STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

IN THE MATTER OF:	)	BEFORE THE BOARD OF
	)	WATER QUALITY, OIL AND GAS
TENNESSEE CLEAN WATER NETWORK AND SOUTHERN ALLIANCE FOR CLEAN ENERGY, Petitioners,	)	CASE NO. WPC10-0116
	)	DOCKET NO. 04.30-110315A
v.	)	
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION, Respondent,	)	
and	)	
TENNESSEE VALLEY AUTHORITY, Intervenor.	)	

TRANSCRIPT OF PROCEEDINGS
VOLUME I of III

October 15, 2013

BEFORE: The Honorable Kim Summers, Administrative Judge, and a Board of (7) Members

---

WILMA O. HUTCHISON
Licensed Court Reporter
400 Rivercrest Court
Nashville, TN 37214
(615)889-6288

APPEARANCES:

For the Petitioner: (TN Clean Water Network)	Ms. Stephanie D. Matheny Attorney at Law 625 Market Street Eighth Floor Knoxville, TN 37902
For the Petitioner: (Southern Alliance for Clean Energy)	Ms. Mary Whittle Staff Attorney Earthjustice 1617 John F. Kennedy Blvd. Suite 1675 Philadelphia, PA 19103
	- and -
	Ms. Bridget M. Lee Associate Attorney Earthjustice 156 William Street, Ste. 800 New York, NY 10038
For the Respondent:	Mr. Patrick Parker Mr. Austin Payne Asst. General Counsels TN Dept. of Environment & Conservation Wm. R. Snodgrass TN Tower Second Floor 312 Rosa L. Parks Avenue Nashville, TN 37243
For the Intervenor:	Mr. Michael K. Stagg Mr. Ed Callaway Attorneys at Law Waller, Lansden, Dortch & Davis 511 Union Street, Ste. 2700 Nashville, TN 37219
Also Present:	Mr. Christopher W. Hayes Ms. Lauran M. Sturm Attorneys at Law Waller, Lansden, Dortch & Davis
	Ms. Kelly Love Ms. Maria Gillen Attorneys at Law TVA

INDEX **PAGE**

VOLUME I

EXHIBITS **PAGE**

INDEX (Cont.) **PAGE**

VOLUME II

VOJIN JANJIC

JOHN HODGE KOON, Ph.D.

VOLUME III

The aforementioned cause came on to be heard on October 15, 2013, beginning at approximately 10:00 a.m., at the Tennessee Environment & Conservation Offices, Nashville Room, William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, Nashville, Tennessee, before board members as follow: Mr. James W. Cameron, III, Chairman, Mr. Jonathan Dales, Ms. Judy Manners, Mr. John McClurkan, Mr. C. Monty Halcomb, Mr. Chuck Head, and Mr. Doug Unger.

Also present were Dr. Sandra K. Dudley, Director of the Division of Water Resources, and Mr. Mark Jordan, Environmental Specialist, Division of Water Resources.

The proceedings were had, to wit:

PROCEEDINGS

THE CHAIRMAN: We are in session.

ADMINISTRATIVE JUDGE: Excellent. Good morning, everyone. My name is Kim Summers. I am the administrative judge assigned by the Tennessee Secretary of State to preside over this matter.

We have convened here in Nashville on October 15, 2013, for a hearing before the Board of Water Quality, Oil and Gas, Docket No. 04.30-110315A, which involves an appeal of a permit filed by Tennessee Clean Water Network and Southern Alliance for Clean Energy. The permit was granted to the Tennessee Valley Authority, which has joined the appeal as an intervenor.

As the administrative judge in this matter, I will not participate in the decision on the merits of the case. The members of the board that are present will make that decision. I will make all of the rulings on evidence, law, and procedure under the authority granted to me by the Tennessee Administrative Procedures Act.

For the record, do we have any preliminary matters to be addressed before introduction of the Board?

MS. MATHENY: Yes, Your Honor.

MR. PARKER: Your Honor, as we have previously talked to you about, we're going to be dealing with

many jurisdictional permit issues.

ADMINISTRATIVE JUDGE: Yes.

MR. PARKER: The parties have a stipulation they'd like to give you, and then you can make whatever findings you think --

ADMINISTRATIVE JUDGE: Okay. Pursuant to the joint stipulations to get on the record, the parties jointly agree that the petitioners have met the requirements of 69-3-105 in order to have standing to file this appeal.

If I could just -- I mean, that's my read. Based upon your joint stipulations and the law, I find that the parties or that the petitioners do have standing. And I just want to understand from the parties that you have agreed that that is also your understanding.

MS. WHITTLE: Yes, Your Honor.

MR. PARKER: Yes, Your Honor.

ADMINISTRATIVE JUDGE: Okay, very good. If I could get the board members to identify themselves for the record, please.

MR. DALES: Jonathan Dales.

MS. MANNERS: Judy Manners, Tennessee Department of Health representative.

THE CHAIRMAN: Jim Cameron.

MR. McCLURKAN: John McClurkan.

MR. HALCOMB: Monty Halcomb.

MR. HEAD: Chuck Head with the Department of Environment and Conservation.

MR. UNGER: And Doug Unger.

ADMINISTRATIVE JUDGE: And just for the record, Mr. Chairman, we do have a quorum?

THE CHAIRMAN: Yes, ma'am.

ADMINISTRATIVE JUDGE: Very good. This may be a lengthy process. But for the benefit of our court reporter, if the attorneys who will be participating in the hearing would identify themselves and their client for the record, please, starting with the petitioners.

MS. MATHENY: Your Honor, I'm Stephanie --

ADMINISTRATIVE JUDGE: I think we're going to need to make sure we're --

MS. MATHENY: I'm Stephanie Matheny. I'm one of the attorneys for the petitioners in this case for the Tennessee Clean Water Network and the Southern Alliance for Clean Energy.

ADMINISTRATIVE JUDGE: And if you want to identify your co-counsel, that might be easier, rather than --

MS. MATHENY: And with me here today are Bridget Lee and Mary Whittle with Earthjustice.

ADMINISTRATIVE JUDGE: Thank you.

MR. PARKER: Your Honor, my name is Patrick Parker. I represent the Department of Environment and

Conservation, and co-counsel's name is Austin Payne.

MR. STAGG: Your Honor and Board, my name is Michael Stagg. I'm here today on behalf of the Tennessee Valley Authority. With me are my co-counsel, Ed Callaway, Lauran Sturm, Chris Hayes, and also two attorneys from TVA, Kelly Love and Maria Gillen.

