human response with respect to loudness for sound pressure level. Therefore, they specified that the dB(A) metric be used for a single event, such as an aircraft flying over or a truck driving by that has a definite time history. It would be measuring dB(A) on a meter. And the time history would be in seconds. So this event would take a number of seconds.

They have specified that the sound exposure level is the metric that would be used to take into consideration the duration

of a single event. Where when you are measuring dB(A) you really only get an instantaneous reading that varies. The needle or the digital readout is moving the whole time. The sound exposure level is basically one number that takes into consideration all of the noise that occurred during the event and its amplitude adjusted for human sensitivity.

Then the sound exposure level, or SEL, for cumulative long-term measurement, which is what they use exclusively for determinations of language compatibility, is basically averaged over one or two time periods. The most common time period that

they have all agreed to is the day and the night periods. There are two periods. So the night period takes all of the sound exposure levels, SELs, that occur during the night period. That is defined and agreed to as 10:00 p.m. to 7:00 a.m., and increases those by ten decibels. There is a ten decibel penalty applied to the night events to reflect that people are trying to sleep and that more people are at home. And then during the day no penalty is added. It is just whatever you measure, as long as they are converted to sound exposure levels.

They add all the sound exposure levels up and logarithmically average them over the time period and this becomes the day-night average sound level, which is abbreviated DNL, and the scientific notation for that is capital L, subscript small D-M, LDM. They are interchangeable in conversation.

Q. What federal agencies use this methodology for determining land use compatibility determinations?

A. The Environmental Protection Agency, the Department of Defense, the Department of Transportation, the Veterans Administration, Housing and Urban Development, also the CEQ participated in the deliberations and supported the metric as well.

Q. And how are multiple sounds considered in this evaluation?

A. They are summed logarithmically over a given time

period, and then they are averaged over the time period, so that you get one measure. For example, a DNL is the time averaged A-Weighted sound level that has the same sound energy in it as all of the time varying levels that occurred over a 24 hour period considering a 10 dB penalty at night. That's the official lay description of it.

Q. How do you calculate an average weighted sound level for a period of time?

A. In simple terms, if I had ten sound exposure level values that had been reported, or even a model would do this if it was using a database, each of the SEL values would be converted into an energy level and summed, and then the energy would be converted back to a total by taking ten times the

logarithm base ten of that and multiplying by ten, and then you would subtract ten times the logarithm of the number of seconds in the period.

Another way of explaining it that is a little simpler is when you obtain the sum of the energies you can also divide that by the number of seconds. The reference is one second for the SEL into that, and then just take ten times the logarithm base ten of that times ten. And that basically is the time integrated average A-Weighted sound level for the time period under consideration.

Q. By using an average method aren't you kind of working

out or avoiding the peaks and valleys?

A. Yes. There initially was a lot of concern that this averaging -- and I still do hear some of it from citizens groups and people who may not fully understand the metric -- that the averaging covers up somehow the fact that there are these big annoying events. But, in fact, it actually -- taken in context with the criteria that are applied to it, it actually does a very good job of accounting for these events. An example I could give is if we had a sound source in here for an hour, let's say for 30 minutes of an hour it was at 90 decibels, a very high level, 90 dB(A), and for the rest of time it was 50. The time integrated average sound level, the DNL for that time period would be 87.

Q. Did you develop a sound model for the area in which the

Hoppes and the Glasgows live?

A. Yes.

Q. And how did you construct that model?

A. Basically like I normally do. I do it on Excel spreadsheets so that it is very transparent and anyone can review them and see exactly if the mathematics are correct or not. I don't think the details of the model are very important at this point. The idea was to identify all of the sources that impinged on the properties at various different times of day and to try to derive an estimate based on the noise levels that I measured and based on the noise levels that the complainants have offered in

evidence of what the DNL values for those properties are today.

The reason for doing it in a model is because once it is in the model you can take individual -- it is a disaggregated model. In other words, each piece is in there separately. You can lower or raise any piece of it, or you can take a whole one out, or you can put a wall in and say it is a 15 dB reduction, and then judge, based on that, what the remaining residual noise level would be on the property considering all the noise in a comprehensive way.

Q. And when did you take physical measurements yourself?

A. I went to the property on June the 19th and June the 20th.

Q. What time of day on those two days?

A. On the 19th I measured in the evening hours from approximately 6:00 at night up until after 10:00 p.m. at night, and then on the following day I measured from 7:00 in the morning until 1:00. There were some -- on the second day there were some excursions when I left the property and went and measured individual sources on the mill property, but that was the time period during which I took measurements.

Q. What type of instrumentation did you use?

A. I used a Quest Model 300 Precision Dosimeter and something very similar to what -- a second instrument, just -- the dosimeter is something you program and setup. And then I had

a second instrument that was very similar to the equipment that the complainants used, and I just used that to try to identify locations from which to take measurements. I did not use the simpler one for recording.

Q. And how did your measurements compare with the Radio Shack device used by the complainants?

A. There was a very good correspondence. I believe that their measurements are accurate.

(Whereupon documents were duly marked for purposes of identification as Respondent Exhibits 27 and 28 as of this date.)

Q. (By Mr. Babst) And do you recall -- I am going to show

you what has been marked as Respondent's Exhibits 27 and 28. I would ask you if you could tell me what sources did you attempt to measure?

A. Yes. I broke it down into evening traffic, something I called a.m. traffic or morning traffic. Then the plant events, I broke -- I distinguish between the steel plant noise, that would actually be from the area of the main plant, as opposed to the piles, and from the piles themselves. So I have maximum noise readings from the plant, and maximum noise readings from the piles. And then I got minimum noise levels from the plant and from the piles, but by minimum I don't mean ambient. By minimum, in my methodology, is the lower end of an event.

So to make it perfectly clear, if the plant was venting, and it went up to 71 decibels, that would be the maximum. And then during that event, it would tail off to say 65 or so before the pressure was exhausted. So the minimum would be 65. Then I did a plant ambient, which I obtained when there was no traffic both during the day and at night, which meant the noise that the plant made when there was no venting, and it did include warning alarms. So if there was nothing unusual going on and the plant was operating as normal that would be a plant ambient level. Then I have -- I did not measure what I would call night traffic, but I did derive a level for night traffic.

Q. How did you derive that level?

A. I looked at the traffic flow data that was provided to me for the area and made standard adjustments for day and night flows on urban arterial roads and adjusted the night numbers down, obviously, for the fact that there would be less traffic at night.

(Whereupon said documents were duly marked for purposes of identification as Respondent Exhibits 29, 30 and 31 as of this date.)

Q. (By Mr. Babst) I am going to show you what the Respondent has marked as Exhibits 29, 30, and 31, and ask if you can identify these exhibits?

A. Yes, these are the traffic flow data in map form that I

used to evaluate the nonmeasured traffic in my analysis.

Q. And basically, Mr. Studholme, what are these maps? What do they represent?

A. These are official 1996 Average Daily Heavy Commercial and other -- each one pertains to a particular type of traffic. For example, the one I am looking at now pertains to Average Daily Heavy Commercial Traffic. That would be the large semis and heavy trucks on the map for specific road segments. The U.S. Department of Transportation publishes average annual daily traffic volumes, the number of vehicles passing that given point.

Q. Now, in constructing your model did you have to assign a

specific period of time during the day that certain levels would be in existence?

A. Yes. I wanted to be in conformance with the federal agency's approach, so I divided it between the day and the night period, the day period being from 7:00 a.m. to 10:00 p.m., and the night period being from 10:00 p.m. to 7:00 a.m.

Q. In the night period what did you do with respect to the readings that you --

A. All events occurring at night were assigned a ten decibel penalty.

Q. Did you review the complainants' tapes?

A. Yes.

Q. Are videos an acceptable means by which to evaluate

sound levels?

A. For reading the meter levels they are. That's one of the ways I could determine that my measurements were consistent with their measurements. The only caution I would have about reviewing them on tape is that you need -- I actually set up a sound level meter next to myself so that I could adjust the volume so that I could get a closer idea what the site was actually like when it was being measured. In other words, if the meter was reading 65 on the set, I would adjust the volume so that my meter was reading 65 so that the sound that was reaching

my ear corresponded to what was on that meter.

Q. Now, could you tell us very briefly what sources of sounds you measured and what sources of sound you took data from the complainants' tapes?

A. Okay. I will refer to the exhibits. First is Exhibit Number 27. That reflects site one and site two. Site one is 20 feet from Edwardsville Road on Alexander.

Q. Just so that we all know, how does that -- where is that relationally to the complainants' home?

A. Between the two complainant's homes.

Q. Okay.

A. On Alexander Avenue.

Q. Okay.

A. So without getting into the metrics, I measured traffic

during the afternoon from 20:25 to 21:45 hours over a one hour period. And at that time I allowed the Dosimeter to just accumulate all of the noise that arrived at that point and to calculate an LEQ, which is exactly the same thing as a DNL or an LDM, but it is not weighted. So I got an hourly average for the traffic at that time.

Then I repeated the process on the following morning from 7:10 to 7:40. That's a shorter time period. That would be for 30 minutes. The reason that I did that is because the traffic -- once the traffic picks up to a point where there are large

platoons of cars moving by together the sound exposure level is not as accurate. So at that time period it was valid. I was there to observe the measurements during the full time.

Then I obtained also sound exposure levels. If you recall, that is the single event metric, for autos in the near and far lane, and trucks in the near and far lane. I also obtained a plant noise reading with the traffic excluded at the same location.

The vehicle flow for the 20:45 to 21:45 was approximately 210 vehicles per hour. And on the following morning the vehicle flow was approximately 940 vehicles per hour.

Then I turned my attention to the bulldozers working the coal pile. I obtained dB(A) readings. The reason that I didn't use sound exposure level for those is because they are not an

event that has a short time history. They are on and they are in one position going up and down the coal piles. So I measured two sources. I measured them operating with the warning alarms and I measured them operating with the warning alarms off with just mechanical noise and engine noise from that location.

Then I did some specific measurements of full and empty trucks going by from the same location, full and empty. In addition, I obtained measurements of trucks striking an regularity in the road surface on Edwardsville Road and measured

the affect of the trucks hitting the hump acoustically in the air at that time.

Q. Okay.

A. I also measured the coal shaker from that location as it was shaking coal in the yard approximately 800 or 1,000 feet away. I obtained measurements at the coal shaker on the same day, at the same -- 50 feet from the shaker.

The site two was 20 feet north of the alley on the Alexander sidewalk behind the -- I can't keep the complainants' names -- sorry.

Q. The Glasgows or the Hoppes?

A. Behind the Hoppes' residence.

Q. Okay.

A. That gave me very clear unobstructed shot of the plant without their house screening the plant noise from site number

one. I obtained some readings of the plant there. Again, these are ambient readings because at that time there were no aberrations or upsets at the plant that would cause a single event. While I was doing that I did observe five overflights from aircraft at the same time. I managed to get a few of those.

Q. Okay. Now, what data from the complainants' tapes did you use? And if you could, explain how you used this data?

A. Okay. I took notes based on observing the tape and listening to the sounds about the likely source that was present

when the sound levels were taken. And I used their data verbatim as it was.

So, for example, I have a time down here from their tapes. The tape did have an hourly indication on it. On 09-10-2000 at 13:22 hours there was an event that was -- that had a high of 66 and a low of 60. And that appeared, to me, to be -- that was a vibration. So I made a note about that.

Then on 09-11-2000 at 1:06 in the morning there was a venting event. This was very useful for me because I was unable to get any -- there were no upsets when I was taking measurements. They actually did capture a venting event, actually a couple of venting events and, you know, that ranged from a high of 72 to a low of 64.

So I used all these numbers of different sources that I have, for example, not only events. They had plant alarms. They

had the plant operating without the alarms. We had several back up -- at the coal pile, then there were some pretty good data on warning alarms for dozers and loaders backing up, there were tailgate slams. There were dozers operating without the warning signals. Let's see. The slamming tailgate. And, oh, yeah, we had a truck in front of the piles going by the service road on the property, and then one truck shaker, an hydraulic device used to shake coal out of the truck.

Q. Did you include all sources in your model?
A. Yes.
Q. All sound sources?
A. Yes.
Q. Is this model that you created consistent with the modeling that you have done in other applications?
A. Yes, exactly the same.
Q. Is it generally accepted methodology in evaluating land use compatibility?
A. Yes. It is not only accepted, it is preferred.
Q. With the model can you determine the impact of reducing or eliminating an individual source?
A. Yes. The purpose of building a model like this is so that you can then make variations, hypothetical variations in sound sources or abatement strategies, and determine how effective it would be in reducing the total noise on the property

in question.
Q. And how does this work?
A. Basically, there is a number of -- I can do this by example a little bit easier. For example, since I broke these out into different sources, I would have a category in the model which was called -- a good example would be the coal piles. I have a column for the piles, and there is day and a night category for those. I used the maximum and minimum noise levels

that were -- that I measured and that they measured to come up with an average level that was occurring during the time that they were operating. Then I considered the percent of the time in question, say, during the day, what percent of the time in question is this activity that has this sound level associated with it, based on measurements, going on. And this is based on data provided to me by the plant personnel who know the lengths of the shifts. And I would also offer that it is fairly -- the estimates are on the high side for duration almost in every case. There is no attempt to actually say that they are shorter than they are.

Q. Have you run any type of sensitivity analysis to determine how these numbers would change if either the sound level or the duration of these events changed?

A. Yes. I knew that there were a lot of different factors that would affect the output of the model. So I went in and I

did a sensitivity analysis that involved increasing every input noise level by five decibels. And in the event where this is an operation, such as a dozer operating, that's equivalent to tripling the time period in which they were operating. So if my assumption was that they were operating eight hours a day and I added five decibels, it would be the same thing as assuming that the measurement is right and that they were operating for 24

hours. Or on the other hand, that they only operate for eight hours but that the measurement data was five decibels low. I did that for every one of the sources. I also added to the sensitivity analysis the coal shaker.

Q. Based upon your model, what was the dB(A) impact on the complainant's homes?

A. It is -- this is actually -- the metric would be -- this is an LDM value.

Q. Okay.

A. The LDM value for the complainants' property by the model is 72.8 LDM -- or DNL, 72.8.

Q. And did you run an analysis showing what would happen if the coal piles were both impacted in terms of reduction and up to the point of being totally eliminated?

A. Yes, that would reduce the noise level to about 71.4 dB or about a decibel and a half, in that range.

Q. And that 71.4, is that with the coal piles completely

eliminated?

A. That's with the equivalent of a 15 decibel reduction in all sound coming from the coal piles, which is equivalent to it be eliminated acoustically.

Q. Now, based upon this model what would happen if a sound barrier was constructed in the position suggested by Mr. Zak, with respect to the impact on the complainants' homes?

A. If Mr. Zak's assumption that it would, in fact, provide a 15 dB reduction in the emissions from the coal pile, it would be a one and a half dB benefit using the DNL method.

Q. Would a one and a half decibel difference be discernible to the human ear?

A. In a laboratory setting with ear phones a young person can detect one decibel. That is the basis for a decibel. But outdoors or in the environment, it would have to be more than two decibels. The most common change that people say is noticeable is five decibels.

Q. Based on your study, what sound source dominants the environment where the complainants' live?

A. Traffic noise.

Q. Based upon your own observation, what is the cause of the louder traffic noises in the area of the complainants' homes?

A. On a single event basis, trucks. And in particular at the extremes it would be the trucks hitting irregularities on the

surface of Edwardsville Road.

Q. From a land use compatibility perspective would the noise environment in the area of complainants' homes change using generally accepted land use criteria if the coal piles were eliminated?

A. No, it would still fall under the same category.

Q. Based upon your own observations, did you experience any vibrations while you were conducting your work near the complainants' homes?

A. Particularly with respect to measurements of full and empty trucks over the irregularity in the road surface. It was a very noticeable vibration when the trucks went over that section of roadway.

Q. Did you observe any vibrations caused other than by the traffic going by the homes while you were there?

A. No.

Q. I would like to now turn toward the problem of sound waking up an individual during the night. How does the federal government use sound exposure levels to determine threats to sleep?

A. Most commonly they use the sound exposure level metric, the SEL metric that I discussed earlier. And there is an established relationship between sound exposure level and the percent of the population that is awakened by that level.

Q. And is that in a federally published guidance document?

A. Yes.

Q. Just so that people know where you came up with this.

A. Yes. It is actually in the Federal Agency Review of Selected Airport Noise Analysis Issues, which includes many more issues other than those at airports. It is by the Federal

Interagency Committee on Noise, dated August of 1992.

Q. Did you calculate SEL values in the area of the complainants' homes?

A. Yes, for motor vehicles.

Q. Let me ask you this, because I think we talked a little bit about this with Mr. Zak. Approximately what impact would a framed home have in reducing these values?

A. With the windows open, it would be 15 decibels. That is a common reduction. With windows closed, more like 25.

Q. And can you rank the noise sources in terms of their potential impact on sleep based upon the reference to the federal guidelines?

A. Yes. At that location the truck noise -- trucks intermittently contribute the highest noise levels and the levels that are most likely, given their SEL values, to interrupt sleep. That is followed by the warning alarms on -- that are used on the coal piles, and slightly below that would be the irregular occasional upset event at the plant where there is venting or a

steam pipe ignition or something of that nature would come in third there. And then below that it is pretty much a toss up.

Q. Now, using the federal guidelines what percentage of the population would be awakened from measured traffic noises near the complainants' homes?

A. If I -- I need to have a little dialogue on this because I need to know, are we talking about closed windows or open windows?

Q. I believe that the complainants' said that they don't open their windows?

A. So it would be a 25 dB reduction.

Q. Okay.

A. So if we take let's say a truck at 80, which is -- there are several values measured. That means that we are looking for a 65 interior level, and that would be approximately 16 percent of the population.

Q. What percentage would be disturbed from the warning alarms on the vehicles from the Granite City coal piles?

A. Those are -- the higher levels of the warning alarms are about five dB below that so we would come down to an even 60 dB, so that would be more like 12 percent with a 25 dB reduction.

Q. Although there are no SEL measurements for the mobile equipment at the coal piles, would these sounds be likely to cause a greater or a lesser percentage of the population to be

disturbed than the warning alarms?

A. Less.

Q. Turning now to the sound wall proposed by Mr. Zak, Mr. Zak has opined that this wall is technically practicable to reduce or eliminate sound from the coal piles. Do you agree with

this?

A. Technically practical?

Q. Uh-huh.

A. I would agree that it is technically practical to reduce it.

Q. Is it a -- let me ask you, with a sound wall is it a good means for addressing low frequency sounds?

A. No. As he has testified, low frequency sound, again, defining it as 20 hertz or below, easily penetrates most sound barriers.

Q. Will a sound wall built along a busy road reflect any sound? Will it reflect sound?

A. Yes. In this particular case my concern would be that the back side of the sound wall would reflect traffic noise on the complainants' properties and increase the traffic noise levels.

Q. Based upon your analysis of noise levels near the complainants' homes, in your opinion, would a sound barrier be an effective means of reducing the dB(A) values at their property?

A. No, no. A decibel and a half is not enough. It is not something that a normal person could detect.

Q. Would it be an effective means of eliminating noise levels that could impact sleep?

A. If Mr. Zak's assumption about the 15 decibel reduction is correct and noise events occur during sleeping time periods, it could reduce the impact from the warning signals on the coal piles.

MR. BABST: Okay. I have no other questions.

HEARING OFFICER LANGHOFF: Thank you, Mr. Babst. Mr. Muskopf?

MR. MUSKOPF: Thank you.

CROSS EXAMINATION

BY MR. MUSKOPF:

Q. How are you, Mr. Studholme?

A. Fine. Thank you.

Q. Good. I guess I -- Mr. Babst asked you whether you are here to contradict Mr. Zak's testimony. I thought your answer at that time was no?

A. (Nodded head up and down.)

Q. Was that right?

A. That's correct.

Q. Okay. But did you just say some things recently that were contrary to what Mr. Zak said? For instance, you disagree

that the barrier he proposed would be effective in reducing the impact of the noise from the coal piles?

A. Yes, I did.

Q. Okay. What else do you disagree with him about in

broad, general, understandable terms?

A. Actually, the only -- the basic disagreement all stems from whether you consider only one source of noise, you know, targeting a particular source of noise in determining whether something is feasible or not, or you look at everything holistically and try to determine what the actual change in noise environment will be if you take an action. That's the difference.

Q. Do you know what the Illinois regulations look to as far as that goes? Do they focus on one specific noise source, or do they take the entire universe of the noise sources into account in a nuisance case?

A. I think that they are written to take a single source into consideration. But that would be based on my knowledge of 901, Section 901, where they have the individual levels. It is pretty obvious that they are technically the best. That is what they are intended for. I am not convinced that that is what it is under 900.

Q. Okay.

A. I can be wrong. I am not an expert on those

regulations.

Q. All right. Have you worked on any cases previously in which you have taken a look at those two regulations, 900 and

901?

A. No, I have not.

Q. Okay. So this is your first exposure to those regulations?

A. That's correct.

Q. In any context?

A. Yes.

Q. Do you know anything about the history behind the promulgation of those regulations?

A. No.

Q. Did you have any participation in promulgating those regulations?

A. No.

Q. Have you ever seen how the Pollution Control Board applies those regulations?

A. No.

Q. Are you aware of any case in which the Pollution Control Board has applied those regulations? I guess that is kind of the same --

A. No.

Q. -- question I just asked you.

A. No.

Q. What experience do you have in measuring stationary noise as opposed to transportation noise like from planes, buses,

cars, trucks and trains?

A. A great deal of it on military installations. For example, I have an active project now where there is original equipment training operation, training school, and a major defense installation which is on the edge of it that operates heavy equipment. We went there and measured extensively stationary noise and also, of course, large weapons.

Q. From what distance did you measure those noises?

A. These have been referenced distances of -- the nearest I have been is 25 feet and the furthest away has been 5,000 meters.

Q. Did you use equipment in those instances similar to the equipment that you used to measure the noise from the coal piles and the plant?

A. Yes.

Q. Are you familiar with the ANSI standards, as they are used and applied by the Illinois Pollution Control Board for the measurement of sound levels?

A. Yes.

Q. Did you consider yourself a qualified observer in the circumstances that you have described in which you took measurements from the coal piles and the plant?

A. No.

Q. Why not?

A. I was doing -- I was not following all of the requirements in the Illinois reg or pertaining to the ANSI standards, because at that time the 901 Section was, and still is not, an issue. So I used a more general approach, similar to -- a little bit more sophisticated than the complainants, but not in complete compliance with either the Illinois requirements or the ANSI requirements.

Q. Okay. How are you not in compliance with either the Illinois or the ANSI requirements?

A. Basically not taking temperature, humidity, and wind direction, readings of that nature, although I am well aware of the affects and why those are required.

Q. Any other ways in which you were not in compliance with the Illinois regs or the ANSI standards?

A. Probably the duration of some of my measurements might not have been sufficiently long.

Q. What, like a half hour too short?

A. Well, I would have to look at the Illinois regs to see exactly how long you have to measure. I am just saying conjecture that it might be too short.

Q. What was your longest measurement time period?

A. One hour.

Q. And the other one was one half hour?

A. In terms of long-term measurements, yes, where I let the

meter accumulate the time.

Q. Your undergraduate degree is a Bachelor of Arts degree?

A. That is correct.

Q. As opposed to a Bachelor of Science degree?

A. That's correct.

Q. It was in sociology, correct?

A. Correct.

Q. Is it fair to say that in your undergraduate education you didn't have any courses in physics or in acoustics, those two subjects?

A. Correct.

Q. Okay. Then your Master's Degree is urban and regional planning?

A. That's correct.

Q. Did you have any formal education, then, in that program in engineering, physics, acoustics, or electronics?

A. I was a fellow at the urban transportation center where I did research in the transportation noise field and did my Master's thesis on the noise affects of Interstate Highway 66 through Arlington, Virginia. In terms of a course in physics or acoustics, no, I did not have that in graduate school.

Q. Have you ever had any formal education in physics or

acoustics?

A. Just high school physics. Formal education relating to a degree, no.

Q. Okay. Then what about any formal education in the subjects of engineering or -- well, let's just say in electronics first?

A. No.

Q. What about engineering?

A. No engineering courses.

Q. Okay. What kind of instrumentation did you use when you were at the EPA? You were actually -- or you were hired as a consultant by the EPA?

A. Yes.

Q. How long of a time period were you employed as a consultant?

A. About three years, three or four years.

Q. A full-time position?

A. No, no. I was consultant. Hourly. That's correct.

Q. About how much time over those three years can you estimate in hours or weeks, for instance, did you spend in that consulting capacity?

A. Probably half time.

Q. What kind of instrumentation did you use when you were acting as a consultant for the EPA?

A. It was regulatory development work relating to the

promulgation of regulations that the EPA was required to promulgate under the Noise Control Act.

Q. So you were not out in the field with --

A. No.

Q. Okay. I should finish my question. You were not out in the field with noise measurement instrumentation working with it --

A. No.

Q. -- in your capacity as a consultant with the EPA?

A. There is an exception. I was involved in a 12 airport study where we did anecdotal measurements. But that was a hand-held sound level meter.

Q. Not a precision --

A. Not sophisticated, no.

Q. We are talking about like a Radio Shack noise meter?

A. Yes.

Q. Or the Quest meter that you talked about?

A. Yes.

Q. Not precision instrumentation?

A. Right.

Q. I guess in general terms would it be fair to characterize your approach to this particular noise issue and contrast it to Mr. Zak's approach as yours being a more general

approach and his being a very case specific approach?

A. No.

Q. Would it be fair to characterize the use of modeling in that way, that modeling is a general approach and using -- taking measurements of specific noise sources in a specific case is case specific?

A. Yes, I use it for case specific.

Q. Okay. Well, what application -- I am interested to know what application do the Illinois Pollution Control Board regulations have to this general broad approach as you have described? Well, actually, I understand you are characterizing this as case by case specific, but what application do the Illinois Pollution Control Board regs have to that type of approach when we are talking about a nuisance as it affects these four people?

A. My understanding is that determination needs to be made about whether there is unreasonable interference with the use and enjoyment of their property, which is the major component of the land use compatibility issue. So the connection there is I wanted to use the -- nationally the best established methodology, given the time constraints that we are under, to make a credible estimate of what the total sound level on the property is. Because it is really the -- under Section 900 we are really talking about nonquantitative criteria for making this

determination and, of course, some of it can be related to guidelines and standards that have numerical values associated with them. And in my experience the best and the most equitable ones to use are the ones that have been endorsed by the federal agencies.

Q. Well, do you have any training or experience in psychoacoustics?

A. No.

Q. As a general proposition, we could have some crickets chirping on a summer evening and they could be making noise at the same decibel level as someone playing rap music, right? And someone might find that the crickets are pleasing, even though they have the same sound pressure levels as the rap music?

A. That's correct.

Q. Have you been present for any of the complainants' testimony at this hearing?

A. Yes.

Q. And did you hear them say that the traffic noise generally does not bother them with the exception of a motorcycle, or a car without a muffler, or a truck going particularly fast, and that the sounds that do bother them are the back up beepers and the screeching, the metal screeching noise from the coal piles, the plant noise, and the other noise sources that they testified to?

A. Yes, with the exception of the screeching. I was not here. I came in after that.

Q. Okay. Well, so, again, what bearing does it have -- let's say that a certain segment of the population will wake up out of a sleep statistically from -- when they hear noise at a certain decibel level from traffic. What application does that have in this case when we have four real life people who have said that this traffic noise essentially does not bother them, but what really does bother them is the noise from the coal piles and the plant?

A. If we are making a determination about unreasonable interference it seems some normal comparisons are in order. I don't consider a 12 or a 15 percent probability of being awakened to be either high or low. It is pretty much what happens. But this is a dense urban area and the sound levels in dense urban areas typically are in the low to mid 70s, which is, you know, what their property is.

So I find it -- personally, not being an attorney, I find it quite difficult to ignore the affects of the other sources when evaluating whether it is reasonable or not, as a professional person. I tend to want to know if we take these actions what will the overall affect on their property be. Rather than giving, in my view, undue weight to the nuances of what is bothering them, just the things that they are picking up

at this time.

Q. So what you are saying is that they have their subjective accounts of how bothersome the various noise sources are in the neighborhood, and what you are doing is taking a look objectively and comparing those subjective complaints to this more objective statistical standard?

A. I don't know if I am making a comparison that directly. I am trying to -- basically what I am doing is I am trying to be as independent as possible, and I am applying the methodology that normally apply in these situations. Admittedly, not under a nuisance allegation, but the question is still the same one ethically, is this unreasonable enough so that the party that is making the noise needs to take some action.

Q. Well, you are not in any way suggesting that these four people right here are hypersensitive?

A. No.

Q. Or less than credible in the testimony that you have heard?

A. No.

Q. Okay. What relevance does SEL have to the Board regulations and decisions?

MR. BABST: Objection. I think that calls for a legal conclusion as far as what is relevant to the Board. I think the only person who seems to not be a lawyer and freely opines to

that is Mr. Zak. We have not presented Mr. Studholme as a lawyer or as an expert in interpreting PCB cases. So I think it is an improper question to ask the witness.

MR. MUSKOPF: I just want to object to -- I don't think we need these sort of offhanded --

HEARING OFFICER LANGHOFF: Do you have a response?

MR. MUSKOPF: Yes, I do. I want to object to any offhanded responses -- any little digs against Mr. Zak or anyone else. I think we can keep this professional.

HEARING OFFICER LANGHOFF: I didn't hear any digs against Mr. Zak. I heard an objection. I have not heard any response from you that --

MR. MUSKOPF: Well, okay. I can --

HEARING OFFICER LANGHOFF: Mr. Studholme isn't an attorney.

MR. MUSKOPF: Right. He is taking -- my response to the objection is what Mr. Studholme is doing is looking at Illinois regulations, and he is applying them to this factual circumstance here. He is also saying that -- he is also talking about SEL. I am wondering what -- I understand that -- I am not asking him to come to a legal conclusion or to act as an attorney. I am just asking him what bearing does that have on the regulations that we are all talking about that are basis for this complaint.

MR. BABST: I think the basic issue here is the standards that should be applied in a nuisance case. Do they have to be

the 901 standards or can accepted federal methodologies be applied. That's the only reason that we have presented Mr. Studholme today, not as anyone to opine as to what the Pollution Control Board should or should not do with respect to that issue.

HEARING OFFICER LANGHOFF: Anything else, Mr. Muskopf?

MR. MUSKOPF: No.

HEARING OFFICER LANGHOFF: Unfortunately, I am going to have to ask you to read back the question to me, please.

(Whereupon the requested portion of the record was read back by the Reporter.)

HEARING OFFICER LANGHOFF: I am going to allow Mr. Studholme to answer the question, and overrule your objection.

THE WITNESS: Basically the SEL is one of the best metrics to use in determining the affects of varying sound levels on sleep interference. I consider the interference with sleep to be a very important factor in determining whether there is an unreasonable interference with the use and enjoyment of property.

Q. (By Mr. Muskopf) So not having read or reviewed any Board decisions, you don't know whether the Board has ever applied SEL in a nuisance case, do you?

A. No, I don't.

Q. Are you aware -- you would not know whether the Board has ever looked at any modeling like you performed in this case, in a --

A. No, I don't.
Q. -- nuisance case?
A. No.
Q. Or even in a numerical violations case?
A. No.
Q. Do you know what the -- now, the Board requires a one hour LEQ, right? Is that your understanding, or do you know?
A. That's my understanding, yes.
Q. Okay. But you are still suggesting that the DNL over a 24 hour period is meaningful in a case like this, despite the fact that the Board's standard is a one hour LEQ?
A. Yes.
Q. The Respondent's Disclosure of Opinion Witnesses document that has been provided to me in discovery, have you ever seen that before?
A. Yes.
Q. It has your C.V. attached?
A. Yes.
Q. Is what is set forth here as to what your opinions are going to be and what your opinions are and the basis for those opinions, is that accurate?
A. No.
Q. What is inaccurate about that?
(The witness reviewing document.)

A. In the first place, I have not offered any testimony on the economic aspects.

Q. Okay.

A. And, for the record, I am reading a statement. Mr. Studholme is expected to testify that the respondent is currently in compliance with all applicable Illinois laws and regulations which are relevant to the allegations made by complainants in this matter. To be more specific, that is a true statement under Section 900.

Q. Okay. I am through with that, if you are.

A. Sure.

Q. Do you feel comfortable with your familiarity with the Illinois regulations to express that kind of opinion in this case?

A. With Section 900 I do.

Q. Okay. Have you -- you have never read a 900 Board opinion, right?

A. No, I haven't, no.

Q. Are you familiar with ANSI standard 12.9, Section 12.9, Part 3, 1993?

A. I don't know.

Q. Okay. Well, are you aware that ambient noise measurement requirements under that standard require the exclusion of traffic passbys unless there are no significant

breaks in the traffic?

A. Yes.

Q. Did you use that -- did you apply that standard or that rule in your modeling?

A. Yes. I was trying to get a plant ambient, so I obtained the plant ambient noise levels when there was no traffic. In this particular situation --

Q. The -- I am sorry. Go ahead.

A. The traffic noise is so dominant that I included traffic noise as a nonambient event.

Q. Okay. So you did include -- you excluded that in the nighttime?

A. I took measurements with and without traffic. And I have not characterized anything in my testimony as being an ambient noise level with the exception of plant ambient.

Q. Okay. There was some testimony earlier that you were relying upon these state -- these maps essentially of traffic that were put out by the State of Illinois?

A. (Nodded head up and down.)

Q. How did you -- what part of your opinion is based upon those maps?

A. I wanted to make sure that the anecdotal data that I collected observing the traffic when I was there, I had one count that was 940 and the other was 240, as you recall in my

testimony.

Q. Yes.

A. I wanted to know -- you know, in order to get a good idea of what a true 24 hour period is you would need a lot more traffic counting than that. So I looked at State data for Edwardsville Road to see what the traffic volumes were to make sure that I was not biasing it one way or the other. In the end actually the volumes on Edwardsville Road would have indicated higher levels than I measured, but I did not use them.

Q. All right. So based on the limited -- and you were there observing traffic on Edwardsville road for how long?

A. The actual measurement period of the traffic would have been a one hour LEQ on the first day, and a 30 minute LEQ on the second day, and the additional -- probably an additional 20 minutes of intermittent measurements to get individual vehicles beyond -- after the half hour.

Q. You did some kind of traffic count yourself, did you not?

A. Yes.

Q. Okay. How did you perform that?

A. Well, I didn't have to operate that particular meter because it is programmable. So I counted them by hand and took notes.

Q. So you were standing at the site, and you were simply

watching cars or trucks, vehicles go by and you count them --

A. That's correct.

Q. -- by eye?

A. That's correct.

Q. And you consider that to be a reasonably reliable scientific method of counting traffic?

A. I wanted to know -- actually, it would not be a good idea technically to make any traffic noise level measurements using the LEQ measurement without counting the traffic. Because then I knew that at 240 I had this level, and at 940 I had that level, and you can mathematically establish a relationship between the growth in the traffic influencing the sound level. You can then make a better model. You can extrapolate to higher or lower traffic levels.

Q. Were you not there at night to count the traffic like that and that's why you were taking data from the maps and plugging them into your model?

A. No. The primary reason to do it was I knew that I had a limited sample of what the traffic was, and I wanted to know if it was, in fact, higher or lower on a 24 hour period. And so I looked at the average annual daily traffic and compared those levels with the normal variation in flows at the times when I measured them to see if I was pretty close, and it was close. The levels would have actually been higher if I used the State

volume levels. But I stayed with the measure, because those were more realistic.

Q. Okay. So what you are saying is that you correlated your data based, obviously, and I am sure you would admit, on a very limited sample period to the data that you got from the maps, right?

A. Correct.

Q. Okay. Those maps were -- they are dated 1996. Do you know when that data was collected?

A. No.

Q. Do you have any idea whether it is current? I mean, that is --

A. I know that --

Q. -- several years ago, right?

A. I know that 1996 would not be considered current.

Q. Did you ask for current data?

A. This is the data that I was provided with when I asked for available information on traffic volume.

Q. Okay. So you didn't get the map and say, oh, this is 1996, and, Mr. Babst, do you have anything more current than that this?

A. No, I didn't.

Q. Okay. How many hours do you have in this file or does

your firm have in the file at this point?

A. In the file?

Q. Well, how much time have you or your firm spent on this case?

A. To date, probably slightly over 100 hours.

Q. So, let's see, at almost $200.00 an hour and you have 100 hours?

A. I am sorry. That is not the correct rate.

Q. Okay. What is the correct rate?

A. The rate for research and analysis is $130.00 an hour.

Q. I see. So you have got a variable rate scale and it depends on what you are doing as to how much your firm charges?

A. Right.

Q. And you are saying $195.00, is that your time for in court --

A. Yes.

Q. -- or in hearing appearances?

A. Yes, 50 percent more.

Q. Okay. So considering the variable rate scale that you have discussed, can you give us an estimate as to how much your total bill has come to at this point in time?

A. It is probably, including traveling expenses, it is probably between $15,000.00 and $20,000.00.

Q. How did you distinguish the traffic noise or

24 discriminate between traffic noise and any other noise source

1 when you came to the conclusions that you have got set forth here
2 in -- well, in this report?
3 A. Okay. Exhibit C44?
4 Q. Yes, but it is numbered differently from the one that
5 Mr. Babst gave you.
6 A. These are actually the summary data that -- the correct
7 exhibit for the raw data is 27.
8 Q. This one?
9 A. Yes.
10 Q. Okay.
11 A. This is accomplished by paying very close attention to
12 the sound level meter. The meter, even when it is in the LEQ
13 mode and is storing information, does give a readout every
14 second. The difference between the noise level when the vehicles
15 are not present, i.e., gaps, and the levels when the vehicles are
16 present.
17 Q. Okay. So it was done at the site with the meter -- or
18 with the dosimeter or with the --
19 A. The dosimeter.
20 Q. So you basically stood there and activated or
21 deactivated the dosimeter to take data or exclude data based on
22 your own observations about what the traffic conditions were?

A. Yes. I was trying to -- I did that with respect to through observation with respect to each source to isolate them.

Q. So to simplify it, if you want to find out what the sound level of the traffic is, according to the method that you use to determine that, what you did is waited so that you didn't get beeper noise from the bulldozer, or any other noise from the coal pile or the plant, you waited until there was none of that noise?

A. Right.

Q. And then you would measure the level of the noise from the cars or the traffic on Edwardsville Road?

A. That's a correct statement with one slight explanation, and that is, of course, there always is some measurable noise. So the criteria that I would use would be a competing noise would be at least ten decibels below the source that you are measuring and that level would be less than one decibel.

Q. Do you have any opinion as to whether it would have been a more precise method to simply record all of the sound -- record all of the sound level -- excuse me. Do you have any opinion as to whether it would have been more accurate to make a recording of the sound levels in that area and then including -- and not discriminating between sources, then taking that data and putting it through an analyzer afterwards and excluding the data on that basis, to isolate the sound levels of various noise sources?

A. You could do it the latter way with an analyzer, but you need to be present for the whole time period and you pretty much

have to make the same decisions and earmark when these events are occurring. For a monitoring session of this duration, I consider them to be equivalent with the exception that you don't have a hard copy printout of the event at the end by not using the analyzer.

Q. What were you told about the conditions the two days that you were at the Granite City Steel facility, about whether they were typical or atypical of --

A. I was told that they were atypical because there were no dozers operating on the coal piles. So we arranged to have the dozers operated, and in addition there were no coal delivery trucks operating on Edwardsville Road, and the plant arranged for the contractor to drive full and empty trucks down the road as well. Admittedly, we were trying to create a situation where I could measure each source independently.

Q. Who made the decisions as to what kinds of activity and the locations of the various activities and the quantity of the activity for your experiment? For instance, did you say I would like to see two bulldozers operating at the same time, one going up the front of the pile and one working on the side, and while they are operating I would like to see a front loader dumping

coal into a dump truck, and I want to see a big 18 wheeler come in here and dump its load? I want to know who made the decisions as to what conditions under which you did your testing, what the

conditions were under which you did your testing?

A. I made those decisions. It was testing. It was not an experiment.

Q. Okay. Well, excuse me. I didn't mean to --

A. Okay.

Q. -- be imprecise.

A. Okay.

Q. On what basis did you make that decision?

A. Partly my experiences in doing similar jobs at other locations and partly the way this particular -- the physical characteristics of the coal piles at the site and gaining an understanding of the -- we talked to operational personnel about how they operate the coal piles, which side they drive the dozers on, which side the loaders operate on and how the coal moves. I spent some time learning how the plant actually works. And then I tried to anecdotally with my small meter, that I didn't use for recording purposes, determine where the dominant noise sources were. I made those decisions myself.

Q. And were you attempting to replicate on a representative basis the conditions under which the coal pile operations normally take place?

A. No. I actually was avoiding that. What I wanted to do was to measure the different pieces of the coal pile operation so that later on if somebody told me, well, we have 450 trucks and

the dozer operates for eight hours but takes a break, then I can take the data that I have and apply it mathematically.

Q. I see. So you wanted the variables to be as discreet as possible so you could get --

A. Right.

Q. And then you plugged them in and manipulate --

A. Right.

Q. -- them to replicate the conditions?

A. To try to represent the operational conditions. It is just too difficult to -- the measuring period would be very long to capture all of the conditions.

Q. Then who made the decision as to -- so then I suppose you gained additional information from somebody at Granite City Steel about what the typical conditions or the representative conditions are so you knew how to manipulate the data within your model?

A. Yes.

Q. Okay. Who gave you that information?

A. I can't remember his -- well, primarily Larry Siebenberger.

Q. What were the -- is there a detailed list of those conditions, that you took -- that you based your model on? Or, excuse me, based -- put into your model to come up with the results that you have?