ADMINISTRATIVE JUDGE: Thank you all very much. Unless there is an objection from the parties or the Board, I will dispense with a recitation of the technical record in this matter, which includes 97 documents primarily involving preliminary procedural matters.

Any documentary evidence that is included in the technical record that should be considered by the Board in making its decision will be made by the parties during the course of this hearing. The pleadings report will be available for review by the parties and board members upon request. Any objection?

Board members are reminded that the law requires you to disclose on the record any outside knowledge of this case or any communications, whether written, verbal, or otherwise, from any parties concerning this case. Assuming that you already had one board member recuse himself, any other board members with any personal knowledge that needs to be disclosed? Very good.

Members of the board are also reminded

that during the time this hearing is being conducted, no discussion concerning this case should take place between board members or with witnesses, attorneys, or other persons unless all parties are present.

During the hearing this Board sits as a jury and must only consider evidence introduced at the hearing in reaching its decision. The Sunshine Law requires all board discussions and deliberations to be in public before all parties. Failure to observe the Sunshine Law may result in the Board's action being reversed or remanded if appealed to Chancery Court.

Do the parties have stipulations of facts to present to the Board?

MR. PARKER: We do, Your Honor, and we have some materials to pass out to the Board. So this might be a good time to do that, and that way we don't -- the stipulations are in the binders, if we could just have a few minutes to get that done.

ADMINISTRATIVE JUDGE: Okay. Let's do that.

(Pause in proceedings.)

(BY THE ADMINISTRATIVE JUDGE) The stipulations, which appear to be under the first tab, are facts that have been agreed to by the parties, and we'll consider them as if they had been proven to be true during the

hearing.

Are all of the witnesses that will be testifying today in the room?

MR. PARKER: I believe so, Your Honor.

ADMINISTRATIVE JUDGE: Okay. Are we invoking the rule?

MR. PARKER: No. Parties waive.

ADMINISTRATIVE JUDGE: Okay. We will swear the witnesses as they testify. Just some procedural matters to take up before we start, if the board members will just let us know whenever they need a break. I understand that our opening statements today may run close to two hours. That may be a good time, after opening statements, to take a lunch break. Is there a preference on how long the lunch break would last?

THE CHAIRMAN: We usually take about an hour.

ADMINISTRATIVE JUDGE: Okay. And a preference on how long we go today?

THE CHAIRMAN: Why don't we talk about it at lunch and see --

ADMINISTRATIVE JUDGE: Okay. And then we'll just kind of --

THE CHAIRMAN: We generally go until about 5:00. We try to accommodate people who have to catch buses or

rides or whatever.

ADMINISTRATIVE JUDGE: Okay, very good. Anything else that we need to take up before we commence with opening statements? No? All right. Ms. Matheny? And I just want to remind counsel to speak into that microphone. And I think if you don't see that red light on, it's not picking up, and then the court reporter might have a difficult time hearing.

MS. MATHENY: Your Honor, we also have exhibit lists to share with the parties.

ADMINISTRATIVE JUDGE: Okay.

MS. MATHENY: Members of the Board, Judge Summers, thank you for joining us here today and for the next several days to hear this appeal. I've already introduced myself and my co-counsel. I'd also like to introduce Dr. John Koon, who'll be testifying for petitioners later. We expect Angela Garrone of the Southern Alliance for Clean Energy to join us at later stages of the hearing.

This hearing concerns the national pollutant discharge elimination system, or NPDES, permit for the TVA's Bull Run Fossil Plant in Clinton, Tennessee, which was issued by TDEC in September of 2012.

Bull Run is a 950-megawatt power plant that burns coal to create electricity. In the process, this plant produces vast quantities of coal ash, much of which is

sluiced to its unlined settling ponds. The plant also has an air scrubber, which discharges high test wastewater to the ponds. These ponds, which are shown here in an aerial view on the left, discharge to the Melton Hill Reservoir of the Clinch River through Outfall 001.

The Melton Hill Reservoir is a beautiful recreational destination frequented by people who boat, fish, and otherwise enjoy our state waters, as you can see in this picture taken over the weekend at Melton Hill Park, which is just a few miles downstream from the plant.

The Melton Hill Reservoir is also a source of drinking water for people served by the West Knox Utility District, which, as you can see in this picture, has its intake immediately downstream from Outfall 001.

Petitioners have asked TDEC to impose numeric technology-based effluent limits on toxic pollutants such as mercury, selenium, and arsenic in Bull Run's coal ash discharges. But, instead, TDEC is waiting on guidance from the federal government, guidance which has not been forthcoming for 30 years and which may, in fact, never come.

In the meantime, TVA, the agency responsible for the release of 5.4 million cubic yards of coal ash from Kingston's settling ponds to the Clinch River release is left to police itself and to discharge toxics without limits from Bull Run's settling ponds to the Clinch River.

EPA has made it abundantly clear that it expects delegated state water agencies to set limits on coal ash that reflect the best available technology economically achievable, or BAT, and this is an acronym you're going to hear a lot in the next few days, best available technology economically achievable, BAT, in the absence of applicable federal guidance.

The Franklin Circuit Court of our neighbor to the north, Kentucky, ruled just last month in a case nearly identical to this one that its state water agency cannot just sit and wait for EPA to act and, instead, must comply with the obligations to fully protect its waters without further delay.

Instead of following the requirements of the Tennessee Water Quality Control Act and unambiguous EPA guidance, TDEC issued the permit for Bull Run without any BAT-based effluent limits on toxic pollutants at Outfall 001.

Instead, the permit sets limits only on conventional pollutants, including total suspended solids, oil and grease, and pH. TDEC derived these limits from EPA's 1982 effluent limitation guidelines.

These guidelines set limits based on the performance of settling ponds, the same rudimentary technology used to remove dirt from construction runoff, technology that, as EPA, TDEC, and petitioners agree, is not effective at removing dissolved metals in coal ash discharges.

As the evidence will show, a great deal has changed in the 31 years since EPA issued these rules, including the wide-scale installation of air scrubbers, like the one at Bull Run, that remove pollutants from air emissions, but move them to wastewater discharges, and the development of new, more sophisticated wastewater treatment technologies that are far more effective than settling ponds at removing toxics, particularly dissolved metals.

In the next few minutes I will address the background of this permit, including Bull Run's coal combustion discharges, EPA's 1982 guidelines, EPA's recent rulemaking, and of course I'll address this permit. And then I will turn to the key issues this Board will be asked to decide at the end of the hearing.

First, TDEC has a legal duty to set case-by-case best professional judgment limits in this permit pursuant to the Tennessee Water Quality Control Act.

Next, I'll turn to TDEC's failure to conduct a BPJ analysis or set BAT limits.

Then I'll move to feasibility of setting numeric BAT limits based on more advanced technologies than settling ponds. I'll address the permit's flawed best management practices provision. And, finally, I will briefly discuss the petitioners and their affected members.

Petitioners expect that you will hear

testimony describing the operation of TVA's Bull Run Fossil Plant and the various wastewater streams that are discharged from Outfall 001. While these are complicated processes, and there are many wastewater streams, there are really just a few key points that are essential to understanding this case.

First of all, TVA began operating its flue gas desulfurization, or FGD, scrubber in December of 2008, which is photographed here. The scrubber is very effective at removing pollutants from the air, and all of us who live downwind from Bull Run are very grateful to TVA for that. But now these pollutants are discharged in wastewater instead.

As you can see in these slides, the scrubber wastewater is, far and away, the most toxic wastewater stream remaining at Bull Run today. This slide depicts the results of TVA's 2010 internal sampling of wastewater streams, and specifically this slide addresses arsenic. The tall blue line in the middle is the arsenic found in the scrubber wastewater. And as you can see, it's a much higher concentration than in the other wastewater streams.

Similarly, for mercury the tall line is for the scrubber wastewater. And, in fact, all of the other wastewater streams were non-detect for mercury. And similarly for selenium, the tall line there is scrubber wastewater.

Now, this is just a sampling of the metals

found in Bull Run's scrubber wastewater, but they are the key pollutants the petitioners are most concerned about.

In addition to scrubber wastewater, TVA still discharges bottom ash wastewater through Outfall 001. This is a relatively high volume wastewater stream but has much lower concentrations of pollutants than the scrubber wastewater. Other wastewater streams at issue here include coal pile runoff, metal cleaning wastes, and a variety of minor wastewater streams.

These wastewater streams mix together in Bull Run's settling ponds, which are photographed here. Together with the rain and snow that fall in these vast ponds, these miscellaneous wastewater streams serve to substantially dilute the scrubber wastewater as measured in Outfall 001, which is, in fact, the only location where TDEC has ever required TVA to sample its coal ash discharges.

EPA's 1982 guidelines set limits on total suspended solids, oil and grease, and pH, but did not set BAT limits for low volume wastes, scrubber wastewaters, bottom ash, or coal pile runoff, except to retain a preexisting prohibition on a discharge of PCBs.

When it issued these ELGs, EPA explained regarding low volume wastewaters that "toxic pollutants are excluded from national regulation, because they are present in amounts too small to be effectively reduced by technologies

known to the administrator."

This language was recently construed in the Kentucky decision I mentioned earlier. In that case, which addressed the same ELG at issue here, Judge Phillip concluded that "the dissolved metals at issue here are plainly not subject to the 1982 ELG. Instead, they were excluded from the ELG."

EPA has finally begun the process of establishing the limits failed to set more than 30 years ago. Ironically, these renewed efforts were sparked by concerns thrown into the national spotlight by TVA's Kingston spill and also its smaller Widows Creek spill. These spills coincided with a new focus on regulating toxic air emissions, which led to installation of air scrubbers at many coal plants, including Bull Run.

Out of concern that an already toxic stew of coal ash wastewater was largely managed through unlined, hazardous coal ash ponds, like the very same ponds that are at issue here, and were receiving evermore toxic wastewater discharger from these air scrubbers, EPA undertook a study of more advanced treatment options which were published in 2009.

While it did not select a technology as BAT at that time, EPA clearly indicated that settling ponds were not going to be considered BAT and that more advanced treatment like chemical precipitation, biological treatment,

or zero liquid discharge would be required.

Pursuant to a consent decree, EPA then undertook to develop new effluent limitation guidelines to set BAT on a national level.

You will be shown the June 2010 memorandum from James Hanlon of EPA, which provides interim guidance for issuing NPDES permits for scrubber discharges and coal ash impoundments until the new regulations are finalized.

This memorandum, which was before TDEC when it issued this permit, made it abundantly clear that EPA's 1982 guidelines did not cover toxics in these wastewaters and that delegated states must apply longstanding rules to develop their own case-by-case BAT limits. And that is precisely what petitioners have asked TDEC to do here.

States like New York, Pennsylvania, and Indiana are doing this now, and it's time for Tennessee to get on board.

After several extensions, EPA finally published draft guidelines in the Federal Register this June. Right before the federal shutdown, EPA received a slew of comments from industry and environmentalists but obviously has not been working on these guidelines lately.

Under the terms of the consent decree, EPA is supposed to issue final guidelines next May. While obviously none of us can predict the future, given past

delays, the controversy surrounding this rulemaking, and the government shutdown, it is quite foreseeable that this deadline will come and go without a final rule.

Moreover, even once EPA issues new guidelines, there's a very high likelihood that they will be appealed and quite possibly stayed while that litigation plays out.

In the meantime, plants like Bull Run will continue to operate and discharge toxic coal ash wastewaters. In this situation it is up to TDEC to fulfill its responsibilities as the primary regulator of surface water in Tennessee to set BAT limits on toxics in the permit now.

As I stated earlier, TVA began operation of its new scrubber in December 2008. At the time TDEC allowed TVA to add this highly toxic wastewater stream simply by writing a letter, without modifying the permit.

In January 2010 TDEC issued a draft permit that included the scrubber wastewater. In April 2010 petitioner Tennessee Clean Water Network submitted detailed comments regarding the draft permit. These comments asked TDEC to develop numeric BAT limits on a BPJ basis at Outfall 001.

TDEC issued the final permit on September 30, 2010. In this permit TDEC provided a response to comments that included a section titled *Best Professional Analysis*,

which I'll address in a moment. The final permit added a best management practices provision and increased metals monitoring requirements. But, critically, the final permit did not impose BAT limits on the discharge of metals in coal combustion wastewaters.

This permit is set to expire next month on November 1st. However, because TVA timely applied to renew its permit, TDEC can administratively extend the permit for pretty much as long as it chooses.

Without direction from this Board for TDEC to reopen the permit and impose appropriate BAT limits, TDEC's actions, to date, leave every reason to believe it will continue to wait for EPA, a federal agency that is not even working at the moment, to come up with an answer for how to regulate the Tennessee Valley Authority's discharges to Tennessee waters.

Now I'm turning to the key legal question at issue in this case, the question you will have to answer at the conclusion of this hearing. Does the Tennessee Water Quality Control Act require TDEC to conduct a BPJ analysis and impose BAT limits on toxics in Bull Run's coal ash discharges, and the answer is quite clear. TDEC must do this, because EPA's 1982 guidelines do not cover these pollutants or wastewater streams.