A. There are handwritten notes concerning the duration and the percentage of time the various activities occur that were immediately put into the Excel spreadsheet. Then what I usually do is I write protect it so that they can't change, and make it a permanent copy that I workup from there.

Q. What were the conditions under the -- precisely, what were the conditions under the scenario that you ran?

A. For the piles?

Q. Yes, the coal piles?

A. Okay. We are talking about the primary run, now, and not the sensitivity analysis? Really there were two --

Q. Okay.

A. -- the first time through.

Q. Right.

A. Let me find the right one.

Q. What you are saying with your sensitivity analysis, is that when you upped it?

A. Yes, five decibels or a threefold increase.

Q. Okay. Right. So if the bulldozer is running for five minutes under your -- under the adjustment that you made, it

would be running for 15?

A. Right.

Q. Okay.

A. Okay. So I have -- let me do the date. I broke it into

day and night. Do you want to go through all of them or just an example.

Q. First I want to get the same exhibit you have got. Okay. That is --

A. Exhibit 28.

Q. You might have mine, too. Do you? Yes, you do. It is C44?

MR. BABST: It is just different numbers.

THE WITNESS: Okay.

Q. (By Mr. Muskopf) I will just get that back.

A. Sorry.

Q. That's all right.

A. Do you want me to go through all of them or just --

Q. I would like to know --

A. Sure.

Q. For instance, how many bulldozers were running and were there any front loaders running at the same time?

A. Okay. The way this particular run is set up -- let me just start at the top and work down. Is that okay? So I can

follow all the sources. So during the day period, I have the off peak traffic levels occur 60 percent of the time, and the peak hour traffic levels occur 40 percent of the time. The maximum plant events, five percent. The maximum pile events, 25 percent. That is of a 15 hour period, okay.

The minimum plant events, five percent. The minimum pile events, 50 percent. Plant ambient, 100 percent, because it is always there. And then one percent of actually night traffic during the day. That is to throw in a very small volume because the night traffic was a small volume during the night period.

During the night cycle, I will run down the same calculations. Off peak traffic, one percent, because it is at night and there is not very much of it. Peak hour traffic, one percent. Let me jump to the bottom. Night traffic is 100 percent. Maximum plant events, five percent of the time. Maximum pile events, 2.5 percent of the time. Minimum plant events, five percent of the time. Minimum piles events, 2.5 percent. Plant ambient, 100 percent.

Q. So how many bulldozers were running under this scenario?

A. Under this scenario it would not matter whether there was one bulldozer operating for one hour or two bulldozers operating for half an hour.

Q. How about the hydraulic vibrator? Was it running under this scenario?

A. Yes. The vibrator is included in the data for maximum pile events, yes.

Q. Was there any screeching from the railcars?

A. No, I don't have anything on the railcars.

Q. Did you -- what about the engine noise from the dump

trucks? Is that included in this scenario?

A. I have truck noise levels that would include engine noise, but not discreet from the tailgate slams or the vibrators or --

Q. Okay. When I am talking about dump trucks, what I don't mean is this, like the one on C42.

A. Okay.

Q. What I am talking about are the ones that are used almost exclusively in the yard or off of the highway, and they are -- did you see any of those operating?

A. No.

Q. Okay. So they wouldn't be included in your modeling at all, the operation of those kinds of trucks?

A. No.

Q. But you did have the operation of the kinds of trucks that we see in C42 in your model?

A. Right.

Q. Okay. So basically of all of the variables that you did

have plugged into this scenario, they were all occurring at the same time under your maximum plant events scenario? So, for instance, there were --

A. They were assigned to two portions of a 24 hour period as a percentage of the time when those activities were occurring. So, for example, plant ambient is 100 percent of the time.

Q. Okay.

A. To give you a good example -- unless you want me to stop? Is that enough?

Q. That's fine. Thanks. Are you aware that a one hour exceedance of the Board's regulations would be a potential violation even over a period of a day, a week, a month, or a longer period under Board regulations?

A. Would you repeat the question, please?

Q. Yes. Under Board regulations are you aware that even an exceedance of one hour, that would be a potential violation, even if it occurred over a period of a day, a week, a year, or so forth?

MR. BABST: I would object on the basis of relevance. Again, we are not talking about a 901 standard. And also I have not proffered Mr. Studholme as an expert on the regulatory program, particularly 901.

HEARING OFFICER LANGHOFF: Mr. Muskopf?

MR. MUSKOPF: Well, we talked about a lot of different

standards. If the 901 standard is not relevant, I don't know why the federal standards that we talked about or the OSHA standards that have been talked about would be relevant either, but all of that has come in, too. What we are talking about are guidelines that are established, and whether those guidelines can have any application to a nuisance case. Mr. Zak has established that the

numerical limits clearly do. Mr. Studholme has talked about federal regulations and has opined that they have application as a measure -- as an objective measure to balance against the subjective complaints.

HEARING OFFICER LANGHOFF: Okay.

MR. BABST: Mr. Studholme has testified about his application of these -- the federal methodology. It is ultimately for the Board's decision in terms of what they apply in determining what is an unreasonable interference in this case. I am not offering Mr. Studholme here today to argue what that ultimate outcome should be.

HEARING OFFICER LANGHOFF: Anything else, Mr. Muskopf?

MR. MUSKOPF: No.

HEARING OFFICER LANGHOFF: Okay. I am going to sustain the objection. You are asking for Mr. Studholme's personal knowledge on the violations of the regulations. You can argue that in your brief, certainly.

Q. (By Mr. Muskopf) Mr. Studholme, let's assume that there was no traffic present, whatsoever, on Edwardsville Road. And we had a measurement period of one hour and that's it, one hour only. Would Mr. Zak's proposed barrier result in the 15 decibel dB(A) reduction that he talked about?

(The witness reviewing documents.)

A. No.

Q. Why not?

A. Because the plant level would remain unchanged.

Q. All right. Let's exclude the plant level. No plant noise. No traffic noise. We have a one hour time measurement period. Would the barrier that Mr. Zak talked about result in approximately a 15 dB(A) reduction from the coal pile noise to the complainants' homes?

A. I would have to answer that again as no.

Q. Why not?

A. A 15 dB reduction is about the maximum you can get from that type of a wall at the height he has proposed, which is fair to say a 15 dB reduction is possible, but they would have to occur at ground level. Since some of these noise levels are higher up on the pile, even though the line of sight is blocked, you are not going to get 15 decibels from the line of sight when it is only a foot. So I think in practice when it is in operation it would not be 15. That is my opinion.

Q. Okay. So what you are saying is that even if the line of sight is broken between the homes and the bulldozer, that you need an additional elevation on the wall to achieve a 15 dB reduction?

A. Yes. I was just commenting on his proposed design.

Q. You are not saying that -- okay. He talked about a 22 foot high wall, right?

A. Right.

Q. What he was saying is that under that scenario with the levels of the coal piles being reduced to make sure that there is no line of sight between the equipment on the pile and the homes, you are saying that even under that scenario you are not going to get 15?

A. I don't believe you would with a 22 foot wall, given the height of the dozers. I think there would be 15 dB reduction when they were lower down, but it is very typical to limit these basic walls to about a 15 dB reduction for that frequency. Without more detailed engineering work it would be conjecture. It is possible. It is possible. But I would have my doubts. Let's put it that way, to be professional.

Q. I want to make sure we are understanding each other, because I think we may be missing.

A. Okay.

Q. The bulldozer, under his scenario, would not be over the line of sight of the wall from the Hoppe and Glasgow residence, and you are saying even though you couldn't see the bulldozer it would still be high enough on the pile that I suppose, what, sound would go over?

A. Oh, yes. I am sorry. Yes. The mathematics of it are that its function -- it is a function of the difference between the level of the source elevation and the top of the barrier.

And my experience has been that for a simple wall you can get 15 decibels when the source -- when there is a difference in elevation of 22 feet that is certainly possible. I am just calling into question whether you can get 15 when there is only a one or two foot difference. I have not analyzed it. I am just calling it into question. I am not saying he is wrong. I am just saying that I would look at it a bit more with respect to the elevation of the vehicles and how often they are operating.

Q. What were the cases under which you did some kind of solution analysis of the decibel -- the dB(A) reduction of the barrier of the type that Mr. Zak has talked about?

A. The ones that are closest to this particular situation is the equipment operator school at Fort Indian Town Gap, a military installation where they had proposed consideration of a wall.

Q. Okay. And how high was the wall in that case?

A. We looked at -- in that case it was proposed to be a concrete wall on a berm, you know. And we looked at a range of heights from a pure berm and then extending the berm up with concrete to 8, 15.

Q. Did you -- have you been involved in a project in which materials similar to the ones Mr. Zak has proposed have been used in building an acoustic wall or an acoustic barrier?

A. I have not done the analysis for a wood wall before.

Q. How would a -- let me tweak one of the variables in your model and ask you how it would affect what comes out, the result. Let's say that the irregularity in the pavement was fixed. What kind of noise reduction would we get at the Glasgow and Hoppe residences?

A. I couldn't give you a DNL value without, you know, making an adjustment in the model. But methodology would be the measurement of truck traffic on Edwardsville Road includes the noise from the irregularity in the road. I know what those levels are. So I would go back to the basic data and eliminate those and, therefore, the average levels for the trucks would come down, and then I would put that into the traffic levels and put that into the model.

Q. Okay.

A. Yes.

Q. But as you sit here today, you don't have a sense of what kind of reduction we would get?

A. Honestly, I don't.

Q. Can you venture a wild guess?

A. I am sorry. Because they are so high. You know, if they were not up in the 80s. It is just -- one thing about acoustics is that it is sometimes not -- you don't get the result you think you will when you are comparing really high single events with moderate levels. So I would not want to conjecture.

MR. MUSKOPF: Okay. Thank you. Pass the witness.

MR. BABST: No questions.

HEARING OFFICER LANGHOFF: Okay. No questions. Thank you, Mr. Studholme.

(The witness left the stand.)

HEARING OFFICER LANGHOFF: We will take a five minute break. We will be back in five minutes.

(Whereupon a short recess was taken.)

HEARING OFFICER LANGHOFF: All right. We are back on the record. Okay, Mr. Babst.

MR. BABST: We call Larry Siebenberger.

(Whereupon the witness was sworn by the Notary Public.)

L A R R Y S I E B E N B E R G E R,

having been first duly sworn by the Notary Public, saith as follows:

DIRECT EXAMINATION

BY MR. BABST:

Q. Would you please state your name.

A. Larry Siebenberger.

Q. What is your home address?

A. 5 Timber Waters Court, Swansea, Illinois.

Q. And with whom are you employed?

A. Granite City Division of National Steel.

Q. What is your title?

A. My title is Manager of Environmental Technology.

Q. How long have you been with the Granite City Division of National Steel?

A. For 29 years.

Q. And during that 29 years, have you been in the environmental department for the entire time?

A. No.

Q. Could you just briefly explain to us what you have done during the course of your employment at Granite City?

A. Well, I graduated in 1971 from Southern Illinois University with a Bachelor of Arts in chemistry, and subsequently received a Master of Science in environmental studies. I started with Granite City Steel at that time, in October of 1971, when the environmental department was starting up.

My first function was to work to organize and set up our wastewater analysis lab, and I worked in that area for a while. I believe in 1977 or thereabouts I became manager of analytical services, continuing to do some work with the lab, responsibilities with the lab. But I also was beginning to do work in the air programs area.

In 1983 I became Director of the Environment Department and was director there until 1985, when I went into operations and became director of cold rolled coated products in operations. I held that position until 1991, when I moved back into the

environmental department basically in my current position.

Q. What are the job responsibilities in your current position?

A. I am primarily responsible for the air programs, although I also -- I am involved in the water and the waste programs that we have.

Q. As part of your job responsibilities are you or have you been required to become familiar with the history of steel making operations at this facility currently known as the Granite City Division of National Steel Corporation?

A. Yes, I have.

Q. To obtain information regarding the general history of the plant prior to your employment, have you relied upon any documents?

A. Yes, I have.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 1 as of this date.)

Q. (By Mr. Babst) I am going to show you what has been marked as Respondent's Exhibit Number 1, and ask if you can identify those documents?

A. Yes. The first document which is titled, History of the Blast Furnace Property, I obtained actually off our internet. It is based upon a book called the Condensed History of the Blast

Furnace Property, by Clarence H. Blye. The document entitled, History of Granite City Steel was compiled by our public relations department. And the remaining pages I have taken from a book which basically was a -- the History of Granite City that was published in 1995.

Q. Can you tell us approximately how long the coke making and blast furnace operations have been operating at their current place?

A. The coke making facilities have been at that location for approximately 80 years.

Q. During that period of time what would have been the raw material needed to operate the coke batteries?

A. Coal.

Q. Do you know the approximate capacity of the ovens when they started versus what they are today?

A. Yes. The original -- there was originally two ovens or two batteries built there, which had 40 ovens each, and they consumed approximately 725,000 tons of coal annually.

Q. Today do you know approximately how many tons of coke you produce?

A. The two batteries that we currently operate consume approximately 860,000 tons per year.

Q. Based upon your personal knowledge, not on any of these documents, how long have the coal piles been located in the east

end of the plant?

A. My personal knowledge, since 1971, I have seen coal piles located there.

Q. As part of your job is it necessary for you to understand the industrial processes being conducted at Granite City?

A. Yes.

(Whereupon two documents were duly marked for purposes of identification as Respondent Exhibit 2 and 2A as of this date.)

Q. (By Mr. Babst) As a starting point can you locate on what has been marked as Respondent's Exhibit 2, and Respondent's Exhibit 2A, and start with 2, if you could, Mr. Siebenberger, and

would you indicate the location of the steel making operations at Granite City Steel?

A. Okay. First of all, I guess if I could explain, I guess this plat plan, the highlighted area is basically the area that we own. The operations that we operate are the steel making operations. We have the blast furnace and coke plant complexes in this location (indicating).

HEARING OFFICER LANGHOFF: That is labeled 10 on Exhibit 2.

THE WITNESS: And the steel making and finishing operations are located in this area (indicating).

Q. (By Mr. Babst) Would you indicate the numbers on the

map?

A. It looks like 1, 2, 3, 36, 38, 44, 43, 4, 5, 70, 91 and 29.

HEARING OFFICER LANGHOFF: Thank you.

THE WITNESS: Uh-huh.

Q. (By Mr. Babst) Could you identify the basic raw materials that are used in the steel making process?

A. The primary raw materials are coal, iron pellets, flux, scrap, and oxygen.

Q. And beginning with coke making operations, could you explain how coal is introduced into the coke ovens?

A. Yes. At the coke ovens the coal is contained in some

bunkers on top of the battery. It is placed in a mobile hopper car, which is called a Larry car. A measured amount of coal is placed in that car. That car can traverse on a set of rails on top of the battery above the particular coke oven that is going to be charged. And then it will discharge the coal after it seals up with that oven into that particular oven.

(Whereupon photographs were duly marked for purposes of identification as Respondent Exhibits A through Z as of this date.)

Q. (By Mr. Babst) I am going to show you a series of photographs during the discussions about the operations at Granite City.

A. Okay.

MR. BABST: These should be in order for both the Hearing Officer and Mr. Muskopf. I have labeled them by letter as I give them to Mr. Siebenberger, which may help.

Q. (By Mr. Babst) I would ask if you could identify those three photographs and explain what they do show?

A. Okay. Well, the photograph -- the first photograph is a picture of what we call the push side of the coke ovens, of the coke battery. You can see the -- some of the individual ovens, the doors. And then you can see the large piece of equipment there is the pushing machine.

Q. How many coke batteries do you have?

A. We currently operate two coke batteries.

Q. How many ovens are there in each coke battery?

A. There are 45 individual ovens in each battery.

Q. Could you look at Photograph B and describe what is shown there?

A. Yes, this is a picture, I believe, from the coke side of one of the batteries, and you can see some of the individual -- you can see the individual ovens with the doors in place. And then you can see one oven in which the doors have been removed.

Q. What is the temperature, or the approximate temperature of the -- I assume that is coke?

A. This particular oven is empty, but the coke, I believe,

is around 2,200 degrees when it comes out of the oven.

Q. What takes place during this part of the process?

A. Well, when the coal has been charged into an individual oven, the oven is sealed and the coal is baked for a period of approximately 16 hours.

Q. What comes -- in addition to the coke that you generate, what other by-products are generated during this process?

A. Well, during this baking there is a destructive distillation of the coal and that drives off volatile compounds which are involved as a gas that we call coke oven gas.

Q. What do you do with the gas?

A. That gas is transported by pipeline to our coke by-product facility.

Q. What takes place, very briefly, in the coke by-products plant?

A. At the by-products plant, the gas is processed where we remove coal tar, ammonia sulfate, and lye oil, which are commercial products that are sold.

Q. Do you know the amount of coke that is produced on an annual basis today?

A. I know we charge approximately 860,000 tons of coal, and the coke production is 500 and some-odd thousand tons.

Q. Do you know whether this amount of production has increased, decreased, or remained the same over the last five

years?

A. The amount of production on the coke batteries?

Q. Yes.

A. It has remained relatively the same.

Q. Okay. Are you --

A. There are slight fluctuations.

Q. Are the coke batteries subject to air pollution regulations?

A. Yes, they are.

Q. How frequently do you monitor particulate emission sources on the top side of the battery and coming from the coke

oven doors?

A. Under the federal NESHAP regulations, the top side and the doors are monitored on a daily basis by an independent contractor.

Q. And what is the level of compliance that you have achieved over the last, let's say three years?

A. We have consistently complied with those requirements.

Q. Would you tell me where the coke is taken after it is cooled in the coke battery?

A. When the coke is pushed from the oven after the baking process it is pushed into the car that we see on the third photograph. The car is taken down to the quench tower where the coke is quenched with water and then after that the quenched coke

is carried by conveyor either over to the blast furnaces or could be placed into storage if we have to.

Q. Let me show you the next four pictures that have been marked as D, E, F and G, and ask if you would identify those pictures starting with D?

A. Yes. The first photograph is of our two blast furnaces, A and B blast furnaces. And the material that is in front of the blast furnaces -- this is a view actually from the south of the blast furnaces -- are some of the various raw materials that are used in the blast furnaces.

Q. On drawing 2A I would ask if you could identify the location of the two blast furnaces at Granite City?

A. The blast furnaces are located right here (indicating).

Q. Could you mark that on the map with BF?

A. (Witness complied.)

Q. If you would, would you go back and mark where the two coke batteries are, and mark those as CB.

A. (Witness complied.)

Q. How many blast furnaces are at Granite City?

A. Two.

Q. And would you go through those pictures and explain what they show?

A. Well, do you want me to explain a little bit about the process?

Q. Uh-huh.

A. Okay. The raw materials that are put into the blast furnaces are iron pellets, the coke that we produce, and flux. They are charged into the top of the furnace. The furnace is an enclosed process. They are charged into the top of the furnace, and this mixture is called burden. Hot blast air is forced up through the refractory lined furnace. And as a result of the reaction of that hot blast air with the burden, heat is produced and a reducing atmosphere causes the iron pellets to melt and the iron oxide reduced to liquid elemental iron, which pools at the

base of the furnace. The flux is used as a -- is liquefied and it removes some of the impurities from the iron, such as sulfur.

MR. MUSKOPF: Excuse me. I want to put an objection on the record. If this isn't expert testimony, I don't know what is. Mr. Siebenberger has not been disclosed as an expert witness at all in this case.

HEARING OFFICER LANGHOFF: Overruled.

MR. BABST: Thank you.

MR. MUSKOPF: Can I have a running objection?

HEARING OFFICER LANGHOFF: Sure. Noted.

THE WITNESS: When the -- after the iron has pooled in the bottom of the furnace and accumulated to enough of a level, we tap the furnace, and this next picture is showing some of the molten iron being cast into the refractory line torpedo cars, as

we call them.

Q. (By Mr. Babst) The last two pictures that I gave you there, which are --

A. Yes, F and G.

Q. -- F and G.

A. These two pictures show some of the environmental controls that we have on our blast furnaces. As I stated earlier, the process is essentially closed as far as the furnace itself is concerned. The hot blast air comes off the furnace as

blast furnace gas. It is scrubbed in a scrubber system and it is used in the plant as a fuel.

When we cast the furnace in the cast house where the molten iron and slag come out, we have two bag houses which capture any potential emissions that are generated, particularly emissions that are generated from that particular process.

Q. What is the temperature, the approximate temperature of the molten iron that comes out of the blast furnace?

A. Approximately 2,600 degrees Fahrenheit.

Q. Do you know approximately what the capacity is for making molten iron at your facility?

A. I think last year we produced about 2.2 million tons, and our permitted capacity is about 3.5 million -- I am sorry -- 3.1 million tons.

Q. And could you tell us now where the molten iron goes

after it is produced at the blast furnace?

A. It is transported over to our basic oxygen furnace process.

Q. I will show you what I have marked as H, I, J and K, and ask you if you could identify those pictures and explain very briefly what takes place at the basic oxygen furnace?