The Tennessee Water Quality Control Act

requires TDEC to impose effluent limits to accomplish the purposes of the Act and to implement this Board's regulations.

In addition -- and this is the part that's highlighted on your slide -- TDEC must set the most stringent effluent limitations necessary to comply with other state or federal laws or regulations. This means that TDEC must comply with the Clean Water Act, applicable EPA regulations, and this Board's rules when it issues permits.

But let's start with Tennessee's regulations. And I'm not going to go through all of them, but you do have the smaller binder in front of you that has full copies of everything that's going to be cited over the next few days.

Rule 1200-04-05-.08 requires TDEC to set BAT limits as required by the Clean Water Act. So that's a requirement Tennessee has incorporated into its rule directly.

Rule 1200-04-05-.09 directs TDEC to use best professional judgment to develop effluent limitations in the absence of applicable federal guidelines.

And, Members of the Board, there is no dispute on this next point. The Tennessee Water Quality Control Act, the Clean Water Act, and both the state and federal regulations clearly and unambiguously require TDEC to impose technology-based effluent limits in every NPDES permit as the minimum level of control, unless more restrictive water

quality based limits are required.

As shown in this slide, EPA regulations establish the only three ways to set these technology-based effluent limits.

TDEC knows that when there is a federal effluent guideline, it must apply that to set technology-based limits. That's the first option.

TDEC also knows that when there is no federal effluent guideline, it must use BPJ to develop case-by-case technology-based effluent limits. That's the second prompt up there.

But in this case, federal guidelines apply to some pollutants and some waste streams but not to others. In this situation, EPA makes it clear that permit writers must use best professional judgment to set technology-based limits on the pollutants and waste streams that are not covered, and that's in 40 CFR 125.3(c)(3), and I've highlighted the important language.

EPA establishes that where promulgated effluent limitation guidelines only apply to certain aspects of the discharger's operations or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis in order to carry out the provisions of the Act.

And a central provision of the Clean Water

Act, a founding principle, is the national goal of eliminating the discharge of all pollutants to our waters. I think we missed that 1985 deadline, too. This goal is why we have the National Pollutant Discharge Elimination System and the technology-forcing requirements that we will be discussing over the next few days.

TDEC's flawed BPJ analysis did not fulfill its legal obligations. As the evidence will show, TDEC did not conduct a BPJ analysis or set BAT limits. Instead, TDEC inserted something it called a BPJ analysis in the final permit, but this was little more than an effort to justify the continued use of Bull Run's unlined settling ponds.

Early in his review, the permit writer sent an email to an official at EPA stating, "I'm trying to address the comments and response for BPJ permit limits; in essence, a discussion as to why Tennessee will not and cannot set numeric metal limits in advance of EPA's revised ELGs."

As the evidence will show, TDEC's analysis was deeply flawed for two key reasons.

First, TDEC did not evaluate any treatment technologies other than settling ponds. As a result, it did not evaluate the relative effectiveness or affordability of more advanced treatment options.

Second, TDEC assumed there was not enough data for it to do a BPJ analysis, but it did not take any

significant effort to obtain this data. In fact, TDEC did not even require TVA to provide information about Bull Run's untreated scrubber wastewater. Not surprisingly, TDEC's conclusion in the final permit was that it was infeasible to set BAT limits, and so it did not do so.

However, as the evidence will show, it is feasible and, therefore, mandatory for TDEC to develop numeric BAT limits on toxics discharged from Outfall 001 at Bull Run.

Both Tennessee and EPA rules require that effluent limits be imposed in numeric form when it's feasible to do so.

Petitioners will present the testimony of Dr. John Koon, a wastewater treatment expert, who will show that other available technologies are far more effective than settling ponds to reduce metals and total dissolved solids in Bull Run's coal combustion wastewaters.

Dr. Koon will show you how he was able to derive numeric BAT-based limits by evaluating more advanced technologies than settling ponds. And I want to point out here that TVA has already decided to close the settling ponds at Bull Run. So it's really just a matter of time before TDEC -- sorry, before TVA is going to need to install new wastewater treatment.

Now, part of BAT is determining whether treatment technologies are economically achievable, and here

TVA does not take the position in this Bull Run NPDES permit appeal that TVA would be unable to pay the capital costs or operating and maintenance expenses for physical treatment, chemical precipitation, biological treatment, and vapor-compression evaporation/crystallization.

TDEC did not fulfill its legal obligation to impose BAT limits by adding an open-ended best management practices provision to the final permit.

Even if TDEC were allowed to impose a BMP requirement instead of a numeric limit in this case, which it is not, this permit's BMP provision is woefully deficient on several counts.

First, the BMP provision is based on continued operations of Bull Run's unlined ponds. These ponds are patently not BAT for coal ash wastewaters and, particularly, not for Bull Run's high test scrubber wastewater.

Second, the BMP provision does nothing to control or abate the discharge of pollutants. In fact, all of the parties agree that there is no pollutant concentration or discharge that would constitute a violation of this BMP provision. How can this be the right way for TDEC to protect Tennessee's rivers?

Finally, the parties have done our best to streamline this hearing in order to be respectful of your

time. We've worked together to submit joint exhibits, which are excerpted in the binders in front of you. We've provided stipulations establishing a number of important but uncontested facts. And to facilitate your review, we've also provided a separate binder with copies of all of the applicable statutes and regulations.

The parties have also agreed to rely upon affidavits of members of the Tennessee Clean Water Network and the Southern Alliance for Clean Energy instead of spending several hours of your time having them come here to testify in person.

As you heard, the threshold question of whether petitioners can appeal this permit has already been resolved. But I do want this Board to know that petitioners have members who live, work, and recreate in and near the Clinch River downstream from Bull Run. These organizations have many more members who care about water quality in the Clinch River and who want TDEC to ensure that TVA power plants meet the level of pollution control required by law.

In conclusion, I would refer this Board, once again, to the Kentucky decision from last month in which Judge Shepard opined, "The Court finds it implausible that in 1982 the EPA concluded that setting technology-based limits for these toxic pollutants was unnecessary and meant to totally suspend all efforts to decrease discharge of these

pollutants."

Addressing precisely the same issues that apply to Bull Run, Judge Shepard held that Kentucky is required to conduct a BPJ analysis before issuing the permit and that such analysis is not discretionary. Judge Shepard concluded, "The Court recognizes that this ruling may be superseded by a forthcoming EPA ruling applicable to scrubber wastewater. Nevertheless, this does not relieve the Cabinet from complying with its obligations under the Clean Water Act."