A. The first picture is a view of the basic oxygen furnace shop from the outside, from the exterior. The molten iron, which is produced in the blast furnace, is transported over here. It

is transferred into a ladle, which is shown on picture I. It is then desulfurized and skimmed, and the molten iron is charged into the basic oxygen furnace, which is actually depicted on picture K. And picture J shows the scrap which is the other raw material used at the steel making at the basic oxygen furnace and is also charged into the vessel.

Q. What is the approximate temperature of the steel when it is produced?

A. After the heated steel is blown, the temperature is around 3,200 degrees Fahrenheit.

Q. Do you know how much steel you do produce here at the plant?

A. I think last year we made about 2.6 million tons. We have a permitted capacity of about 3.5 million tons.

Q. Are there environmental controls on the basic oxygen

furnace shop?

A. Yes, we have extensive controls. All of the raw materials coming in are controlled in enclosed conveyors with bag houses. The molten iron, any point that it is transferred or processed is controlled, any particular emissions are controlled by bag house. And the emissions from the vessel itself are controlled by the electrostatic precipitator, which is the large structure that you see on the right of the shop on photograph H.

Q. I will show you photographs that have been marked as Respondent's Exhibits L and M, and ask if you can explain as the molten steel now processes through the plant, what that shows?

A. Yes. After the steel is produced it is transferred again in a refractory ladle to the continuous casters. Picture L is an external picture of our two continuous casters. The steel is put into a copper water-cooled mold, where the steel is cooled, and it is cooled from its liquid state into a solid slab form and the slabs are produced in a continuous strand, thus the name continuous caster. And picture M shows a picture of some of the slabs that are coming off one of our continuous casters.

Q. I will show you what has been marked as pictures N and O and ask if you can identify those?

A. Yes. This is a picture of some of the slabs that have been produced at the continuous caster that are stored in our slab yard. That is picture N. Picture O is a picture of a piece

of equipment that we call a kress hauler, which is used to transport these slabs to the hot strip mill.

Q. Now I will show you pictures that have been marked as P through T, and ask if you can identify those pictures and explain how they fit into the process?

A. Yes. Picture P is just a view from the south looking at our -- the external of our building of the hot strip mill. At the hot strip mill, the slabs are reheated in reheat furnaces.

Picture Q is a picture of a slab which has been reheated and is exiting one of the slab furnaces.

Picture R then shows the slab as it is proceeding through the hot strip mill. It is rolled through a set of roughing mills, which begins to reduce the size of the slab, the thickness of the slab. And you can see from that picture that it begins to lengthen.

And picture S shows the slab, which at this point is much thinner, proceeding through the seven finishing stands, which also are rolling and reducing the hot slab.

In picture T you can see that what has now been transformed into a strip of steel is exiting the final finishing stand, and after this picture it goes to a coiler where the strip is now coiled into a steel coil.

Q. Would you identify photographs U and V? Are these the coils you just mentioned?

A. Yes. Photograph U shows -- as a matter of fact, you can see the conveyor where the coils that have just been made on the hot strip mill are being transported out to our coil storage area.

And picture V is just a picture of one of the yards where we store our coils.

Q. Now, can you -- does the company sell steel in that

condition?

A. Yes, this is actually the predominant form of steel that we sell, the hot rolled steel.

Q. Can it also -- is the facility also capable of further processing steel?

A. Yes.

(Whereupon a photograph was duly marked for purposes of identification as Respondent Exhibit AA as of this date.)

Q. (By Mr. Babst) Would you explain -- I am going to show you photographs W, X, Y, Z, and AA and ask if you could just briefly explain the finishing end of the process?

A. Sure. Picture W is a picture of our pickling operation, and this is where we can take the hot rolled steel and we can clean it in an acid bath. That is to remove any oxides that are on the strip.

Picture X is a picture of the scrubber system that we have on our pickling operation to control the acid fume that is

generated.

Picture Y is a picture of the next process, which would be the cold mill where we take the pickled strip and we cold reduce it through four rolling stands and produce a cold rolled product.

Picture Z is the next process where we can take the cold rolled steel and we can run it through one of our two galvanizing lines and we can either produce a galvanized or a galvaloom

coated sheet steel.

And then picture AA is just a picture of what the final galvanized product, the coiled strip looks like when it is -- before it is shipped out of our facility.

Q. What are the final products that are sold out of this mill?

A. Well, basically right now we either sell a hot roll coil or a hot roll band, which is produced off our hot mill. We can sell a cold rolled coil, which is produced off the cold mill. Or we can sell a galvanized or galvaloom coil.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 4 as of this date.)

Q. (By Mr. Babst) Let me show you what has been marked as Respondent Exhibit Number 4, which is a -- I would ask you if can identify it?

A. Yes, this is actually probably one of the best brochures that we have had for our facility, which shows the layout of our

facility and some of the various operations there, and then gives you a flow diagram depicting the various processes and the materials used.

Q. Does this brochure accurately reflect the processes that you have just described?

A. Yes.

Q. Okay. We will turn now to the fugitive dust program at the plant. You have discussed that Granite City Division controls particulate emissions from these processed sources. Are there other sources of particulate emissions that Granite City generates other than these processed sources?

A. Yes.

Q. Does Granite City follow any type of program to control these fugitive dust emissions?

A. Yes, we do.

Q. How long has the Granite City Division maintained a fugitive dust control program?

A. Well, in my knowledge I know since 1971 we have been applying fugitive dust controls, particularly to our roads at that point in time.

Q. At some point in time did the Division formalize its program with the State of Illinois?

A. Yes. I believe the first time that we formalized our fugitive program was in 1981, and that was submitted to the

Illinois EPA.

Q. Has the program changed since 1981?

A. Yes.

Q. Could you briefly describe how the program has changed since that time?

A. I think some of the major changes occurred -- in 1984 we

had our first major paving program in the plant. Prior to that point in time virtually all of the roads in the plant were unpaved. So we paved a significant portion of the roads in 1984, and began to sweep and/or flush those paved roads.

Q. Just to kind of interrupt the process here, could you explain to the Hearing Officer what is meant by the fugitive dust emissions? Where are they generated?

A. Fugitive dust emissions are -- generally, that would be considered an emission that is coming off an open source, such as a roadway, a storage pile, as opposed to being a processed emission which is generated either from a process stack or a vent or a combustion stack.

Q. Now, following the paving of road program in 1984, did Granite City obtain any equipment to clean the paved surfaces?

A. Yes. We purchased -- we had a spray truck, but we also purchased a sweeper, which we use to sweep the roads.

(Whereupon photographs were duly marked for purposes of identification as Respondent Exhibits BB and CC as of this

date.)

Q. (By Mr. Babst) I show you what has been marked or what I have marked as BB and CC, and ask if you can identify what these photographs depict?

A. Yes, BB is a picture of one of the spray trucks that we

have. It is putting down a dust suppressant on one of our unpaved roads.

CC is a picture of a sweeper, which is a vacuum sweeper in this case, which can vacuum and sweep the paved roads.

Q. At some point after 1984 did you take any action with respect to the use of the gate near the coal pile to minimize fugitive dust emission?

A. Yes, in 1991, which is when we made that gate a one-way in gate. Up until that point in time we had allowed vehicles, trucks to enter and exit that gate. And so as far as the truck traffic coming into that gate, we actually made it a one-way gate, in only and we paved about the first 175 feet of the unpaved road within the gate on our plant property.

Q. Would this change have had any impact on the amount of dust generated on Edwardsville Road?

A. Yes. One of the reasons -- well, the primary reason we did that was for that very reason. We were trying to reduce any material which could be drug out from our plant from the trucks that were exiting that gate. So by making it a one-way in gate

and directing the traffic through our plant, not another gate, we basically minimized the potential for any material to be drug out on to Edwardsville Road.

Q. Would you show on Exhibit 2A how the traffic was rerouted through the plant?

A. Well, what we did was we directed the traffic after -- in the case of the coal piles, after they delivered their coal to these areas, the trucks proceed out and behind the blast furnaces, and one of the pictures shows the view of the pellets and the raw materials. This road is right along that -- behind those raw material storage piles. And it proceeds towards the west, and the truck traffic eventually exits our plant at what we call the west gate, which is approximately at 20th Street and Edwardsville Road.

HEARING OFFICER LANGHOFF: Would you mark with arrows the route that you just laid out. Just a few arrows.

THE WITNESS: Yes.

(Witness drawing on Exhibit 2A.)

Q. (By Mr. Babst) Approximately how much further down Edwardsville Road away from the complainants' homes is the gate that the trucks now exit?

A. That has got to be a half a mile anyway.

(Whereupon said photograph was duly marked for purposes of identification as Respondent Exhibit DD as of this date.)

Q. (By Mr. Babst) I would ask you if you can identify picture DD, and I would ask if that refers to the truck route that you described?

A. Yes. This is the road behind the blast furnaces and the

storage areas, and you can see one of the coal trucks, which an empty coal truck at that point is going towards the west gate.

Q. Were there any other changes to the fugitive plan that would have particularly affected this area of the plant?

A. Yeah, in 1993, we did some additional paving throughout the plant, but in particular in this area we paved the coal -- I guess what I heard earlier referred to as the coal haul road. It is the road after you come in the east gate, which proceeds down towards the east in front of our current coal storage area.

Q. Could you mark that as CH, please?

A. Yes. (Witness complied.)

Q. Explain to us how paving a road improves fugitive dust control?

A. Well, you know, it is generally as part of reducing fugitive emissions it is accepted that by paving a road and flushing or sweeping that road the level of control of dust is much higher than it is in trying to treat an unpaved road.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 5 as of this date.)

Q. (By Mr. Babst) Mr. Siebenberger, let me show you what

has been marked as Respondent's Exhibit Number 5, and ask if you can identify this document?

A. Yes. This is a -- this is a Notice of Violation letter that we had received from the Illinois Environmental Protection

Agency, dated June 26th of 2000.

Q. And can you tell me what that notice of violation pertained to?

A. Yes. It was -- it says it pertains to fugitive dust, which was observed by two of the Illinois EPA people, and based on other available information, which included citizen complaints. And this dust was apparently observed from our coal pile storage area.

Q. The Notice of Violation does indicate that at least in part it was based upon citizen complaints?

A. Yes, it does.

Q. Did Granite City Division respond to that Notice of Violation?

A. Yes, we did.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 6 as of this date.)

Q. (By Mr. Babst) I am going to show you what has been marked as Respondent's Exhibit Number 6, and ask if you can identify that document?

A. Yes, this is our initial response to the Notice of

Violation, which in Illinois EPA terms is called a Compliance Commitment Agreement.

Q. Following your submission of that Compliance Commitment

Agreement, did you have additional discussions with the Illinois EPA concerning the Notice of Violation and what might be done to resolve the matter?

A. Yes, we did.

(Whereupon documents were duly marked for purposes of identification as Respondent Exhibits 7 and 8 as of this date.)

Q. (By Mr. Babst) I show you what has been marked as Respondent's Exhibit Number 7 and 8, and ask if you can identify those documents?

A. Yes. Exhibit Number 7 is a letter from the Illinois EPA confirming that they have received our Compliance Commitment Agreement and also confirming that we have requested a meeting with them.

Exhibit 8 is a -- is actually a follow-up submittal to the meeting that we held with them with some additional information there.

Q. What is the date of that letter?

A. I am sorry. October 5th of 2000.

(Whereupon documents were duly marked for purposes of identification as Respondent Exhibits 10 and 11 as of this

date.)

Q. (By Mr. Babst) I am going to now show you what has been marked as Respondent Exhibits Number 10 and 11, and ask if you

can identify those documents and what they pertain to?

A. Yes. Exhibit 10 is a revision to our fugitive particulate emission operating program with the Illinois EPA. This submittal included the changes that we made as a result of our discussions with the Illinois EPA.

Q. Could you describe what those changes were?

A. Well, the primary focus was on fugitive emissions from the coal piles, and I think while we -- you know, it is recognized that we have applied various fugitive controls over the years to that area, that the discussion was over what more we could do.

The first recommendation of the State was could we consider moving the piles. And we -- in the meeting I explained to them that we looked at that preliminarily, and because of the fact that that area is divided by railroad right-of-ways that we would have to move the piles on to the other sides of the railroad right-of-ways, which would cause a considerable expense in terms of trying to set up a system then that would be able to convey the coal back to our area. So that was a very expensive proposition.

Q. You say very expensive. Without giving a specific

amount, was there any approximation? Are we talking thousands, tens of thousands, or --

A. No, it is in a number of millions of dollars.

Q. Okay.

A. So what we did was then we focused on what further improvements could we put into the program that we have.

Q. And what further improvements did you ultimately propose or did you negotiate with the Illinois EPA?

A. Well, in addition to the -- you know, we have this paved road, which at that point we were already sweeping or flushing five to six days a week. Any day that we would haul coal we would flush or clean that road, at least once, and in many cases we do it more than once.

In addition to that road we agreed to water or treat the access areas to the piles and this would be the areas off the paved road that the tracks back up to the piles. And this was in an attempt to reduce the emissions there or the potential for emissions there. Again, that is done on an every day basis that we are delivering coal to those piles.

The second thing that we did was we looked at or we agreed to use another -- a new type of -- new for us -- of a dust suppressant. We had used dust suppressants in the past on the coal piles, and they are effective to a point. But particularly when you get to extreme weather conditions, high wind conditions,

their effectiveness is not as good as this new product which is a polymer, an organic polymer, and this material you can spray on

the piles and it actually forms more or less a shell on to the pile, which we believe will offer increased effectiveness, even under the more adverse meteorological conditions that can occur.

The third thing that we did was we agreed to purchase a devoted piece of equipment. Prior to this we had two spray trucks and three sweepers, I believe, in the plant, which we shared. The spray trucks which actually located in the steel works side. We have miles of roads here that we have to treat throughout the plant. And in order to have a piece of equipment available all the time for treatment of the coal piles, the roads and the blast furnace area we agreed to purchase an additional sprayer truck. So we did that. And this truck also had to have the capability of being able to spray to the tops of the piles at whatever height we would store at.

And, finally, what we agreed to do was in -- we said that by 9:00 every morning we would have checked what the weather forecast was for that day, and based on that we would observe the piles and perform whatever treatment we felt that would be necessary based on that forecast. This is an attempt to in cases of where there may be some high winds coming that we could get out early and get them treated before they actually came upon us. So these steps were the new steps or the additional steps that we

put into our program.

Q. And who at the Illinois EPA did you deal with to resolve the Notice of Violation?

A. I guess three individuals primarily; Ken Irwalay (spelled phonetically), who is with the Springfield Compliance Group; Mr. John Justice, who is the manager of the Collinsville Office; and Ms. Sarah Phelps, who is an engineer that works for the Illinois EPA in the Collinsville office.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 9 as of this date.)

Q. (By Mr. Babst) Let me show you what has been marked as Respondent's Exhibit Number 9, and ask if you can identify that document?

A. Yes. This is the MSD sheet, the material safety data sheet for one of the products, one of the polymer type products that can be used as a dust suppressant. It is called Soil Cement.

(Whereupon photographs were duly marked for purposes of identification as Respondent Exhibits EE, FF, and GG as of this date.)

Q. (By Mr. Babst) I will now show you three pictures, marked as EE, FF, and GG, and ask if you can identify those three pictures?

A. Yes. Picture EE is a picture of the truck that we

purchased for the blast furnace area. In this picture it is

spraying a dust suppressant on the access areas to the coal piles.

Then picture FF is essentially the same truck, different view, and, again, it is spraying some of the areas around the piles.

Then picture GG is a picture of -- in this case it is the Soil Cement being sprayed on to a coal pile. You can see to do that we either use a hose or a turret, which is located on top of this truck, and we can spray the entire pile or just the top of the pile, or whatever portion of the pile that we need to.

Q. Mr. Zak has been identified as the authority on noise pollution for the Illinois EPA. Are you aware of whether the Illinois EPA has designated an authority for fugitive dust in this area?

A. Yes, I believe Sarah Phelps is considered the local authority with the Illinois EPA on fugitive dust.

Q. Is this the individual that you dealt with in resolving the June of 2000 Notice of Violation?

A. Yes. She was primarily the person who our conversations with were with, who our discussions were with, regarding what types of additional controls that she thought would best address this problem.

(Whereupon a document was duly marked for purposes of

identification as Respondent Exhibit 12 as of this date.)

Q. (By Mr. Babst) I show you what has been marked as Respondent's Exhibit Number 12, and ask if you can identify that document?

A. This is a letter from the Illinois EPA dated November 6th of 2000, which states that the Illinois EPA has accepted our proposed Compliance Commitment Agreement, and basically that's it. So that resolved that issue.

Q. Well, let me ask you, yesterday we saw videotapes of dust being generated in the area of the coke plant. Does the mere generation of dust in the area of the coal piles mean that this dust will migrate off the plant property?

A. No. In most cases it actually doesn't. I mean, with the coal pile operations, it is not going to be uncommon to see some dust generated. But having that dust -- a sufficient quantity of that dust generated and having winds which will carry that dust off the property is not that frequent of a situation.

Q. When is the dust blown off your property?

A. The biggest issue -- well, it can be blown off our property if the winds are high enough, basically.

Q. And in terms of affecting the complainants' residences, in what --

MR. BABST: Excuse me. I would ask that laughing and smirking be kept at a minimum during my examination of Mr.

Siebenberger.

HEARING OFFICER LANGHOFF: That is perfectly reasonable. I would ask that everyone would refrain from laughing and smirking during the questioning.

MR. BABST: Thank you.

HEARING OFFICER LANGHOFF: Including the witness.

(Laughter.)

Q. (By Mr. Babst) Does the wind speed have to be of some level to take the coal dust off the property?

A. Yes. You know, I heard a number of the citizens say yesterday that when winds -- when we get winds up in the 20 to 25 mile per hour range that that's when they observed dust coming off the piles. When it gets up in that range with the dust suppressants that we previously used, you know, the efficiency of those dust suppressants definitely was affected.

Q. Are the new procedures that you discussed designed to further reduce the likelihood that dust will blow from the property over the property line?

A. That is what they were designed for. It was -- the use of the new dust suppressant, which is more effective in terms of controlling fugitive emissions at higher winds, and with the availability of the equipment and checking the piles first thing in the morning we hope that we can react or actually react prior to the situation of when the winds can get to that speed, that we

can treat the piles and hopefully prevent any dust from coming off them.

Q. Was the Illinois EPA satisfied with the enhancements to the fugitive dust program worked out between the Agency and the company?

MR. MUSKOPF: I am going to object. The witness is in no position to make that kind of a determination. It calls for either an expert opinion or hearsay, and we don't have -- it is improper for those two reasons.

HEARING OFFICER LANGHOFF: Overruled.

THE WITNESS: Yes. Based on the compliant -- based on the letter that we received, accepting or Compliance Commitment Agreement, I assume that they are.

Q. (By Mr. Babst) Since entering into the program and receiving the acceptance letter from the Illinois EPA, have you received any additional Notices of Violation or complaints from the Agency regarding fugitive dust from this area of the plant?

A. No, we have not.

Q. In the year 2001, to your knowledge, have you or anyone in your department that you know of received any complaints about fugitive dust emissions from the complainants?

A. We have not.

Q. Now, did your office at various times over -- and going back beyond 2001, receive calls from the complainants about

fugitive dust?

A. Yes, we have.

Q. Can you tell us what your procedure was in the environmental control department to deal with those calls?

A. Typically those calls would come into our department, and I think Mr. Hoppe mentioned Connie Hickman, who is an engineer that works for me, would receive those calls. And once she received those call, she would inform me of that. And the typical process would be to contact -- either she would go observe herself or she would contact someone out in the area. If in this case it was the coal pile area, she would try to contact someone out there to confirm if there were -- if there were fugitive emissions which could be leaving our property line. And if there were, then we would immediately contact our driver of our spray truck and as quickly as we could get the equipment out there try to address the problem.

Q. Do you know whether Ms. Hickman gave the complainants her home phone number to call in the event that she was not at work?

A. Yes, she did.

Q. Were you present yesterday during the testimony of the complainants?

A. Yes, I was.

Q. And did you watch the videotapes and look at the

pictures that they brought?

A. Yes, I did.

Q. Were the videos taken before or after the modifications of the fugitive dust control plan?

A. Before.

Q. How does the EPA, the federal EPA and the Illinois EPA characterize the pollutant fugitive dust that is generated on roadways, raw material piles, parking lots?

A. It is characterized as a particulate.

Q. Does the EPA have a National Ambient Air Quality Standard for particulate matter?

A. Yes, they do.

Q. Do you know whether that standard is set to protect public health?

A. Yes, based upon the Clean Air Act, I believe that's the requirement.

Q. How does the EPA determine whether an area either has attained compliance with this standard or is in nonattainment with that standard?

A. Well, the ultimate measure is through ambient air quality monitors that they use to measure the particulate in the community.

Q. What is the National Ambient Air Quality Standard for particulate matter, if you know?

A. For PM10 particulate it is 50 micrograms per cubic meter on an annual average, and 150 micrograms per cubic meter on a 24 hour average.

(Whereupon documents were duly marked for purposes of identification as Respondent Exhibits 13 and 13A as of this date.)

Q. (By Mr. Babst) Let me show you what has been marked as Respondent's Exhibits 13 and 13A, and ask if you can identify these documents?

A. Yes. These are copies of -- this is the cover page and one other page of the Illinois Annual Air Quality reports. Exhibit 13 is the 1998 report, and Exhibit 13A is the 1995 report. These reports are put out by the Illinois Environmental Protection Agency.

Q. Before I ask you anything about those reports, Mr. Siebenberger, do you know how many monitors there have been in the Granite City area to monitor particulate matter?

A. It has varied over time, but historically we have had -- at least I know from 1992 through 1998 that we had at least four monitors in the City of Granite City and since then there are two monitors operating in the city.

Q. Are any of those four that were in the City of Granite City located near the complainants' homes?

A. There was one monitor, which was located at 2420 -- let

me see. (The witness reviewing document.) Yes, it is at 2420 Nameoki.

Q. Can you tell roughly where that monitor is on either Exhibit 2A or 2?

A. Yes. That monitor would be approximately here (indicating).

Q. Would you mark it with this -- just put a large M on Exhibit Number 2?

A. An N?

Q. An M, as in monitor. If you can, could you --

A. (Witness complied.)

Q. -- put a C in the general area where the complainants' homes are located?

A. (Witness complied.)

Q. Do you know how many particulate monitors there are in the City of Chicago?

A. I believe in the entire City of Chicago there are two.

Q. Is the Granite City area in attainment for the National Ambient Air Quality Standard for particulate matter?

A. Yes, it is.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 14 as of this date.)

Q. (By Mr. Babst) Now I show you what has been marked as Respondent's Exhibit Number 14, and ask if you can identify that

document?

A. This is a copy of the Federal Register Notice from the U.S. EPA announcing their direct final rule where they have approved the redesignation of the Granite City area to attainment with the National Ambient Air Quality Standards for particulate.

Q. And what is the date of that again?

A. The effective date of the approval is May 11th of 1998.

Q. Could you pull out the two Illinois reports that we were looking at a minute ago. Could you look at the monitoring results for the monitor that you have just indicated with the letter M and read for me the monitored results? I believe you said that the standard for particulate matter is 50. Could you read the results for this particular monitor?

A. Yes.

Q. And identify it by year?

A. Okay. It looks like 1992 is the first year that they had sufficient data to report it, and it was at 39 micrograms per cubic meter.

Q. How does that compare with the other three monitoring -- air monitoring stations in Granite City?

A. That is the lowest reading as compared to the other three.

Q. Could you give us the monitored readings for the -- for that same monitor for the other periods that are reflected in

those documents?

A. Okay. Well, in 1992 it looks like two of the other three had enough data to report. The 23rd and Madison monitor was at an annual average of 41 micrograms. And the 15th Street and Madison monitor was at an average of 50 micrograms per cubic meter.

Q. And what is the most recent monitored data for the monitoring station nearest the complainants' homes?

A. Currently -- let's see. 1998, which is the most recent they have here, it was at 32 micrograms per cubic meter.

Q. How does that compare with the other monitoring stations in Granite City?

A. In Granite City, the 23rd and Madison is at 38 micrograms. The 15th and Madison is at 46 micrograms. And the 2040 Washington monitor is at 40 micrograms.

Q. And, again, how does that -- how do those numbers compare with the National Ambient Air Quality Standard?

A. I believe all of the monitored data in Granite City since 1990 has been in attainment with the standards.

Q. Mr. Siebenberger, turning now toward the noise complaints that have been testified to by the complainants, the Hoppes have testified that they have registered complaints from time to time since sometime in the mid to late 1980s. Have these complaints concerned dust emissions, noise emissions, or both?

A. To my knowledge, the complaints, up until January of 2000, all were regarding dust.

Q. Do you know when the Glasgows began to complain about noise or vibrations in their home?

A. To my knowledge in mid 1999 the Glasgows began reporting vibrations up through early 2000.

Q. Did you become involved in the noise issue at any time?

A. Yes.

Q. And did the company do anything in response to those complaints?

A. I was not directly involved at the time, but they -- I knew a vibration study was conducted, and that information was -- and a meeting was held with the Glasgows, I believe, and the results of that study were discussed.

Q. Were you present at that meeting?

A. I was not.

Q. Do you know whether the company has taken any steps in recent years in an attempt to lower noise emissions from this area of the plant?

A. The ones that I am familiar with are I know that during some of the initial phone calls -- I believe they were from Mrs. Glasgow -- when we investigated -- primarily, you know, the complaint was of vibration. So what we started looking for was was there something different going on in the operation out there

than what would normally be going on, assuming that there was some change.

So in doing that, I know one of the problems -- or one of the issues that we found was at one time there was a particular dozer operator who liked to -- I don't know if it was always in front of their place, but he liked to come down and bang the blade of his dozer on the ground. So we -- that operator was instructed not to do that.

There was one other occasion where we had one -- some of our equipment down and we had a larger dozer out there than what we would use out there normally. That was a one time occurrence. I don't know whether that was the actual cause of the problem or not.

Then after that, when the complaints continued, we held discussions trying to figure out what we could do. And based on the complaints, I know tailgate slamming was of a particular issue of complaint. So we worked with the trucking firm that we use, and they instructed their drivers to minimize the tailgate slamming when they dumped the coal. And I guess, based on some of the testimony I have heard, I guess that apparently has had some effect. I mean, they have reduced that.

The other thing that we did was on the back up alarms, we replaced the back up alarms on the pieces of equipment used out in the coal storage area, the dozers, and the front-end loaders,

with a type of alarm that instead of putting out a steady signal of what I believe is 112 decibels, it detects the background noise and then it puts out a signal five decibels above that level. And the attempt here was that if it didn't need to be at 112, we wanted an alarm that could still properly warn the people in the area, but not be any louder than it had to be.

Q. In the year 2001 have you received any complaints concerning noise from either of the complainants?

A. Yes, Mr. Hoppe, and I believe he said it in his testimony, called or security office, I think on Father's Day, and it was regarding a venting noise that he heard. We had an upset in the plant at that particular time where we had lost some plant air, which is the compressed air that is used to regulate some of our processes. As a result of that, we ended up having to vent some steam for a period of time.

Q. Is that a normal operation or is that a result of a malfunction?

A. It is definitely a malfunction.

Q. Over the last two years have you received any other noise complaints other than the noise complaints registered by the complainants?

A. To my knowledge, there is only two that I can think of. Mr. -- and I heard his name mentioned, too. Mr. Casmer Skubish

called me on two occasions that I can think of, where he was

calling regarding some venting sounds that he or his neighbors had heard. And in both cases I investigated the source of the noise and got back to him. And I know in both cases it was some sort of an upset in the plant that caused us to temporarily vent.

MR. BABST: No further questions.

HEARING OFFICER LANGHOFF: Thank you. Mr. Muskopf.

MR. MUSKOPF: Thanks.

CROSS EXAMINATION

BY MR. MUSKOPF:

Q. Mr. Siebenberger, how are you this afternoon?

A. Fine.

Q. Good. I have a few questions for you, as you might have guessed. As I understand your testimony, you tried to make operational changes at the coal piles near the Glasgow and Hoppe homes and one of those changes is to instruct your -- essentially make the gate there a one-way gate?

A. Right.

Q. Okay. You are not saying that no vehicles -- why did you do that?

A. We did that, I think as I stated, in order to minimize the amount of material that could be drug out on to Edwardsville Road.

Q. Okay. So you agree that there is dust associated with

vehicles exiting that gate?

A. There can be, yes.

Q. Okay. And you are not saying that no vehicles ever exit that gate, are you?

A. Well, I saw in one of the pictures that there was a truck that appeared to be. So, apparently, on -- as I understand it, it is a very infrequent occasion. There may be a truck or two that -- those are not coal trucks. But there may be other trucks from the plant that may exit that gate.

Q. Okay. So you are not saying that as an absolute matter your directive has been followed to the letter?

A. No. Of the many, many trucks that go in we may have one or two that go out.

Q. All right. Are there any penalties associated with going out the gate the wrong way?

A. No, not that I am aware of.

Q. You live in Swansea, but you have been to the Sky View Drive In?

A. Many years ago.

Q. You know what it is like to try to go in through the exit, right?

A. Yes.

Q. Have you thought about putting in one of those things?

A. I have not.

Q. Is that a possibility? That would ensure that no one

would go out the wrong way, right?

A. I suppose it would help, yes.

Q. Okay. As I understand it, also the paving allows you to sweep the roads, correct?

A. Two sweep or flush them, yes.

Q. How often do you sweep -- well, are there any paved roads in the immediate vicinity of the coal piles there on your property?

A. Yes, I believe as I described the coal haul road, which is the road that runs parallel to Edwardsville Road.

Q. Can we use the map. Where does the payment begin on that road?

A. Well, as I said before, I think the first 175 feet of the road coming in the gate is paved.

Q. Okay.

A. And then this road is paved from here down to here (indicating).

Q. That's the road that -- that exits at the far gate?

A. No.

Q. By Hucks or by - --

A. No, there is no exit here.

Q. Oh, there is not?

A. They have to turn and come back up.

Q. How often is that road swept?

A. We sweep or flush it at least one time each day that we use the road.

Q. How many days of the week out of seven typically is that road used?

A. Five to six.

Q. Is it done sort of on an as needed basis in someone's opinion at your company?

A. Well, we treat it every day, and like I said, most days I am sure it is flushed more than once. As to the exact timing of when that is done, I don't know.

Q. Do you have any records of how often it is swept?

A. Yes, we do.

Q. Is there any reason that you don't have those here today? You were not asked to bring them, I guess?

A. (Witness shrugging shoulders.)

Q. Those records would reflect, as far as you know, accurately the number of times and the dates upon which the road was swept or flushed?

A. Yes, we keep -- as part of our program, we keep records of any sweeping or flushing of that road and we actually report, I believe, quarterly any exception to that program.

Q. Who do you report those to?
A. The Illinois EPA.
Q. You are required under your compliance agreement with

the EPA to sweep and flush that road?
A. Yes.
Q. So if you are not doing it -- how often is there a variance, or how often do you not sweep or flush the road according to that compliance schedule?
A. Really the only reason that we would not do it would be if there is weather related -- you know, if it is raining that day or if it is snow packed. If the weather conditions are such that it would not warrant or it would make it a safety hazard if we did something to the road, and we report those also, those days that we would not do it for that reason. Other than that, it would only be if for some reason we had an equipment problem that would prevent us from doing it.
Q. Do you know how many days within the last year, and an estimate would be fine, upon which there was activity at the coal piles where you would be required to sweep or flush under your compliance agreement, but have not done so, for whatever reason, whether it is because of weather, equipment failure, or something?
A. I don't.
Q. You don't have any estimate whatsoever?

A. It would be -- if at all, it might be two or three times.

Q. So pretty minimum, in your view?

A. Yes.

Q. Did anyone investigate -- you talked about the expense of moving the coal piles that was investigated several years ago and you talked about the problem with the railroad right-of-ways. Did anyone ever investigate whether those could be purchased?

A. I don't know.

Q. Did anyone look into whether a conveyor system might be a good solution to the transportation of the dust from the coal piles to wherever it needs to go instead of loading and unloading the trucks?

A. I don't know.

Q. How many times is spraying performed at the piles of the piles themselves, on a daily basis?

A. Well, they are sprayed, again, based upon -- in our current program, based upon the -- I guess there are a number of factors. One, what the life of the product that we are spraying on there is going to be, and also based upon what we will see as the weather conditions for that given day. I mean, that is the kind of factors that are looked at.

Q. So you use that soil sealant stuff out on the coal

piles?

A. That is one of the products that we use.

Q. And there is a water-based solution, some other kind?

A. Yes, or we can use water or we will use one of the -- it

is an oil based dust suppressant from -- that we use on the roads.

Q. Okay. Out of all of those different treatment modes, how many times does the spraying occur on the coal piles on a daily basis?

A. I don't know on a daily basis. I mean, it is not -- it typically is done on a day and would not be done again on that day.

Q. Okay. And then it might not be done again for another day or so? It just depends on someone with your company's opinion of the conditions as to whether they warrant further spraying or not?

A. Yes.

Q. Who makes that decision as to whether to spray or not?

A. It would be between the supervisor of the truck -- of the equipment operator, between him and the equipment operator, that would observe and make that decision.

Q. Do you know who the supervisor is, in particular, by name?

A. I don't.

Q. Do you have records of how often and what quantities of material are sprayed?

A. We do how often. I am not sure on the quantities. I know we do track quantities for road spraying, and we might on

the coal spray. I am just not positive on that. We do track it.

Q. And are you required to spray the piles themselves under your compliance agreement?

A. Yes.

Q. And what are the specific requirements under that agreement?

A. Well, it is for us to, like I said, on a daily basis assess, based upon the weather conditions, the weather forecast for that day, and the conditions of the piles, the condition of the piles being what the condition of the current treatment level is, whether further treatment is warranted for that day.

Q. Is it your testimony that at this point in time you do have a sprayer of some kind that is capable of reaching the tops of the piles? And I know they vary in height or elevation, but let's say the average elevation over the past six months?

A. Oh, yes.

Q. How much of your day is spent out at the coal piles?

A. I may be out in that area I would say on average maybe a couple of times a week perhaps.

Q. And it was your testimony earlier that it is -- let's see -- not that frequent of a situation that wind gusts take airborne particles and coal dust from the piles across Edwardsville Road, correct?

A. I think what I was saying was as far as winds actually

reaching speeds that could do that and then also being in the direction where it would be carried off of our property, you know, I don't think that is a real frequent situation.

Q. Do you think based on the amount of time that you spend out there at the coal field that you are in a better position to testify to the frequency that the dust is carried across Edwardsville Road than the complainants are?

A. I don't know.

Q. They live there, right?

A. Yes, they do.

Q. You heard them testify.

A. Yes, they do.

Q. And they said that they are around the house at various times, all four of them?

A. Yes.

Q. So does it sound like they spend more time in that immediate vicinity than you do?

A. Yes.

Q. Does it sound to you -- does it sound to you like they

pay fairly careful attention to when it is dusty and when it is not, I mean airborne dust?

A. Yes. I mean, they -- apparently. I have heard them testify that they can see dust and at times they have dust at their home.

Q. So you were asked whether you have received any complaints from any of the other people in that neighborhood. I was wondering if your company sends anyone around door to door or in any way asks any of the people that live there if they have a problem with the dust or the noise?

A. No, not that I am aware of.

Q. Would it be your opinion that some people, even though they have a problem, might not complain to the company about it?

A. I guess. I don't know. I mean, it could be.

Q. Okay. You were saying that the videotape was taken before modifications were made to your fugitive dust program?

A. (Nodded head up and down.)

Q. I didn't recall. I caught some of the modifications, but maybe I missed others in your testimony. You had a program since 1971 and you changed it in 1981. There was another change in 1991 where you made the gate a one-way gate. But what changes have you made since then to your fugitive dust program that are not reflected in your compliance agreement with the EPA?

A. Well, the program has been updated a number of times, I mean, more than what just those dates are there, as far as the compliance or the operating program that we submitted to the State. And the other one that I can remember the date would be in 1995 or 1996 we also did some additional paving where we paved the roads around the coke ovens themselves and began to sweep and

flush those roads. Typically when we would do a program where either we pave some roads or there is a shift in the normal traffic pattern, that is updating the program.

Q. Okay. Other than paving can you think of any changes to the fugitive dust program out at the coal piles that you all have implemented since, let's say, the fall of 2000?

A. Fall of 2000. Well, the paving was done in 1993 of the haul road, and as I -- I think as I had indicated, as part of the additional program that we put in -- that we agreed to with the Illinois EPA, we agreed to spray the access areas, to water or put product on the access areas around the coal piles in addition to flushing or sweeping the paved road. We agreed to purchase the devoted piece of equipment to use this new encrusting agent and to perform the inspection and check the weather by 9:00 in the morning. Those were all steps that have been implemented or have been put into our program.

Q. Okay. That was -- you are saying that that has been later in time than the fall of the year 2000?

A. Yes. I believe the acceptance letter was November something of 2000.

Q. Okay. Is that the acceptance letter that you are talking about?

A. Yes.

Q. Okay. That is Respondent's Exhibit Number 12?

A. Yes, that's it.

Q. It is dated November 6th of 2000. Did you implement any of these programs before this acceptance letter?

A. We tried. I know we tried the encrusting agent. You know, we were doing some trials on it to see how it was -- how it worked, because we didn't want to commit to something if it was going to be a problem to use or didn't appear to be effective. So we had conducted some trials with it.

Q. Okay. Exhibit Number 13 and Exhibit Number 13A, respondent's exhibits --

A. Yes.

Q. -- these are the air quality reports that you talked about?

A. Yes.

Q. Well, first of all, you were talking about the number of monitors, and there are one, two, three, four in Granite City?

A. There were, yes, for a number of years.

Q. At least in 1998 and in 1995?
A. Right.
Q. And is it your experience in dealing with the EPA that they typically put monitors in locations where they don't have any dust problems?
A. I don't know what the exact criteria is for why they locate the monitors where they do. But I am sure that is

probably a consideration.
Q. Does it appear to you, in looking at both of these exhibits from 1998 and 1995, that Granite City has the highest number of particles, on the whole, than any other city on these two lists?
A. Just in general, it would appear that -- it looks like the monitor down in East St. Louis has values that are pretty comparable, and the other monitors -- let's see. The other monitors look to be somewhat lower.
Q. Okay. How much does your company spend, on an annual basis, for the fugitive dust program specifically limited to the coal pile area?
A. I don't know.
Q. Do you have any information on the cost of the fugitive dust program?
A. I don't. It is typically not -- at least to my knowledge, we don't track that as a separate cost, per se. I

mean, it is just part of the plant costs for that area. So I don't have that.

Q. In your duties as environmental director, did you ever deal with any of the -- in any capacity with any of the claims of industrial or occupational disease claims by any of the workers at Granite City Steel?

A. No.

Q. Do you have any idea how many people have been diagnosed with, let's say, asbestosis, or mesothelioma, or one of the forms of -- or one of the diseases associated with asbestos exposure?

A. No.

Q. Do you have any idea how many people have lost their lives working in that plant since it was established in the early part of the last century?

A. No.

Q. Who would have that information in the plant?

A. Well, it sounds like most of the issues you have raised there would be more safety and health issues, which would -- we have a separate safety and health department.

Q. Okay. Do any of your workers out at the coal piles, are they required to wear any kind of respirator or dust mask or anything like that?

A. I don't know for sure, but I don't believe so. I don't

recall seeing them wear them.

Q. Okay. Do any of your workers that work around coal dust, are they required to wear some kind of breathing protection?

A. Again, I don't know for every worker. All I can say is based on my knowledge on the ones that I have seen, no.

Q. Do you have any information as to toxicity of coal dust?

A. No.

Q. Do you know whether it is bad for people, or whether it is benign, or what?

A. Only from -- well, I mean, I am aware of in the mining industry, you know, the problems that have occurred with when you have a sufficient exposure to the coal dust that it can be a problem.

MR. MUSKOPF: Thank you, sir.

THE WITNESS: Okay.

HEARING OFFICER LANGHOFF: Mr. Babst?

MR. BABST: No further questions.

HEARING OFFICER LANGHOFF: All right. Thank you, Mr. Siebenberger.

THE WITNESS: Uh-huh.

(The witness left the stand.)

HEARING OFFICER LANGHOFF: All right. We are going to take a quick break. We are going to reconvene at the Granite City

Steel Building. I will tell everyone where we are going to go. We are going to do that now since it is 4:10, and we are likely to get kicked out before we are through with another witness.

(Whereupon a short recess was taken to move to the Granite City Steel Building.)

HEARING OFFICER LANGHOFF: All right. We are back on the record. We are reconvening in the Granite City Steel Building, on the fourth floor, in the conference room. Thank you to

Granite City Steel people. We had to leave the courthouse -- or the City Hall.

All right. Ms. Christman, call your next witness.

MS. CHRISTMAN: Bob Holloran.

HEARING OFFICER LANGHOFF: Okay. Please swear in the witness.

(Whereupon the witness was sworn by the Notary Public.)

B O B H O L L O R A N,

having been first duly sworn by the Notary Public, saith as follows:

DIRECT EXAMINATION

BY MS. CHRISTMAN:

Q. Bob, please state your name and spell your last name for the record.

A. My name is Bob Holloran. The last name is

H-O-L-L-O-R-A-N.

Q. What is your address?

A. I live at 1310 Green Elm Drive, in Fenton, Missouri.

Q. What is your current employer?

A. National Steel, Granite City Division.

Q. What is your job title?

A. I am the process manager for the coke plant, which includes the coal conversion department, coal handling, and by-products.

Q. How long have you been with Granite City Division?

A. About 12 years.

Q. And where did you work immediately before Granite City?

A. Prior to Granite City I worked at a coke plant in South St. Louis by the name of Crondolette Coke. It was a merchant coke facility.