In this case, petitioners ask the Board to follow the lead of our sister state and to fulfill TDEC's legal obligation to protect Tennessee's precious waters.

And, specifically, petitioners ask this Board to find:

First, the Tennessee Water Quality Control Act requires TDEC to conduct a case-by-case BPJ analysis to develop BAT limits on toxics at Bull Run Outfall 001.

Second, TDEC did not conduct the legally-required BPJ analysis or develop BAT limits for this permit.

Third, it is feasible and, therefore, mandatory for TDEC to develop numeric effluent limits on toxics discharged from Outfall 001 at Bull Run.

Fourth, TDEC did not fulfill its legal

obligation to impose BAT limits by adding an open-ended best management practices provision to the final permit.

Accordingly, petitioners respectfully request this Board to find that the permit does not comply with the Tennessee Water Quality Control Act and to remand the permit back to TDEC with instructions to conduct a proper BPJ analysis, set appropriate BAT limits on toxics, and reissue the permit expeditiously.

Members of the Board, Judge Summers, thank you.

MR. PARKER: Mr. Chair and Members of the Board, I appreciate you being here today. Most of you know me. My name is Patrick Parker, and I'm in the Office of General Counsel here at TDEC. I along with Austin Payne are representing the Department in this matter.

Most of you are familiar with Vojin Janjic. He is sitting next to me. Mr. Janjic is the manager of the water-based systems section of the division of water resources. That is the section which writes NPDES permits for discharges to surface waters which are covered by the Tennessee Water Quality Control Act.

Our position in this matter is that the permit in question here complies with all the legal requirements which are applicable to the discharges for which it covers.

To point out, the permit has numeric limits for pH, TSS, and oil and grease. It also has WET tests for coal/oak effluent toxicity testing provisions, which require the permittee to test their wastewater on the various two types minimum. It also has the standard provision, no toxics to mount as part of the effluent limitations.

It is TDEC's position that the 1982 effluent limitation guidelines, or ELGs, considered the waste stream at question here, and EPA decided not to promulgate numeric limitations.

We have reviewed the development documents from the 1974 to 1982. They indicate that EPA did evaluate a considerable amount of wastewater effluent metals data when developing the steam electric ELG.

EPA looked at the metals at issue here and described them as not being present in significant amounts. EPA opted not to set BAT limits for these pollutants, citing that the limited amount of data on reductions was not sufficient to support national limitations. EPA also determined that the high cost of retrofitting did not justify additional pollutant reductions.

At issue here are discharges from the flue gas desulfurization, or FGD, scrubbers. These were covered in the definition of low volume waste, which were considered in the 1982 ELGs. You can see that here in the definition of low

volume waste in the development document.

As you can read, low volume waste sources included, but are not limited to, wastewaters from wet scrubber air pollution control systems. They're specific to this case, they're applicable, and they're existing EPA-considered.

Now, let's look at what the actual rule, 40 CFR 125.3 says. It says, technology-based treatment requirements may be imposed through one of the following three methods, and this was the same slide or same portion of the rule that Ms. Matheny put up there. It says, to the extent that EPA-promulgated effluent limitations are not applicable. That is not the case here. We have applicable limitations.

What do the Board's regulations say about industrial technology-based effluent limitations? It says -- it simplifies it. But it says, for industrial dischargers with applicable effluent limitations, technology-based effluent limitations, in accordance with those guidelines, shall be applied. It's not a "may" or "might". And it says, without applicable effluent limitation guidelines, that BPJ should be used to employ to determine appropriate effluent limitations.

The NPDES Permit Writers' Manual states that prior to establishing BPJ-based limits for a pollutant not regulated in an effluent guideline, permit writers should

ensure that the pollutant was not considered by EPA when developing the ELGs.

What are these ELGs? They are developed by the federal government to establish a definitive standard as to what level various industrial segments must treat their wastewater, absent a water quality issue. Then you look at the ELGs, and you determine what was considered.

As I showed you before, wet air scrubber pollution devices were considered in the 1982 ELGs. If they were evaluated and considered, then those ELGs are applicable. If not, we have to do more work.

The development documents applicable to this discharge clearly indicate that they were considered by EPA but not incorporated into numeric ELGs for the reasons I've stated previously. So what that means is that there is no legal basis to regulate other pollutants absent a water quality based problem.

In this case, TDEC issued a draft permit with no BPJ-BAT analysis. The petitioners commented that such analysis was necessary. EPA, when sent the draft permit, which was part of our MOU with EPA, did not even mention the lack of analysis was at issue in the comments on the Bull Run draft permit.

Because of the petitioners' comments, TDEC went through a discretionary BPJ analysis in the way that is

required under 40 CF 125.3, and these are the factors you consider when you do this analysis. And the proof will show that we went through each one of these and concluded that we cannot set numeric-based effluent limit BAT.

TDEC found that establishing numeric effluent limits was infeasible to the amount of data available at that time. As a result of going through that process, TDEC placed narrative effluent limits as a way of achieving the best quality effluent discharging from the treatment ponds. EPA did not object to the permit as it was issued, as would be the case if they had any problems with the legal basis of the permit.

Those narrative limits are in the form of best management practices. The Board is fairly familiar with this. We use these in our construction of stormwater, and we also use these for various other types of permits.

TVA was required to submit its best management plan to the division. The plan must establish controls to address metals in the effluent. TVA has submitted these, and the division has approved the plan. These types of narrative limits are a normal way of creating effluent limits when numeric limits are infeasible to set.

One of the most important things that you must understand is that TVA's FGD scrubber is fundamentally different. And it's not only at Bull Run, but it's the ones

that they have at some other plants, from the vast majority of scrubbers in the industry.

TVA has once-through scrubbers as opposed to recycling scrubbers. And, in essence, what it is, as I explained to my son last week, it would be like if you took a shower, where you just kept using the bath water again and again to wash. Well, the dirt would build up. In TVA's case it's like we do when we take a shower. The water goes down the drain. The result of this is that pollutant concentrations are significantly lower than those in recycle scrubbers wastewater. This leads to a weak waste stream.

Another important take-away from this is that the amount of data for once-through scrubbers, as compared to recyled scrubbers, which is the main technology used in the industry, is vastly lower. At the time we issued this permit, we had almost no data in order to establish treatability-based limitation in this permit cycle. Thus, establishing such limits in a BPJ-BAT analysis was infeasible.

TDEC addressed this data vacuum by requiring extensive effluent monitoring requirements for a suite of metals, which will help establish those limitations in the future.