Q. How long did you work there?

A. Approximately five years.

Q. Okay. Since you have been at Granite City, what jobs have you held?

A. Initially hired in to Granite City Division as an operations technology engineer in the iron making department, and I worked primarily in the coke plant area but also had some responsibilities at the blast furnace.

Q. In your current position, what are your job

responsibilities?

A. My current position is a process engineering type job where I have the responsibilities for troubleshooting quality problems with the coal and coke. I am also involved in engineering upgrade projects that we have going on in the by-products and the coal conversion areas.

Q. What hours do you normally work?

A. A typical day for me is 7:00 to 5:00.

Q. Is that Monday through Friday?

A. Yes.

Q. Do you ever work weekends?

A. Yes, I have operational weekend responsibilities about every third weekend. The process managers and the area manager have weekend coverage that we rotate through.

Q. Okay. Can you explain how the coal that is trucked into Granite City Division is transferred into this general area, how does it get here?

A. Basically the coals that we use at the Granite City Division are all West Virginia mined coals. They are mined in West Virginia, the coals are prepped through what we call the preparation plant where the gang material is cleaned out of the coal, it is loaded into railroad cars, loaded into barges in West Virginia, transported via river down the Ohio River to Cairo,

Illinois, and then up the Mississippi and then unloaded at the Behlmann River Terminal in St. Louis. At that point in time we transport the coal from the barge in the St. Louis harbor into the plant via tractor-trailer trucks.

Q. Is that the -- the Behlmann Company, that is the trucking company?

A. Yes, they are.

Q. That's the only trucking company that comes in?

A. That's our -- they handle 100 percent of our coal deliveries.

Q. Okay. Are the trucks, when they come in to Granite City, tarped, covered?

A. Yes, they are.

Q. Does Granite City monitor or take note in any way whether or not the trucks are covered?

A. Yes. We, as part of our contract with Behlmann Trucking, is they must tarp all coal loads that come into the plant. And we have a security guard at the east gate that verifies that the trucks are tarped.

Q. So how often is there a truck coming in that is not tarped? How frequently would that happen?

A. I don't know that we have ever had one not tarped.

Q. Okay. In the event that one was not, would the security guard make note of that or contact anybody?

A. Yes, would contact the by-products and coal handling foreman along with the Behlmann field representative that is in the plant on a daily basis.

Q. Okay. The trucks enter -- the coal delivery trucks enter through the east gate; is that right?

A. That's correct.

Q. I think you were in the room earlier. We were talking about the fact that the coal trucks don't exit through the east gate?

A. That's correct.

Q. Is there any -- are there any other trucks in the plant that might exit through the east gate on occasion?

A. Yes, we have other trucks that may occasionally exit through the east gate that are carrying other products or have delivered products to the by-products area.

Q. Okay. And have those trucks that occasionally exit the east gate traveled through the coal fields area, generally?

A. No, no. They basically travel through the entry roadway, and then head in a westerly direction down to the coke plant area, which is opposite of the coal field, and then on to the by-products area.

Q. Okay. When the trucks come into the east gate then they unload the coal from the trailers on to the coal piles; is that

right?

A. That's right. We have a designated coal pile that the trucks deliver to.

Q. And how is the coal -- how is the coal gotten out of the trucks? What do they do?

A. Basically the truck goes to the designated pile and once the pile is clear from the previous truck dumping, then the truck will back up to the designated pile, stop, make sure he is on level ground, raise his bed, and dump the coal.

Q. Okay. Then the next step in the process is the bulldozer pushes the coal up the piles; is that right?

A. That's right. The truck piles are basically heaped up at the toe of the pile that we are building, and then the bulldozer operator will push the coal up to the slope part of the pile --

Q. Okay.

A. -- as we are building the pile.

Q. How many types of coal are used at the Granite City Division?

A. We use three different types of coal.

Q. What are they?

A. Two high volatile type coals, and one low vol type coal.

Q. What are they called, the names?

A. The names are Black Bear, Elk Run, which is the coal

that is located at the entry point into the coal field there, what we call our east gate, and then the Pinnacle coal is our low volatile coal.

Q. Okay. So you have three types of coal coming in. How many piles are there in the coal fields to store the three different types?

A. Basically there are three coal piles per type of coal, so we could have a total of nine piles and three designated areas.

Q. All right. We are going to use Exhibits 2 and 2A that we have been using, and whichever -- you can decide which one is

easier to point this out on. It might be the other one. What I am going to ask you to do is locate the Elk Run piles and describe where they are?

A. Okay.

Q. I don't know which one is easier of these to mark it on. This one does not have all of the description?

A. Probably this one here would be easier to mark it on.

MS. CHRISTMAN: Okay. He is marking on Exhibit Number 2A the area where the -- the general area where the Elk Run coal piles are located.

Q. (By Ms. Christman) If you could just make three approximate circles.

A. Okay. (Witness complied.)
Q. You can just write Elk Run or ER.
A. Okay. I will number them one, two, and three.
Q. Okay.
A. And ER.
Q. Okay. So these are the coal -- the three piles in the coal field located, I guess, closest to the east gate, furthest west of the coal piles; is that right?
A. That's correct.
Q. Okay. And those are the three that are generally in the have vicinity of the complainants' home, as you understand?
A. Yes.

Q. Or I guess at the intersection of Alexander Street and Edwardsville Road?
A. That's correct.
Q. Okay. Why are there three different types of coals used at Granite City?
A. Basically to produce a coke that is of high enough quality to use in our blast furnaces. We have to use a minimum of three different types of coal. We have experimented with various blends over the years, but basically we have a coal handling facility that will handle three different types of coal, and that's the way we make our coke, our coal mix blend for coke.
Q. Okay.

A. In other words, to explain a little bit more, the high volatile coal is needed for strength in the produced coke, and the low volatile type coal there actually lowers the volatility of the blend and provides a higher fixed carbon for the coke that we push from the ovens.

MR. MUSKOPF: I am going to renew my objection at this point to this witness offering opinion testimony.

HEARING OFFICER LANGHOFF: Thank you. Overruled.

MR. MUSKOPF: Could I have a running objection?

HEARING OFFICER LANGHOFF: Of course. Noted.

Q. The suggestion was made earlier, and I am not sure whether you were in the room at the time when Mr. Zak was

testifying. One of his suggestions is that you could -- instead of having nine separate piles in this case, we are only going to talk about Elk Run, three separate piles. That you could basically build the piles altogether, level them out altogether, all the coal piles to basically shield some operations that happen further south. Is it possible to build the three different types of coal piles all into one large pile like that?

A. That is possible, but not -- that is not a good way to control our inventory. Due to the fact that we are dealing with a coal that is used for coke making, it has a shelf life. In other words, it loses its quality over time. Therefore, we

maintain three different piles on each type of coal there to keep the shelf life from expiring on the coal, so that our coke quality meets the minimum criterion.

Q. What would happen if you built the coal piles, all nine of them, in all three different types of coals up together and then you tried to unload them? What would happen if the coals got mixed up? What would the result be?

A. If we had the three different types of coal get mixed in one pile that could be disastrous for the operation.

Q. Why?

A. Typically we have a -- we run a blend that is a higher percentage of high volatile coals and a lower percentage of the low volatile coal so that when we put it into the coking chamber

on the ovens that we don't -- we make a blend that does not expand too greatly, because it can damage the refractory walls and actually not push from the oven. And if we make a blend that is deficient in low vol, we can actually make a coke that won't push from the oven because it would be a very weak coke. So it is important that we control the blend percentages when we put the coals together. And we actually have a process that does that.

Q. If that happened, would it -- if it happened even accidently, could it damage the coke batteries?

A. Oh, yes, very much so.

Q. Okay. So back in the coal fields, bulldozers push coal up the pile. Once the pile is completely built or finished, then it is a front-end loader that removes the coal from the piles; is that correct?

A. Yes, the front-end loader extracts the coal from the piles.

Q. Where do the front-end loaders deposit the coal?

A. They are loaded into railroad hopper cars that are used inside the plant.

Q. Would the coal ever be unloaded from the front-end loader into a vehicle other than a railcar?

A. Yes, it can be.

Q. What is that situation?

A. That happens on occasions if we are -- if we are short on railroad hopper cars inside the plant, we may have to transport the coal from the main pile to an auxiliary pile over by our coal handling facility or mixing facility. And that coal can be transported directly into a -- into an auxiliary feed hopper and fed into the coal mixer building.

Q. That's not the primary way that you would transport coal from the piles?

A. That's not the primary way. That's the occasional way that we have to handle coal from time to time.

Q. And did you mention what vehicle was used to do that?
A. Pardon?
Q. When you are not using a railcar what vehicle would you use to transfer the coal over?
A. We would use a front-end loader and load it into either a tractor-trailer truck, which we have one of those and we have a couple of Yuke type trucks there, too, that we transport coal with.
Q. Okay. So the railcars are loaded by the front-end loader and then where do they carry the coal to?
A. They take it over to the coal handling facility. We have some unloading pits in coal handling and the cars are dropped into the unloading pits and then on to the conveyor and then the coal is conveyed through a series of conveyor belts into

the proper bin.
Q. Would you just describe that process a little bit?
A. Sure. Basically the coal is transported to coal handling in designated railroad cars. The cars are unloaded by direction of an operator in coal handling. He will run a particular coal, say, for instance, Black Bear coal will be called for via the communication system. He runs the Black Bear coal over to the number one pan conveyor through a crusher, up the number two belt into the center mixer bin, which is a designated bin for Black Bear coal. In the opposite two bins we

will have Pinnacle and Elk Run. This is where the actual controlled mixing takes place for putting together a metallurgical coal blend.

Q. That's an indoor process now?

A. Yes, it is.

Q. Okay.

A. That moves inside to three storage bins and a pulverizer floor. On the pulverizer floor the operator actually blends the three coals together on a real time basis, pulverizes the coal, controls the bulk density. Then that coal is discharged on the output side of the pulverizer and then conveyed up to the coke oven bunkers, over to the coke ovens, which Larry Siebenberger has already described that process.

Q. Okay. Can you see on this map 2A, Exhibit 2A where coal

mixing is, coal handling or coal mixing?

A. The coal mixing building?

Q. Yes. Just put a CM for coal mixing?

A. The whole facility, basically?

Q. Sure, uh-huh.

A. Okay. It is actually this all inclusive right here (indicating).

Q. Okay.

(The witness marking on Exhibit 2A.)

Q. (By Ms. Christman) Okay. So you are moving from the three circles that say one, two, and three ER, the Elk Run piles, if you are using Elk Run coal, into railcars and then they are taken -- the railcars run over to the coal mixing area, basically?

A. Right, via the railroad track and then unloaded, transport via conveyor to the mixer bin. This is the actual mixing building right here (indicating).

Q. Okay. Thanks. I think it might be marked on there. Is the coke plant already labeled on Exhibit 2A?

A. Coke ovens.

Q. Coke ovens. Okay.

(Whereupon photographs were duly marked for purposes of identification as Respondent Exhibits GG, HH, II as of this date.)

Q. (By Ms. Christman) I am going to give you three pictures that are marked in order with the pictures that we talked about for Respondent's Exhibit 3. They are GG, HH, II. Can you just describe what these pictures are showing?

A. Okay. GG is a coal delivery truck basically raising his -- he is on the -- I guess on the haul road raising his tarp, I guess is what he is doing.

Q. Okay.

A. HH is a coal delivery truck dumping coal on one of the

coal piles there. I can't tell which coal that is, but it looks like maybe the Elk Run. And II illustrates the dozer operator pushing coal up the pile.

Q. Okay. You can just leave the pictures there.

A. Okay.

Q. Does Granite City Division maintain records regarding the volume of coal stored in the coal piles?

A. Yes, we do.

Q. Are those records maintained in the regular course of business?

A. Yes.

Q. They would reflect the coal purchased and coal consumed?

A. That's correct.

Q. How much coal -- I think Larry may have talked about this -- but just if you know, how much coal is trucked into

Granite City every year?

A. Approximately 850 to 860,000 tons a year.

Q. I am going to show you a graph.

A. Okay.

MS. CHRISTMAN: I would like to have this marked as Respondent's Exhibit Number 36. Here is a copy for you, Mr. Hearing Officer.

HEARING OFFICER LANGHOFF: I have given you some stickers.

MS. CHRISTMAN: Oh, yes. Okay.

HEARING OFFICER LANGHOFF: Could you mark it.

MS. CHRISTMAN: Yes, I can.

HEARING OFFICER LANGHOFF: Thank you.

(Whereupon said document was duly marked for purposes of identification as Respondent Exhibit 36 of this date.)

Q. (By Ms. Christman) Basically this is a graph. You can identify what it is. It has to do with volumes of coal. Could you explain what is on here?

A. Okay. Basically this is information from our aerial surveys that are done on a quarterly basis. It shows the Elk Run coal piles, number one, two, and three, which are on the map here, what the actual cubic yardage of each pile is on the aerial surveys that are done every quarter. And as you can see, the piles fluctuate in size based on their -- on what kind of state they are in. At one point in time it may be fully built, such as

if you look at the number one pile there on 10-30-98, there was 14,565 cubic yards. Then the next quarter it was down to 756, which means it was probably being consumed at that time. So it shows normal fluctuations of the coal piles being built and being consumed.

Q. And what time period is represented on the graph and on the tab form of the same information?

A. It represents the first quarter of 1997 through the

second quarter of this year.

MR. MUSKOPF: Could I have a copy of that, since I have not seen it yet.

MS. CHRISTMAN: I am sorry. Here you go. Actually, you have seen the data that is represented in this. We provided it to you in Attachment C to our initial responses to interrogatories.

Q. (By Ms. Christman) So does the graph, when you are looking at the volume line, the linear black line, indicate an increase, decrease, or remaining the same amount of coal in the three piles closest to the complainants' homes over the past four years?

A. It shows a decrease in size.

Q. Thank you. Can you describe whether in the last few years there has been any discussions with the bulldozer operators or the operators in that area on different methods for building

piles?

A. Yes. We had discussed some two years ago or so with the dozer operators on being able to maximize coal storage and minimize coal pile height. At that point in time we started experimenting with a ramp style pile that normally would have been peaked and elevated quite high, to going with a plateau type pile where the pile is plateaued on top and compacted on top and

successfully -- have pretty much successfully been able to do that with all of our piles.

Q. What does plateauing the top of the pile allow you to do?

A. Well, basically it allows two things. Number one, it allows the pile to be sprayed with the Soil Cement or the encrusting agent quite easily. It makes the pile fairly regular or homogeneous in size which aids the spraying compound as far as being able to spray it very quickly and accurately. And it actually helps us from a quality standpoint as far as shedding water on the pile. During significant rain storms the piles don't soak up as much water during the rainy season.

Q. So that's the method that the operators try to follow now currently?

A. Yes.

Q. Going back to when the trucks are delivering coal into the area, what is the regularly scheduled days and times of the

day that the trucks deliver coal to Granite City?

A. Typically we schedule trucks Monday through Friday. On an annual basis we probably work about 50 percent of the Saturdays on coal delivery. A lot of that is dependent upon mine shipments and river conditions, as far as what coal is available in town and when we can unload it.

Q. What hours on Monday through Friday and every other

Saturday or so?

A. Basically the delivery gates open from 6:30 until 2:30 in the afternoon.

Q. In other words, the gates are locked up until 6:30 in the morning?

A. That's correct.

Q. So how many coal delivery trucks are usually unloading on the piles at one time? In other words, how many coal delivery trucks are inside the gates and raising their beds at the same time?

A. It varies. Typically it is one truck at a time. But when we are starting a new pile out and we have plenty of room to dump we have as many as two or three trucks dumping in parallel. As long as they are not right next to each other and there is no danger of tip over, we can have two to three trucks dumping at the same time.

Q. But it is typically one truck?

A. Typically one truck at a time.

Q. What is the scheduled days and times that the dozers are operating, pushing coal up the piles?

A. Typically dozer number one is there at 6:30, and the second dozer shows up around 7:00. So we have an overlap, an overlap of two dozers at times.

Q. What is the scheduled days that they would operate?
A. Monday through Friday or Tuesday through Saturday, depending on if we have a Saturday schedule of coal delivery.
Q. And then what time in the afternoons do the dozers -- what is the end of that shift?
A. Typically 2:30 is the end of the shift. Although we do have -- from time to time we do have to keep the gate open late, till 4:30 or 5:00, depending on the traffic conditions and river conditions, as far as the unloading goes.
Q. That's 4:30 or 5:00 in the afternoon?
A. Uh-huh.
Q. So how many bulldozers are usually used on the piles at the same time? Either two on -- you know, more than one on one pile or more than one in the whole coal fields?
A. How many times do we have two dozers on the --
Q. Right. Like, how many dozers are usually operating at the same time basically?
A. Typically one, but we have -- from time to time we may

have both dozers working the same pile. We could have two dozers working one pile.
Q. You only -- how many types of coal would you receive in a day?
A. One coal per day.
Q. So you are receiving one coal. That means you can only

work, at maximum, three piles at a time, the general situation?

A. Yes, the general situation we have -- for safety reasons, and I am talking about coke oven safety reasons, for protecting the assets, we deliver one coal, one scheduled coal per day to a designated pile. Depending on the size of the other piles there we may have back up coal where we can divert a couple of trucks to the back up pile from time to time to relieve trucks as they dump.

Q. Okay. What is the scheduled days and times that the front-end loaders are unloading coal from the piles?

A. Typically the front-end loader is going to be loading cars between the hours of 8:00 a.m. and noon for the -- we run two shifts of coal handling. And the second shift is going to unload coal from the period of 8:00 p.m. until midnight.

Q. What days of the week?

A. That is seven days a week.

Q. Are there any times that the front-end loaders would be operating outside of those hours, 8:00 a.m. to noon, and 8:00

p.m. to midnight?

A. Possibly in the wintertime if we have frozen coal and material handling problems, they may be out there at all different types of hours.

Q. Due to the --

A. During the fair weather conditions typically not. They are usually operating in that time frame.

Q. How many front-end loaders are typically operating in the coal fields at any one time?

A. Basically one end loader per designated pile.

Q. If you are only generally working one pile then that is one front-end loader?

A. Yes.

Q. How often would you use more than one front-end loader in the area at the same time?

A. Well, if we had -- we could be simultaneously loading Elk Run and Black Bear, our other high vol, or Elk Run and Pinnacle, so one high lift could be working a different part of the coal field.

Q. How often is that the case?

A. Maybe 50 percent of the time.

Q. The front-end loaders fill railroad cars. How many railroad cars would you fill in a shift, in one of the four hour shifts?

A. Approximately 10, 10 to 15, depending on the availability of railroad cars.

Q. And how long does it take to fill a railroad car, a four hour shift?

A. It takes about -- to fill five cars is approximately an

hour and a half.

Q. Okay. Once the railcars are loaded what is the schedule that they run over to the coal handling area?

A. The cars are delivered to coal handling prior to the midnight shift turn or the noon to 8:00 turn. So basically as soon as the end loader has the car -- has the hopper cars loaded then they are transported via engine over to coal handling.

Q. Generally all the railcars at one shot at the end of either the 8:00 to noon shift, or the 8:00 p.m. to midnight shift?

A. Correct.

Q. So there is not generally railcars being moved around all the time? Maybe twice a day?

A. Well, basically at the end -- the cars are delivered in a certain sequence to coal handling prior to their shift starting.

Q. Okay.

A. And then at the end of the shift the cars are pulled from coal handling and respotted in front of the piles.

Q. Okay.

A. So, for instance, from noon -- on the noon to 8:00 shift the full cars will be delivered there sometime prior to noon, and then at 8:00 p.m., when they have finished running the coal

handling shift, they would pull those empty cars and respot them in front of the designated piles for reloading.

Q. Okay. When are the cars emptied at coal handling, then, once the full cars are sent over? Is there a regular schedule for that?

A. Yes, they are emptied on what I just described as the noon to 8:00 shift.

Q. Okay.

A. The cars would be emptied at coal handling between the hours of noon and 8:00 p.m., and then on the midnight turn. That would be our second shift. Or actually our first turn. It would be emptied between the hours of midnight and 8:00 a.m.

Q. What days of the week?

A. That is Sunday through Saturday, seven days a week.

Q. Okay. So going back to building one pile. If you are -- when you are totally built off at a pile, about how long would it take to do that if you were just continually building one pile?

A. How long would it take to rotate if we had to --

Q. Right, to schedule the trucks in and basically build a

pile completely until you would try to plateau it off?

A. Oh, the way we are handling our coal right now?

Q. Uh-huh.

A. Okay. It takes approximately four days to build a pile.

Q. Okay. That's dependent on --

A. It could be consecutive days or it may be spread out over a week or two, depending on river conditions and what barges are in town available for unloading.

Q. Okay.

A. As far as consumption goes, the thing on pile size, the average is probably going to be about 12 days. It will range 9 to 15 days to consume a pile.

Q. Okay. So we have pretty much covered the whole operation in your area, the basics of coal coming in until it goes over to be used at the coke plant?