It is important to note EPA is currently -- as Ms. Matheny pointed out -- in the process of rewriting the existing ELGs. They are currently out in draft,

and they have submitted comments. TDEC submitted comments through a national organization, Pollution Control Administrators, and we submitted those comments to EPA. This happened this summer.

There are various options or limitations within these draft guidelines. The draft guidelines also have limitations as far as the data that they can use on once-through scrubbers. It's important to everyone that EPA set these national guidelines. The reason for that is because what national guidelines do is create a level playing field for the industry as a whole.

If TDEC or any state tried to override any existing and applicable set of ELGs, it would effectively create what is not intended by the Clean Water Act, which is to create an uneven playing field. That would result in economic consequences to the state and permittee. The current court-ordered deadline to issue final ELGs is May 2014.

What the proof will show -- and TVA will get into this more -- is that the existing pond structure is at Bull Run BAT.

What this case is absolutely not about is the water quality impact from this discharge. TDEC is required to ensure that our water quality standards are not violated as a result of any discharge. For those board members who are not very familiar with what a water quality

standard is, this is it in a nutshell. Every three years Tennessee, as well as any other state, must establish criteria that are both protective of human health and the environment.

This Board does that with the help of the division. These are expressed as what we call water quality criteria. They are both numeric and narrative. Pursuant to the state Water Quality Control Act, TDEC cannot issue a permit which would cause a violation of these criteria. We assure this via the permit application process.

When TDEC receives a NPDES permit application, that application has data on a set of pollutants required by rule, which includes the one at issue in this discharge.

The division does a reasonable potential analysis to determine if it's necessary to limit any of those pollutants in such a way to maintain water quality in applicable standards. The result of that in this case is that there was no reasonable potential to violate water quality criteria. That was true at the time we issued the permit, and it's true now when one looks at the monitoring data which has been collected pursuant to the permit.

This chart, which we're trying to get up, shows for the three parameters that are in the draft ELG, which EPA has put out for public comment, what the relationship is between water quality criteria, what was in

the application data, what the ash pond actually -- what this effluent actually, over the past three years, has shown, you'll note, that it's below water quality criteria in all cases and what the reasonable potential is for that data to cause water quality violations.

As you can see, this data set shows that the Bull Run discharge end of pipe effluent concentrations are actually below water quality criteria and that even if TVA discharges significantly more concentrations, those would not violate water quality criteria.

What you have before the Board is a permit that is about to expire literally within the next couple of weeks, a situation where the existing and applicable effluent guidelines that are now legally required are in place, and another set is about to issue in final form.

There are many reasons not to ask the division to revise the permit, both practicable and legal. However, the prevailing reason, as I said a bit ago, is that this permit was issued in accordance with all legal requirements applicable in this case. I trust that that will be your finding here. Thank you.

MR. STAGG: Good morning. As I said earlier, my name is Michael Stagg, and I'm an attorney here in Nashville with the law firm of Waller, Lansden, Dortch & Davis, and I'm here today representing the Tennessee Valley

Authority. TVA has participated in this hearing as an intervenor, with full rights just as the parties have. TVA intervened in this proceeding for obvious reasons, and that is TDEC's permit that's at issue here today.

You met some of my co-counsel, both from Waller and from TVA earlier. Also with us today is Sam Hixson. He is an employee of TVA and its corporate representative here today, and also Dr. Tom Higgins, who is an expert witness in this proceeding and with the consulting firm of CH2MHILL, and you'll hear testimony from both of those two gentlemen.

TVA is a federal agency tasked by Congress to advance the social and economic well-being of the Tennessee River Valley. It maintains one of the largest electric power systems in the United States. TVA's power system serves more than nine million people in parts of seven states, including almost all of Tennessee. Because TVA is a nonprofit corporation, it receives no taxpayer or appropriated federal dollars, and all of the expenses it incurs eventually are paid by ratepayers.

The Bull Run plant that TVA operates in Anderson County is one of the electricity-generating resources on the TVA power system. To comply with the Federal Clean Water Act and Clean Air Act and Tennessee's air pollution control requirements, TVA has installed significant emission

control equipment at Bull Run, costing hundreds of millions of dollars, including a limestone once-through scrubber, also known as a flue gas desulfurization scrubber, or FGD system, and it reduces sulfur dioxide emissions from the plant.

Discharges of water from this wet scrubber are sent through three ponds for treatment: First, the scrubber wastewater is sent to a gypsum disposal pond, which is No. 2 on that slide, then to a settling pond, which is No. 3, and finally to a stilling pond, which is No. 4.

During this pond treatment system process, the scrubber discharge commingles with ash and other wastewater streams for further treatment before being discharged to the Clinch River. And No. 5 shows the Outfall 001, which discharges from all of these ponds collectively.

This whole system comprises Bull Run's pond treatment system for wastewater discharges. The pond treatment system does an exceptional job of treating the water that is in Bull Run's discharges.

In issuing the permit, TDEC determined there was no reasonable potential that Bull Run's discharges would cause or contribute to a pollutant level above Tennessee's water quality criteria. Saya Qualls, who was then the chief engineer in TDEC's division of water resources, explained, the effluent quality that we have observed at Bull

Run, based on the data that we have, demonstrates that there are very low levels of pollutants that are discharged. It would be difficult to discern a significant difference based on different treatment technologies, because we're looking at such, such low levels of most of the pollutants.

The design of Bull Run's once-through scrubber creates a purge stream in which metals are predominantly in particulate rather than dissolved form. Particulate-form metals are effectively treated through the physical process of settling and filtrating, which occurs in the pond treatment system.

For example, selenium, a pollutant that petitioners are very concerned about, is very effectively removed by Bull Run's ponds. The Bull Run scrubber produces selenium in its easiest-to-remove form, selenite rather than selenate, and naturally occurring iron contributes also to the effective removal of selenium.

In other words, the pollutants that are produced by Bull Run's scrubber system are well-suited for effective treatment in the pond treatment system.

In addition, Bull Run's pond treatment system uses more than simple gravitational settling to treat pollutants. The gypsum disposal area, which is area No. 2, acts as a settling pond followed by a natural filtration through gypsum. Additionally, a pH shift occurs between the

different components of the pond treatment system, which results in the removal of a certain amount of dissolved solids, as well as suspended particles.

As a result of Bull Run's pond treatment system, virtually 100 percent of particulates and about 90 percent of all pollutants are removed prior to the discharge into the Clinch River. Wastewater from the Bull Run plant consistently meets and exceeds all applicable discharge requirements and, in fact, typically contains chemical contaminants in concentrations lower than those allowed by the federal and state drinking water standards.