A. Uh-huh, I think we have.

Q. We have talked about -- have we talked about the people in the area? In other words, there would be truck drivers, and we have talked about bulldozer operators, we have talked about front-end loader operators, and those folks have supervisors, I assume; is that correct?

A. Yes.

Q. Okay.

A. Yes, they do.

Q. Is there other types? We have also talked about the person who operates the sprayer trucks?

A. (Nodded head up and down.)

Q. And what other types of employees would be working in that area, in your area of the plant?

A. Besides those you mentioned, we have laboratory personnel, samplers, that have to go out to the field from time to time to sample coal from the designated piles.

Q. Okay.

A. Our coal handling and by-products foreman is required to go out and inspect the -- inspect the area prior to any unloading. And then also comes back and makes regular trips through the field to inspect progress on the coal piles.

Q. Okay.

A. And basically that's about it as far as personnel. There are occasionally some maintenance personnel in the area. We have a track inspector that is required to walk the tracks on a daily basis in the coal yard. And then track maintenance crews from time to time have to come out and repair track. And then, of course, the railroad engine crew is there on a shift to shift basis moving hopper cars around, either full or empty.

Q. Okay. Are there currently -- we have been talking about back up alarms throughout the testimony in this hearing. Are there currently back up alarms on each piece of heavy equipment

used in your area of the plant?

A. All pieces of equipment have back up alarms.

Q. Are there back up alarms or safety alarms in other areas

of the mill?

A. Yes, yes, there are.

Q. Why are there back up alarms used in your area, in the mill generally, and specifically in your area?

A. To notify -- to notify all the people that work in the area that equipment is in motion, so that they aware of the hazards.

Q. So, in other words, to notify all of the different types of people that we were just talking about that large, heavy equipment is in motion?

A. Right, that could be impacted by, you know, moving equipment.

Q. And this is basically a safety issue?

A. Yes, it is.

Q. What safety positions or safety issues are you involved in at the plant? Do you do any safety related work?

A. Yes, I am -- I basically administrate and conduct the coke plant supervisors safety meeting, the managers supervisor safety meeting every month. I also meet with the area safety reps for the coal handling department, the coal conversion department, and the by-products department, the hourly person

that is basically responsible for bringing any safety concerns from the department, you know, to the management level.

Q. Okay.

A. And then once a month we have a labor management safety meeting, which I attend those on a regular basis also.

Q. So you have a good idea of what is a serious safety issue in your area of the plant?

A. Yes.

Q. Okay. Would you say that the use of back up alarms is a serious safety issue or concern in the coal fields area?

A. Yes, it is. It is a very serious issue, that all equipment in our plant have either motion alarms or back up alarms, depending on where it is operating.

Q. What is the risk involved if back up alarms are not used? In other words, what are they designed to protect, what event, what type of events?

A. Accidental contact of pieces of -- two pieces of mobile equipment or more, which would result in serious injury and equipment damage, property damage, the size of the equipment that we are talking about here.

Q. So it has been suggested that there are other methods, for example, using an observer and disconnecting back up alarms to achieve the same safety affect of an audible alarm.

A. Uh-huh.

Q. In your opinion would it be -- would there be an increased risk of injury in your area if that option were

followed, if you just used an observer rather than an audible alarm for each piece of equipment?

A. Yes. Due to the congested area with multiple pieces of equipment and multiple departments working in the area, I think it would be a serious risk to have a safety person versus the audible alarms that we use currently.

Q. What do you think -- do you think that's the reason that the Granite City Division has not disconnected back up alarms at this point in time?

A. Yes.

Q. For example, if you use -- if you were able to assign a person to act as flagman and indicate to other operators or people in the area when machinery is backing up, what do you think could be -- what do you think could be the issues that could happen there that would increase the risk? In other words, why is that riskier than using an audible alarm?

A. Well, number one, there is a risk to the person doing the flagging, you know, being able to -- you know, have 360 degree peripheral vision to see all of the equipment moving around. You would have to have -- in my opinion, you would have to have some sort of radio communication between all of the pieces of moving equipment to let the truck, the high lift, the

dozer operator know who is moving and to halt operations until

they are contacted back.

MR. MUSKOPF: I need to renew my objection, but on the additional basis that the witness has not been designated as an expert on safety issues.

MS. CHRISTMAN: I am not offering the witness as an expert, Mr. Hearing Officer.

HEARING OFFICER LANGHOFF: The objection is overruled and noted.

Q. (By Ms. Christman) If you were to propose the use of observers and disconnecting the back up alarms, would that have to be addressed with the union safety committee?

A. Yes, it would.

Q. And in your experience would that be something that was well received?

A. I believe it would not be well received.

Q. What would the union's concern be, do you think?

A. The safety of --

MR. MUSKOPF: Objection. It calls for speculation. Excuse me. Sorry.

HEARING OFFICER LANGHOFF: Overruled. You can answer.

THE WITNESS: The safety of the employees in the work area.

Q. (By Ms. Christman) And has your area of the plant had any reductions in manpower recently in the last few years?

A. Yes, we have had some head count reduction.

Q. What do you think that percentage is in percent of employees in your area?

A. All departments inclusive there including maintenance and the heavy equipment department, I would say five to seven percent.

Q. So are there any employees that generally work in your area that are just hanging around and have extra sort of time in their eight hour shift to act as a flagman or an observer?

A. None that I am aware of.

Q. How many pieces of equipment are usually in use in that area at one time? In other words, how many observers do you think you might need?

A. Well, depending on the activity and, obviously, when the coal delivery is being made that's when it is the busiest time, so I could anticipate having, you know, at least two, two observers there.

Q. Okay.

A. One for truck and one for, you know, the heavy equipment operations.

Q. And you just testified that you don't -- you don't have two extra employees around that could do that position?

A. That's correct.

Q. So basically you have had manpower reductions recently,

and you think it would be a drastic increase in safety concerns. Would you consider it a safe or a practical option to disconnect the back up alarms on the heavy equipment that is used in your area?

A. No, I do not. I would not.

MS. CHRISTMAN: I don't have any further questions.

HEARING OFFICER LANGHOFF: Thank you, Ms. Christman. Mr. Muskopf?

MR. MUSKOPF: I have just a couple.

CROSS EXAMINATION

BY MR. MUSKOPF:

Q. Mr. Holloran, how are you?

A. Fine. How are you?

Q. Fine. Thanks. How many serious injuries at Granite City Steel are you aware of that have taken place from the time you started working there?

A. How many serious injuries --

Q. Yeah?

A. -- have taken place? I don't know. Six. Ten.

Q. Any fatalities that you aware of?

A. Yes.

Q. How many?

A. Over what period of time? Over the last --

Q. Well, just out of the ones that you are aware of. You

said -- I asked first -- I am sorry. Over any period of time?

A. Four that I am, you know, very familiar with.

Q. Okay. Very familiar with?

A. In the iron making area.

Q. How did those people get killed?

A. Two persons at the blast furnace and then two persons at the coke ovens. We had one employee at the blast furnace who was basically burned to death from a tap hole incident.

Q. Is that when the tap hole exploded?

A. A tap hole explosion.

Q. Did it cause -- it basically spewed out a bunch of --

A. It spewed out and he was contacted with hot metal and slag. And then we had a supervisor at the blast furnace that became entangled in a vertical conveyor, a material conveyor piece of equipment. And then at the coke ovens we had an employee that was crushed by a coke side door machine between the door machine and the handrail, as the door machine was moving down the battery. And then the last fatality we had was on the top side of the battery where an employee was crushed between the Larry car, which is the coal charging car and a coal bunker.

Q. It sounds like some pretty bad ways to go out, huh?

A. Very bad.

Q. That is -- the four that you just described took place over what time frame?

A. I would say in the last -- let' see. Sam Burch was probably five years ago.

Q. So from about five years ago to the present is when the ones --

A. Correct.

Q. -- that you just discussed took place?

A. That's correct.

Q. And you have been at that plant for how long?

A. For 12 years.

Q. Would you say that safety has improved from the time you have been there to the present?

A. Overall it has, yes.

Q. Why do you all need to store so much coal, stockpile at one time? Do you guys just want to make sure that you don't run out?

A. That's correct.

Q. I mean, running out would be a --

A. That is a good question.

Q. -- bad thing for the plant, right?

A. Actually, you know, we are dependent upon our coal supply from West Virginia. So there is mining issues, railroad issues, and then, of course, the unpredictable, the river, being able to get the coal from West Virginia to St. Louis. So we try to maintain about a 30-day supply for each one of our commodities

at any point in time.

Q. Have you ever run out of one of the different types of coal since you have been there?

A. We came close. We got -- we were down to about half a day on the Elk Run coal at one time.

Q. Sounds too close for comfort. Have you ever looked into building steel barriers between the different coal piles, which would allow you to reduce the elevation of the piles and more efficiently store the material in essentially a smaller amount of space so you would have a smaller footprint and you could --

A. Uh-huh.

Q. Do you understand what I am saying?

A. Yes, I understand exactly what you are saying, having a barrier wall --

Q. Yes.

A. -- between the piles.

Q. Yes.

A. We have never actually looked at it from a cost standpoint, but I am familiar with what you are talking about.

Q. Are you familiar with other coal operations in which coal piles are kept separately by such a method?

A. Yes, I have seen some operations that have divisional walls between piles.

Q. So it is something that can be done?

A. Uh-huh.

Q. That was a yes, wasn't it?

A. Yes.

Q. Okay.

A. I am sorry.

Q. That's all right. Can you tell the difference -- the different types of coal by site? I mean, could you pick up one chunk of each of the different kinds you have described, the Elk Run and Black Bear, for instance, and tell them apart?

A. Probably not by just randomly grabbing a chunk of each coal. But typically in the piles I can tell the difference between the two.

Q. How do the truck drivers know which pile to dump on?

A. They have a -- we have a field correspondent that works for the trucking firm and he ensures that the piles are -- you know, that the truck drivers go to the proper pile.

Q. So which each driver he tells them you dump on this pile?

A. Yes.

Q. Okay.

A. We have a series of truck drivers that come in there throughout the day, and once they dump once on the correct pile they know to go to that pile. Dozers are logically -- you know, they are in place before the first truck arrives so that

designates the pile. Then we have a -- we have a message board at the entrance to the gate there that also tells them which pile -- which coal and which pile to dump on.

Q. Okay. Speaking of dozers, you were talking about the hours of operation. You are not saying that they don't operate at all, let's say, past midnight?

A. Past midnight?

Q. Yes.

A. If they do, it is very rare.

Q. Okay.

A. Very rare after midnight.

Q. You are not saying it can't happen, or that it has never happened at least while you have been there?

A. True. Like in the flood of 1993 we had to bring some coal into the plant on an emergency basis for obvious reasons, the river coming up. And we did bring coal in around the clock at that point in time.

Q. In the recent past, are you aware of any time that the dozer has been operating after midnight?

A. No.

Q. How many trucks, how many loads basically are brought in on an annual basis, could you say?

A. How many truckloads?

Q. Yes.

A. Basically it is, you know, 850,000 tons divided by about 25 tons per truck, so whatever that figure comes out to.

MR. MUSKOPF: Okay. That's all I have got. Thank you.

THE WITNESS: Okay.

HEARING OFFICER LANGHOFF: Thank you. Ms. Christman?

MS. CHRISTMAN: I just have one question.

REDIRECT EXAMINATION

BY MS. CHRISTMAN:

Q. Mr. Muskopf wants to talk about employees that have lost their lives in the mill. I understand that two of the recent deaths occurred in the coke plant; is that right?

A. That's correct.

Q. Were there audible safety alarms in use on the pieces of equipment that were involved in those accidents?

A. Yes.

Q. And even though audible alarms were in use, deaths occurred?

A. That's correct.

MS. CHRISTMAN: That's all of my questions.

HEARING OFFICER LANGHOFF: Mr. Muskopf?

MR. MUSKOPF: Nothing further.

HEARING OFFICER LANGHOFF: Thank you. Mr. Holloran, I have one small request for you. Would you on this exhibit -- is it Exhibit 2 or 2A?

MR. BABST: It is Exhibit 2A.

HEARING OFFICER LANGHOFF: Exhibit 2A, the one we are using. Would you draw the other six piles of coal, meaning there is --

THE WITNESS: We have these three.

HEARING OFFICER LANGHOFF: Yes, and then you have another group of three.

THE WITNESS: Right. We have three here.

(The witness drawing on Exhibit 2A.)

HEARING OFFICER LANGHOFF: Would you label that with the initials of Black Bear or whatever.

THE WITNESS: Okay. This would be Black Bear.

HEARING OFFICER LANGHOFF: Thank you.

THE WITNESS: And then Pinnacle is -- let's see here. Actually, this road is over -- actually, there is a -- okay. Here is one. These are the Pinnacle.

HEARING OFFICER LANGHOFF: Okay. Thank you very much. For the record, he has made six more piles of coal, represented with initials on 2A. Thank you very much.

THE WITNESS: You are welcome.

(The witness left the stand.)

HEARING OFFICER LANGHOFF: All right. Call your next witness, please.

MR. BABST: Joe Ribbing.

(Whereupon the witness was sworn by the Notary Public.)

J O E R I B B I N G,

having been first duly sworn by the Notary Public, saith as follows:

DIRECT EXAMINATION

BY MR. BABST:

Q. Would you please state your name.

A. Joe Ribbing, R-I-B-B-I-N-G.

Q. What is your current address, Mr. Ribbing?

A. It is 3328 Colgate, in Granite City.

Q. And with whom are you employed?

A. With National Steel, Granite City Division.

Q. What is your title?

A. It is controller of the Division.

Q. How long have you been with the Granite City Division?

A. For 31 years.

Q. And could you basically, in very short order, lay out your employment history since you have been with Granite City?

A. I started I guess about 1969, and I worked in different organizations of the financial department; payroll, financial analysis, financial planning. Most of the time I was always in the financial department. And before I was controller I was manager of financial analysis and planning.

Q. What is your educational background?

A. I have a Bachelor of Science degree in professional accounting from Southern Illinois University in Edwardsville.

Q. And in your current position what are your job responsibilities?

A. As Division controller I am responsible for the financial administration of the Division, and that includes basically financial planning, financial analysis, financial reporting, payroll, basically anything to do with the financial assets of the Division.

Q. As part of your job, do you monitor Granite City's economic impact in the region?

A. Yes, we do.

Q. And do you maintain records of Division performance trends?

A. Yes, we do.

Q. Have you reviewed those types of records prior to testifying here today?

A. Yes.

Q. Approximately how many employees are there at the Granite City Division?

A. We have currently about 2,900 employees on the payroll at this Division.

Q. Do you know approximately how many of those people live in the tri-city area, Venice, Madison, Granite City?

A. Roughly about 30 percent, about 1,000 people.
Q. Do you know approximately how many of the employees here are Illinois residents?
A. Historically it is about 90 percent.
Q. Do you know how many Granite City retirees are currently drawing a pension?
A. It is a little over 3,000. The last I checked it was 3,100, somewhere in that area.
Q. And what is the monthly employment cost at Granite City?
A. It is over 20 million dollars a month.
Q. Are there many industries, services, or agencies here in the tri-city area that do more than $10,000.00 worth of business a year with Granite City?
A. Yes.
Q. Are there companies or agencies that do more than $100,000.00 worth of business with Granite City?
A. Yes.
Q. Can you give examples of some of the businesses or the types of businesses that benefit from the Division being located in Granite City?
A. Yes. There are a lot of processors in the area. Heidtman Steel, Granite City Pickling, Affiliated Metals, Precoat Metals, Farrell Alloys, those types of businesses. We also have suppliers like Air Products and Stein, Incorporated, and other

businesses like Koetting Ford, and the different hardware stores, we do business with those guys. Granite City Glass. A lot of local businesses.

Q. Does the Granite City Division run a United Way program?

A. Yes, we do.

Q. For the year 2000 do you know what amount of money was contributed to the United Way by Granite City employees?

A. The year 2000 was $322,000.00 by the employees.

Q. Did the Granite City Division donate any money in addition to those monies provided by the employees?

A. Yes, $100,000.00.

Q. Has the Granite City Division supported any other non-profit or charitable organizations in the tri-city area?

A. Yes, the Division contributes to a lot of organizations throughout the community.

Q. Do you know how much the Granite City Division paid in property taxes in the year 2000?

A. Over four million dollars.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 16 as of this date.)

Q. (By Mr. Babst) I am going to show you what has been identified as Respondent's Exhibit Number 16, and ask if you can identify that document?

A. Yes. That is our property taxes that were paid in the

year 2000 and the distribution to the different taxing bodies within the township.

Q. The Township of Granite City?

A. Yes.

Q. Where did you get this information?

A. That was off of our year 2000 tax bill.

Q. Could you just identify the specific areas that are partially funded by Granite City Division taxes?

A. Yes. As we analyze our tax distribution we see that 53 percent of our tax dollars goes to the school district. About ten percent of the four million dollars goes to the county. Three percent goes to the township. Six percent goes to the Metro-East sanitary sewer district. The park district receives five percent of that money. The City of Granite City receives 16 percent. Southwestern Illinois Junior College receives about three percent. And the library receives about four percent.

Q. Thank you. Are you familiar with the current financial condition of National Steel Corporation?

A. Yes, I am.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 17 as of this date.)

Q. (By Mr. Babst) I show you what has been marked as Respondent's Exhibit Number 17, and ask if you can identify that

document?

A. It is a National Steel Corporation form 10-Q. It is a quarterly document that is filed with the Security Exchange Commission.

Q. Do you know, and could you tell me if you do, the net income or the net loss that has been realized by National Steel Corporation in 1998, 1999 and 2000?

A. Our net income in 1998 was 89 million dollars. We made 89 million dollars that year. In 1999, the corporation lost, I believe, it was 29 million dollars. And in the year 2000 we lost 130 million dollars.

Q. Based upon Respondent's Exhibit Number 17, or based upon your own knowledge, how much money did National Steel make or lose in the first quarter of the year 2001?

A. The first quarter we lost 109 million dollars in the quarter.

Q. Does the company attempt to project future earnings or losses?

A. Yes, we do.

Q. Based upon the recent performance in the steel industry, do you anticipate a quick turnaround from the standpoint of profitability?

A. No.

MR. MUSKOPF: I am going to object. Excuse me. I am going to object on the basis that it calls for an opinion that has not

been disclosed, and this witness has not been designated as an opinion witness.

HEARING OFFICER LANGHOFF: Okay. That is overruled.

Can you answer the question, Mr. Ribbing?

THE WITNESS: There will not be a quick turnaround in this thing. We can see that.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 23 as of this date.)

Q. (By Mr. Babst) Let me show you what has been identified as Respondent's Exhibit 23, and ask if you can identify that document?

A. That is a document of the stock prices for National Steel Corporation on four individual dates for the last four years.

Q. Would you tell me what those dates are and what the value of the stock was on that date?

A. On June 6th of 19 -- I am sorry. On July 6th of 1998, it was $11.94 a share. On June 21st, 1999, the share price was $7.69 a share. On June 21st of the year 2000, it was $3.88 a share. As of July 2nd of 2001, the share value was $1.85 a share.

Q. Where did you get these figures?

A. These are closing figures for the New York Stock Exchange on those dates.

Q. Between July 6th of 1998 and July 2nd of 2001, what is the loss in book value, based upon those stock prices?

A. This equates to about an 85 percent loss in book value. If you look at the math, it was about $11.94 in 1998, and it is only a $1.85 now. That is about a $10.00 a share drop, and we have 41 million shares. So that is over 412 million dollars loss in book value in four years time.

Q. Can National Steel Corporation survive if these losses continue at the current rate?

A. I would say it is very doubtful. We have never had three consecutive years of losses at National Steel's history.

Q. What has the company done to try to survive this period of time?

A. The corporation has tried to increase its prices. We have tried to improve our product mix. But the concentration, especially at the Divisions here, is to reduce our costs, to go on a very aggressive cost-cutting role.

Q. And in trying to cut costs what type of cost-cutting programs have you implemented?

A. We have basically sat down with all of our operating departments, not only here at this Division, but other Divisions,

to reduce costs, to reduce overtime, to reduce maintenance, to reduce any discretionary spending that we can.

Q. Have there been any manpower reductions?

A. Yes, there has.

Q. What have they been?

A. The most recent figures I have show that we have 148 hourly people that are no longer working here since the beginning of the year and 13 salaried people that are no longer working here.

Q. Is that at the Granite City Division alone?

A. That is just at this Division.

Q. Have the other business units of National Steel Corporation done the same thing?

A. Yes, yes.

Q. Has the company sought vendor participation in its cost cutting?

A. Yes, we have.

Q. Has the division shut down any of its facilities?

A. Yes, we have.

Q. What have you shut down?

A. At this Division we have shut down the number six galvanizing line. We have shut down the number one roll former, and we have shut down the number two roll former.

Q. And the reason for shutting those facilities down?

A. Basically the number six galvanizing line was the lack of orders, unable to compete in the marketplace with the product that it was making, and the same way with the roll formers. We

were unable to compete in the marketplace with the products.