Petitioners bear the ultimate burden of proof in this case, meaning that they must show by a preponderance of the evidence that TDEC's decision to renew the Bull Run permit violated a provision of the Tennessee Water Quality Control Act. They cannot do so.

This appeal raises three questions for the Board's consideration. Our view of these issues corresponds closer to the petitioners. The three issues that I'm going to raise correspond with Ms. Matheny's Nos. 2, 3, and 4 on her list. If this Board answers any of these questions contrary to petitioner's petition, TDEC's decision to renew the permit must be upheld.

Before I get into these three arguments, I wanted to respond briefly about the Kentucky decision that has

been mentioned. We will obviously talk more about that in closing, but I just wanted you to have it in your mind. The state agency in Kentucky did exactly what TDEC did. They did not agree with the trial court. They did not set numeric -- the state agency didn't set numeric limits.

The trial court reversed it. It's on appeal. Both the state and the utility have appealed that in Kentucky. And it's not binding on Tennessee, and, in fact, the Kentucky Regs at issue are different than the Tennessee Regs. We'll talk more about that in closing, but I just didn't want to leave it out.

The first issue that we believe we need to address is, was TDEC correct in determining that an existing effluent limitation guideline, or ELG, for power plants applied to Bull Run and established the discharge limits required to be set in the permit. If the Board determines that EPA's ELG for power plants governs, a best professional judgment analysis was not required, and petitioners lose this appeal.

Second, if the Board determines that a BPJ analysis was required, did TDEC consider the necessary statutory and regulatory criteria in its BPJ analysis. If the Board determines that TDEC did sufficiently consider the BPJ criteria in its analysis, petitioners lose this appeal.

Third, was it proper for TDEC to conclude

through its BPJ analysis that it was appropriate to impose best management practices and toxicity testing requirements rather than numeric effluent limitations. If the Board determines that TDEC was not required to set numeric effluent limitations, then the petitioners lose their appeal.

As TDEC and TVA will show, none of these dispositive questions can be answered in petitioners' favor. EPA's existing ELG for power plants governs TDEC's actions here, and TDEC properly applied that guideline. Even though it was not required, TDEC did consider the criteria specified for a BPJ analysis.

Further, best management practices, especially when supplemented by the required use of toxicity testing to confirm that aquatic species are not being harmed, are permissible substitutes for numeric discharge limits. There is no legal or environmental reason to overturn TDEC's permit decision.

I'd like to elaborate on these three issues before the Board. Tennessee law is clear that a BPJ analysis is not required when an existing ELG does apply to Bull Run. Therefore, TDEC does not have to undertake a BPJ analysis in issuing the permit.

Existing ELGs do apply to Bull Run's waste streams. Tennessee Rule 1200-4-5 is called Permits, Effluent Limitations and Standards. Section -.09 of this rule

addresses technology-based effluent limitations. This rule refers specifically to EPA's ELGs. It states, "Permits for discharges will contain limitations and standards in accordance with these guidelines, when such are in effect, unless more stringent limits are necessary to maintain designated uses."

In this case TDEC determined that there was no reasonable potential that discharges from Bull Run would cause or contribute to violations of Tennessee water quality criteria. Therefore, there was no need to put more stringent limits in the permit than what the ELGs required.

I'd like to focus on Tennessee regulations that are applicable here. You did not hear about these from the petitioners. They mentioned the 125(c)(3) regulation, (c)(1),(2), and (3).

Here are Tennessee's corollary regulations. Section (1)(b)(1) of the regulation, the rule states, "For industrial discharges with applicable federal effluent guidelines, technology-based effluent limitations and standards in accordance with those guidelines shall be applied." TDEC does not have discretion here. It must apply the limitations in the ELG if the federal ELG applies.

Below that, section (1)(b)(2) provides that a BPJ analysis shall be conducted when there is no ELG applicable to an industry category. The Tennessee regulations

provide two choices. There's no BPJ analysis required when an ELG applies to an industry category, and when there is no applicable ELG for an industry, TDEC must undertake these requirements. So the two Tennessee regulations are black and white.

As you saw from earlier slides, the federal rules mirror these requirements. The federal rule is at 40 CFR 125.3, and it states in subsection (1)(c)(1) that technology-based effluent limitations may be imposed through application of EPA-promulgated effluent limitations developed under section 304 of the Act to discharges by category or subcategory. Those categories and subcategories referred to are the effluent limitation guidelines. This covers the situation in which an ELG for an industry exists.

Subsection(c)(2) governs when there is no applicable ELG for an industrial category. There is no dispute that EPA has issued an ELG for coal-fired power plants like Bull Run.

In support of their claims -- and this is key, we think -- petitioners rely on a mistaken interpretation of the third option under section 125.3, and that's (c). That section states, where promulgated effluent limitation guidelines only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis

in order to carry out the provisions of the Act.

Petitioners say this provision required TDEC to impose numeric limits in the permit for metals, but we think they're wrong.

First, if you look closely at the language, this section does not require regulation of a pollutant; rather, it gives the permit writer discretion to regulate other aspects or activities on a case-by-case basis.

Second, Tennessee does not have a similar provision in its regulations. And EPA, when it reviewed Tennessee's NPDES program, did not require this provision to be in the Tennessee regulations. TDEC and EPA regulations, therefore, are consistent.

The case-by-case analysis that is allowed by this federal rule is discretionary, and Tennessee could appropriately choose not to include a provision for such a discretionary analysis in its regulations.

When EPA approved Tennessee's NPDES program, it approved the Tennessee corollary rules to EPA's 125.3 rules, and it concluded that the Tennessee rules were sufficient to address the regulatory agency's voluntary case-by-case BPJ analysis.

EPA has promulgated an ELG for the steam electric power generating point source category. This category applies to coal-fired power plants like Bull Run, and

this is not in dispute in this hearing.

One of the waste streams regulated by this ELG is low volume waste sources, which are defined to include wastewaters from wet scrubber air pollution control systems, and it's on the slide that Mr. Parker projected. Low volume wastes are a collection of wastewater streams from a variety of plant processes, and they include ELGs in wastewaters.

Because Bull Run's scrubber wastewaters are commingled and managed with other waste streams through the pond treatment system, they are covered by the ELG definition for low volume waste.

Thus, an existing ELG applies to the waste streams discharged from Bull Run. Because an applicable ELG governs Bull Run's discharges, TDEC properly determined that it did not have to conduct a BPJ analysis. You'll hear witnesses from TDEC testify on this point during the hearing.