Q. When was the number six galvanizing line built, do you remember? If you don't know, that is fine.

A. I would say probably the early 1960s.

Q. Okay. Has the company, other than the Granite City Division, shut down any of its other facilities?

A. Yes, it has.

Q. Could you tell us what those are?

A. Currently the number 48-inch galvanizing line at our Midwest Division has been shut down.

Q. Have any businesses or product lines been sold to third parties?

A. Yes, the roll formers at the Granite City Division have been sold.

Q. Do you know whether National Steel is currently trying to sell any of its other assets?

A. Yes, all of our noncore assets are basically on the market right now.

Q. Are you generally aware of foreign steel making capacity and imports?

A. Yes.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 19 as of this date.)

Q. (By Mr. Babst) I am going to show you what has been

identified as Respondent's Exhibit Number 19, and ask if you could identify that document?

A. Yes. That was a document prepared in our corporate headquarters. It basically identifies the U.S. imports of foreign steel from non North American Free Trade Association countries. It indicates that in the years of 1994 through 1997 the average imports were about 15 percent of the market, but in the year 2000 it is up to 17.4 percent of the U.S. market. It has a comment that basically there is excess raw steel making capacity out on the market that is more than two times as great as total annual U.S. consumption.

Q. What is the trend in steel shipments for National Steel Corporation?

A. Right now that shipment -- I am sorry -- that trend is down.

(Whereupon said document was duly marked for purposes of identification as Respondent Exhibit 21 as of this date.)

Q. (By Mr. Babst) I show you what has been marked as Respondent's Exhibit Number 21, and ask if you could expand upon that answer, based upon the graph that I have given you?

A. The information is that our quarterly shipments for the year 1999 through the first quarter of 2000, and we see an upward slope through the year of 1999, but a sharp decrease beginning approximately the second quarter of 2000, and staying in a

depressed state for the third, fourth, and first quarter of 2000 and 2001.

Q. What is the difference in steel shipments from National Steel over the last year?

A. On an annualized basis we try to be about a 6.5 million ton shipping, and we are closer to about 5.6 the way the market is running now.

(Whereupon a document was duly marked for purposes of identification as Respondent Exhibit 22 as of this date.)

Q. (By Mr. Babst) Let me show you another graph and ask if you can identify that? It is marked as Respondent's Exhibit Number 22.

A. This one is the average selling price trend for the same time period of 1999, 2000, and the first quarter of 2001. The average selling price is about $465.00 a ton for maybe the first seven quarters, and it has dropped to below $400.00 a ton in the first quarter of 2000. It is at $396.00 a ton.

Q. Mr. Ribbing, if you took the loss in steel shipments together with the loss in cost per ton, can you give me an

estimation of what National Steel has lost in revenues over the last year?

A. If you take a look at this and we -- if we would say an average shipment for the year is about six million tons and we have lost about $65.00 on each of those tons, that equates to not

quite 400 million dollars in lost revenue over a year's time.

Q. That is as a result of the substantial drop in selling price?

A. Yes.

Q. Do you know approximately when the last time National Steel sold its product for less than $400.00 a ton?

A. In the mid 1970s we were selling at under $400.00 a ton, so it has been over 25 years.

(Whereupon document was duly marked for purposes of identification as Respondent Exhibit 20 as of this date.)

Q. (By Mr. Babst) I show you another document that has been identified as Respondent's Exhibit Number 20, and ask if you could identify that document?

A. Yes, this is a document -- the source of it was the American Iron and Steel Exchange with some Washington law makers on May 14th of this year. It was prepared by the American Iron and Steel Institute, and it indicates that there were 18 steel companies that have filed for Chapter 11 bankruptcy since 1997.

Q. Would you look at that list of 18 companies and if you

could identify companies with facilities in the State of Illinois?

A. There is one, two, three, four, five.

Q. Five of the 18 have --

A. Five of the 18.

Q. -- facilities in Illinois? Do you know -- looking here I see LTV Steel is in bankruptcy. Do you know whether this is the first time they have been in bankruptcy?

A. No, it is not.

Q. Also looking at Wheeling-Pittsburgh Steel, which has filed for bankruptcy in December of 2000, do you know whether this is the first time that they have been in bankruptcy?

A. No, they both filed for bankruptcy in the mid 1980s.

Q. During your 31 years with the Granite City Division have you ever seen a worse economic picture for the domestic steel industry?

A. I have never seen it this bad.

MR. BABST: I have no further questions.

HEARING OFFICER LANGHOFF: Thank you. Mr. Muskopf?

MR. MUSKOPF: Yes. Thank you.

CROSS EXAMINATION

BY MR. MUSKOPF:

Q. Mr. Ribbing, how are you?

A. Just fine.

Q. Good. Who is the highest paid executive at National Steel?

A. I do not have access to everyone's salaries. There are -- the salaries for the executives are reported in, I believe, the 10-K report, which is filed with the SEC and I have not

looked at that. I would imagine it would be Mr. Tenoka (spelled phonetically) though.

Q. Okay. We have the 10-Q. It is not in there?

A. Right.

Q. It would be in a different form?

A. It would be in a different form.

Q. Do you have any idea what the top paid executives of National Steel get as compensation on an annual basis?

A. To be honest with you, I really -- it would be a guess. I would say it was in the $200,000.00 range, but I --

Q. $200,000.00?

A. Per year.

Q. Okay. What is the top paid person at the Granite City Division paid?

A. I do not have access to that.

Q. Take a guess at that one if you would not mind?

A. Hourly or salary people?

Q. Just whoever earns the most as a total compensation

package --

A. I --

Q. -- on an annual basis?

A. It would be strictly a guess. Maybe $160,000.00, but that is strictly a guess.

Q. Is this a publicly-traded company?

A. Yes, it is.

Q. Who are -- are any of your employees -- how many average workers do you have that are shareholders?

A. I couldn't tell you that.

Q. You know, production employees?

A. I would have -- I would not have access to that.

Q. Do you know what the unemployment rate is in Madison County right now?

A. No, I don't.

Q. Do you have any idea?

A. (Shook head from side to side.)

Q. So you really couldn't say whether it is a good economy in Madison County or not?

A. No, I couldn't.

Q. So let's say National Steel shuts its doors, you would not be able to say whether these people employed by National Steel, let's say hourly workers basically, would have difficulty

finding other jobs or not?

A. I would say they would have difficulty finding jobs, because I think the work force is probably on -- is a little bit older work force that we have here. And that a lot of these people are probably entrenched in the types of jobs that they have been handling, and they have been very specific, whether it be welders or pipefitters. It is not just a lot of craftsmen

that we have. We have like laborers and people that their specific jobs may be crane operators, and you are not going to see that kind of heavy machinery in different places in Madison County. So maybe it may not be as easy as what people think to find jobs for these people.

Q. Do you know how much money your company spends on an annual basis on the fugitive dust program at the coal piles?

A. No, I don't.

Q. Would you be able to put those figures together?

A. We really don't keep costs in that category, as far as fugitive dust emission controls. I mean --

Q. What is the next big category that would -- that fugitive dust emission controls would be a subcategory of that you do keep figures on?

A. It would probably either be tools and supplies or repair and maintenance type categories for different areas of the plant.

Q. Okay. Can I turn your attention to your 10-Q of this

year?

A. Okay.

Q. Thanks. To page 22.

HEARING OFFICER LANGHOFF: What is the -- is it Respondent's 17.

THE WITNESS: Yes, Exhibit 17.

HEARING OFFICER LANGHOFF: Thank you.

THE WITNESS: I am sorry. What page?

Q. (By Mr. Muskopf) Page 22.

A. This is missing.

Q. I think I have two copies. I have another one in here. This is also short. Okay. We can share. Let me hand you -- it is unmarked, but it purports to be the 10-Q that you discussed with Mr. Babst earlier.

A. Okay.

Q. Is that what it looks like to you? Does it appear to be a copy of the first quarter 10-Q of your company?

A. I would agree with you.

Q. Okay.

A. Oh, no, that is -- that is the year 2000 10-K.

Q. I am sorry. Oh, so actually the highest paid executive's compensation would be in that form, would it not? Could I ask you to find that for me? I wonder how much money

those people make?

MS. CHRISTMAN: That is Respondent's Exhibit Number 18, if you want to reference it in your binder, Mr. Hearing Officer.

HEARING OFFICER LANGHOFF: Okay. Thank you.

Can you direct Mr. Ribbing to a page, Mr. Muskopf?

MR. MUSKOPF: I can't. I was simply asking him since he is probably the most familiar person.

HEARING OFFICER LANGHOFF: Okay. Thank you.

THE WITNESS: According to the table of contents on page two it talks about executive compensation, item eleven, page 56 on part three, item eleven, executive compensation. And to be quite honest with you. The information required in this item is incorporated by reference from sections -- I think the last sentence says with the exception of the information specifically incorporated by reference, the company's proxy statement is not to be deemed filed as part of this report for purposes of this item. I am sorry. I thought executive compensations were filed under 10-K.

Q. (By Mr. Muskopf) That's all right. So we can't tell from this document is what you are telling us?

A. No.

Q. Okay. Well, let's go to page 22.

A. Okay.

Q. I am sorry. Was it the 1999 10-K?

A. Yes.

MR. BABST: This is the 2000 10-K.

THE WITNESS: The 2000 10-K.

Q. (By Mr. Muskopf) Okay. Mr. Babst was asking you about the losses over the last two years, was he not?

A. Yes.

Q. And interestingly, if we go back three years, we see a fairly substantial profit, do we not, in 1998?

A. I believe that was a good year, yes.

Q. What was the profit in 1998?

A. Well, in 1998 was 89 million dollars.

Q. And 1997 was even better than that, wasn't it?

A. Yes. 1998 is what we had talked about. 1997 was 203 million.

Q. Oh, that's right. We left off right before the good year, the real good year, 203 million dollars profit in 1997, right? And then in 1996, 43 million dollars?

A. Yes.

Q. Okay. So if you add up the losses and the profits over the last five years in the row that we are talking about, over the last five years there is still a profit of, let's see, you are on this line, right?

A. 241.

Q. 241 million dollars? Does that look right to you?
A. About right.
Q. Where did all that 241 million dollars go in profit?
A. I would have to say the majority of it probably went back into the business for capital expenditures.
Q. Okay. Would another capital expenditure right now at this point in time or in the next six months of 4.8 million dollars force your company or your Division to close its doors?
A. I could not answer that. It would severely hurt us.

Q. A 4.8 million dollar capital expenditure?
A. Yes. Any type of cash outlay right now would severely hurt us.
Q. The steel industry is rather cyclical, isn't it?
A. Yes, it is.
Q. Are you aware of any initiative by our federal government to mitigate the affects of the dumping of overseas steel?
A. Yes.
Q. Is there presently a bill pending that you are aware of in either the House or the Senate?
A. I believe that may be House Bill 808 or 809.
Q. If that passes do you think that will be a help for your industry?
A. I don't know the details of that House Bill. I have

heard some generalities about it, but I don't know the specifics of it. But it is not Section 201 that is being bantered about at this point in time. There are two different things out there.

Q. But in general you are aware that the federal government is attempting to address the problem that the steel industry is suffering right now?

A. Yes, yes.

Q. Do you have any idea -- you have been there 31 years right?

A. Uh-huh, yes.

Q. Well, let me ask you a different question first. How much money does your company pay out for claims or compensation for death or serious injury?

A. I don't have that total for any given year.

Q. Would it be done through your workers' compensation carrier?

A. Yes, yes.

Q. Do you know what you pay in premiums for workers' compensation?

A. I don't have that number with me. I don't know that.

Q. In your 31 years, how many fatalities do you recall at Granite City Steel, approximately?

A. I would say that there has been over ten.

Q. Over ten in 31 years?
A. Yes.
Q. In fact, there has been four in the past five years, hasn't there?
A. Yes.
Q. You said earlier that you did an economic analysis of the benefits to the local community of Granite City Steel. I was wondering if you -- no? Am I getting that wrong?
A. No, go on.
Q. You made sort of a face and so --

A. I am just trying to --
Q. Okay. I will slow down a little bit. Were you giving some testimony earlier on direct examination, when Mr. Babst was asking you the questions, about a study that you had performed or figures that you have kept track of with regard to the economic benefit derived from the local community from Granite City Steel?
A. I am trying to think. Is that the taxes?
MR. BABST: The Taxes, United Way.
THE WITNESS: Okay. Yes, yes.
Q. (By Mr. Muskopf) Have you ever looked at what the economic burden is to the family of one of the workers at Granite City Steel when that worker is killed on the job?
A. No, we have not.
Q. Have you ever done any economic study or seen any --

looked at the numbers on what the economic impact is when someone loses a leg or an arm or --

MR. BABST: I am going to object just on the basis of relevance. I have no idea what this has to do with this case.

HEARING OFFICER LANGHOFF: Mr. Muskopf?

MR. MUSKOPF: Well, the relevance is, again, it is the mirror of -- Granite City Steel is touting itself in this case as being a wonderful benefactor of this local economy, and the social and economic benefits that it provides. But there is a flip side to that and there are social and economic costs to

operating a steel mill, too. I think if they are going to get to say what a great positive affect they have on the local economy, and the social effect, then we should be able to present evidence that that benefit is offset by the costs that are associated with it.

HEARING OFFICER LANGHOFF: Okay. I am going to sustain Mr. Babst's objection.

MR. MUSKOPF: Okay. No further questions. Thank you.

HEARING OFFICER LANGHOFF: Thank you. Mr. Babst?

MR. BABST: No further questions.

HEARING OFFICER LANGHOFF: Okay. Thank you, Mr. Ribbing.

THE WITNESS: Okay.

(The witness left the stand.)

HEARING OFFICER LANGHOFF: Do you have anyone else?

MR. BABST: No sir.

HEARING OFFICER LANGHOFF: Okay. We are off the record.

(Discussion off the record.)

HEARING OFFICER LANGHOFF: Okay. We have just had a brief off-the-record discussion regarding the filing of post hearing briefs. The parties have agreed to a briefing schedule. Before we get to any closing arguments, I will go ahead and read that schedule into the record.

The transcript of the proceeding will be available from the court reporter by July 23rd. I will establish a short comment

period of 14 days. The parties know to talk to the court reporter following the hearing regarding the availability of the transcript.

The complainant's brief will be due in 30 days or by August 10th. The mailbox rule will not apply, so you will need to have it filed by that date.

The Respondent's brief will be due an additional 30 days later, or by September 10th. And, again, the mailbox rule will not apply, so you will have to have it filed by that date.

The transcript is usually put on the Board's web site within a few days of its availability. I would just like to briefly note that our web site address is www.ipcb.state.il.us.

All post hearing comments must be filed in accordance with

Section 101.628 of the Board's procedural rules. Public comments, as I have said, must be filed by July 25th. The mailbox rule set forth at 35 Ill. Admin. Code 101.102(d) and 101.144(c) will apply to any post hearing public comments.

Okay. Anything further before we get to the closing arguments?

MR. MUSKOPF: No.

MR. BABST: No.

HEARING OFFICER LANGHOFF: Okay. Thank you. Mr. Muskopf, any kind of closing arguments, or are you going to reserve it for the filing of the brief?

MR. MUSKOPF: The brief will be sufficient. I don't need to make a closing argument now.

HEARING OFFICER LANGHOFF: Thank you. Mr. Babst, any closing argument?

MR. BABST: No, sir.

HEARING OFFICER LANGHOFF: Okay. Thank you. At this time I do want to ask again are there any members of the public present that want to make statements on the record?

For the record, I have seen none for either of the two days of testimony in this hearing.

Seeing none, I am required to make a statement as to the credibility of witnesses testifying during this hearing. This

statement is to be based upon my legal judgment and experience and, accordingly, I state that I found all of the witnesses testifying to be credible. Credibility should not be an issue for the Board to consider in rendering a decision in this case.

Now, briefly, I want to get to the admission of all of the exhibits. Mr. Muskopf, do you have -- do you move at this time to --

MR. MUSKOPF: Yes, I move for the admission of all of the exhibits that I have identified thus far in this hearing, which would be C1 through C44.

HEARING OFFICER LANGHOFF: Yes. Any objections?

MR. BABST: No.

HEARING OFFICER LANGHOFF: Okay. For the record, I will not be admitting C40 and C41. I made that ruling earlier.

MR. BABST: Okay.

HEARING OFFICER LANGHOFF: But I will take it with me back to the Board's office, Mr. Muskopf, in case you want to make some sort of motion to the Board.

MR. MUSKOPF: Right.

HEARING OFFICER LANGHOFF: C1 through C44, with the exceptions of C40 and C41 are admitted into the record.

(Whereupon said documents were duly admitted into evidence as Complainant's Exhibits C1 through C44, with the exception of C40 and C41, as of this date.)

HEARING OFFICER LANGHOFF: All right. Mr. Babst or Ms. Christman?

MS. CHRISTMAN: We would like to admit all of the exhibits that were provided in the binder. They are Respondent's Exhibits 1 through 36, including 2A and 13A.

HEARING OFFICER LANGHOFF: I don't see 34 or 35.

MS. CHRISTMAN: I think there was a numbering discrepancy. There is no 34 or 35.

HEARING OFFICER LANGHOFF: Okay.

MS. CHRISTMAN: So it is 1 through 33 and 36.

HEARING OFFICER LANGHOFF: Okay. Thank you. Mr. Muskopf?

MR. MUSKOPF: I know I don't have any objection to 1

through 31, but that's all I have on my list. So I am unclear as to what 32 and above are.

HEARING OFFICER LANGHOFF: Exhibit 32 is the Federal Interagency Committee on Noise graph frequency responses for sound level weighting characteristics, used during Mr. Zak's testimony.

MR. MUSKOPF: Right.

HEARING OFFICER LANGHOFF: Exhibit 33 is the 35 Ill. Admin. Code 901.102.

MR. MUSKOPF: Okay.

HEARING OFFICER LANGHOFF: And then 36 is the amount of

coal -- the volume of coal stockpiles for the Elk Run coal, I believe, only.

MR. MUSKOPF: Okay. So these are the only three I don't have. I just object to -- I don't have any objection to 33, but to 32 and 36 I do on the basis that they were not provided in discovery to me.

MS. CHRISTMAN: Mr. Hearing Officer, the raw data for Exhibit Number 36 was at least partially provided as a response to -- Attachment C to Respondent's First Responses to interrogatories, so maybe not in graphical form, but the raw data that was used for this, that was provided months ago to Mr. Muskopf.

MR. MUSKOPF: Well --

MS. CHRISTMAN: Exhibit 32 is -- I am sorry.

MR. MUSKOPF: I am sorry. Go ahead.

MS. CHRISTMAN: Exhibit 32 is basically a public document, publically available. It is also the document that the complainants' expert agreed is widely used and that a form of, a tabular form, he also relied on.

HEARING OFFICER LANGHOFF: And no problems with 33?

MS. CHRISTMAN: Exhibit 33 I don't think was objected to.

MR. MUSKOPF: No, I didn't object to that.

HEARING OFFICER LANGHOFF: Anything further, Mr. Muskopf?

MR. MUSKOPF: No.

HEARING OFFICER LANGHOFF: Okay. I am going to admit all of the exhibits, Respondent's Exhibit 1 through 31, 32, 33 and 36, Exhibits 32 and 36 over the objections of the complainants. So I have admitted those.

(Whereupon said documents were duly admitted into evidence as Respondent Exhibits 1 through 33 and 36 as of this date.)

HEARING OFFICER LANGHOFF: Is there anything further from either of the parties before we conclude the proceedings? Is there anything I have forgotten?

MR. MUSKOPF: There is nothing that I am aware of.

HEARING OFFICER LANGHOFF: Okay. At this time I would like to conclude the proceedings. It is Wednesday, July 11th, 2001,

at 6:02 p.m. We stand adjourned.

I thank you all for your participation, and everyone have a good day and a good flight.

MS. CHRISTMAN: Thank you.

MR. MUSKOPF: Thank you.

MR. BABST: Thank you.

(The hearing concluded at approximately 6:02 p.m. The hearing exhibits were retained by Hearing Officer Langhoff.)

STATE OF ILLINOIS)
) SS
COUNTY OF MONTGOMERY)

C E R T I F I C A T E

I, DARLENE M. NIEMEYER, a Notary Public in and for the County of Montgomery, State of Illinois, DO HEREBY CERTIFY that the foregoing 317 pages comprise a true, complete and correct transcript of the proceedings held on the 11th of July A.D., 2001, at the City Hall Building, the Mayor's Conference Room, Granite City, Illinois, in the case of James A. Glasgow, Vickie

L. Glasgow, Bill Hoppe and Pat Hoppe v. Granite City Steel, in proceedings held before Hearing Officer Steven C. Langhoff, and recorded in machine shorthand by me.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my Notarial Seal this 26th day of July A.D., 2001.

Notary Public and
Certified Shorthand Reporter and
Registered Professional Reporter

CSR License No. 084-003677
My Commission Expires: 03-02-2003