Existing ELGs apply to the metals discharged from Bull Run. Even though an ELG applies to Bull Run's waste streams, petitioners want TDEC to go above and beyond the requirements of that ELG. They claim that TDEC must set limits in the permit for any pollutants not specifically limited by the ELG, particularly metals.

It's true that the existing ELG does not set specific numeric limits for certain metals, but this does not mean that the ELG does not govern those metals. When EPA

was developing the ELG for coal-fired power plants, it considered the metals at issue but determined that effluent limits for those metals were not necessary.

According to EPA's Permit Writers' Manual, this means that TDEC did not have to set BPJ-based effluent limitations for these metals. EPA's manual states that BPJ-based effluent limits are not required for pollutants that were considered by EPA for regulation under the effluent guidelines but for which EPA determined that no ELG was necessary. Here TDEC properly determined that the ELG applies to these metals, even though EPA did not set numeric effluent limits for the metals.

When developing the existing steam electric power generating point source category ELGs that govern this case, EPA explained, "Even if this regulation does not control a particular pollutant, the permit issuer may still limit such pollutant on a case-by-case basis when limitations are necessary to carry out the purposes of the Act." This has been EPA's consistent position for three decades, up until the Hanlon memo.

Finally, EPA's own conduct during the permit renewal process also reinforces the conclusion that TDEC acted properly and was not required to set specific limits for metals. Once EPA approves a state's NPDES program, EPA suspends its own authority to issue permits in that state.

Instead of directly issuing permits, EPA has the opportunity to review permits that a state proposes to issue, and EPA can veto a permit and issue the permit itself if the proposed permit is, quote, "outside the guidelines and requirements" of the Clean Water Act.

In Tennessee, a 2007 NPDES Memorandum of Agreement with EPA Region 4 requires TDEC to provide EPA with an opportunity to review draft and proposed NPDES permits. When EPA does not respond to a draft permit, Tennessee, quote, "may take this absence of response as concurrence with the draft permit."

Here EPA did not include in its formal comments on the draft permit any mention of any requirement for a BPJ analysis. EPA concurred with TDEC's judgment that specific limits for metals were not required.

The second issue; as I just explained, TDEC did not have to do a BPJ analysis in this case. However, in response to informal conversations with EPA Region 4 and comments on the draft permit, including those by petitioner Tennessee Clean Water Network, TDEC decided to voluntarily conduct a BPJ analysis. As you will see, TDEC's BPJ analysis considered all of the required statutory factors, in addition to EPA's guidance documents.

TDEC and TVA will show that TDEC followed all appropriate protocols for exercising its best professional

judgment and properly concluded that, first, Bull Run's pond treatment system constitutes the best available technology economically achievable and that a change to either a zero liquid discharge of the physical/chemical/biological system could be achieved only by expending significant amounts of ratepayers' money for negligible environmental benefit.

The pond treatment system at Bull Run qualifies as BAT. TDEC determined that for Bull Run, the pond treatment system is acceptable. TVA's expert witness, Dr. Higgins, agrees with this determination. Dr. Higgins performed a detailed BPJ analysis himself and determined that Bull Run's existing pond treatment system qualifies as BAT.

As he will explain, the treatment system at Bull Run removes both suspended solid metals in particulate form and dissolved metals. This system effectively prevents a significant discharge of pollutants from Bull Run.

One of the alternative technologies is call zero liquid discharge, and that is not BAT for Bull Run. Petitioners claim that TDEC should have considered zero liquid discharge as an alternative to Bull Run's settling pond system. However, both EPA and TDEC have specifically rejected ZLD as BAT for coal-fired power plants.

In issuing a draft permit for the Merrimack facility in New Hampshire, EPA's Region 1 declined to impose the ZLD technology. Instead, there they opted for a

physical, chemical, and biological treatment system.

EPA has further rejected the ZLD technology in the draft ELG just recently published. It does not include ZLD technology in any of the alternatives considered for regulation.

Further, even assuming that ZLD is technologically available for Bull Run, you'll hear testimony that it is not cost-effective. Accordingly, there is no basis to remand the case to TDEC to further consider whether to require Bull Run to switch to a ZLD system.

Physical, chemical, and biological treatment is also not BAT for Bull Run. Dr. Higgins will show that a physical, chemical, biological treatment would not achieve better treatment than Bull Run's pond treatment system. While switching to this technology could result in minor improvements for some pollutant parameters, it would do so at an exorbitant cost.

The third key issue here, TDEC was not required to set numeric TBELs, or technology-based effluent limits, in the permit. As I mentioned earlier, as a result of TDEC's BPJ analysis, TDEC imposed best management practices, or BMPs, and monitoring requirements in the Bull Run permit and continued the toxicity testing requirements from previous permits.

As TDEC and TVA will show, the law

recognizes that these requirements are a proper, appropriate, and lawful approach to regulating a facility's discharges. TDEC's analysis and the permit are, therefore, in full compliance with the Federal Clean Water Act and the Tennessee Water Quality Control Act.

TDEC did imposed effluent limits for metals discharges, just not in the numeric form that petitioners prefer. The BMPs that were added to the Bull Run permit are narrative effluent limitations, and they are appropriate for regulating particular waste discharges and effluent in circumstances where deriving numeric effluent limitations is infeasible.

In this case, TDEC concluded that establishing numeric limits was infeasible. Because of the limited number of data points available for Bull Run's discharge, TDEC determined that it could not accurately develop permit limits based on effluent variability.

Because it was infeasible to calculate numeric effluent limitations in this circumstance, TDEC determined that BMPs were the only regulatory mechanism available.

Finally, EPA approved the draft Bull Run permit, which contained no numeric effluent limits for metals, and EPA did not object to the lack of such numeric limits. EPA deferred to TDEC's judgment and concurred in the issuance

of the permit without numeric effluent limits but with narrative effluent limits in the form of BMPs for metals. Thus, TDEC's imposition of BMPs was in compliance with the Clean Water Act and the Tennessee Water Quality Control Act.

TDEC also appropriately and lawfully imposed monitoring requirements. Both the courts and EPA have recognized the propriety of imposing monitoring requirements in NPDES permits. The D.C. Circuit Court of Appeals, which hears a great deal of EPA cases, explained, quote, "It may be appropriate in certain circumstances for a permit writer to require a permittee simply to monitor and report effluent levels." That's the D.C. Circuit Court opinion it came from.

EPA's regulations expressly allow this approach. EPA includes monitoring only in some permits, and EPA decisions approve the monitoring option. Accordingly, TDEC's imposition of monitoring requirements for more than a dozen different parameters was in compliance with the Federal Clean Water Act and the Tennessee Water Quality Control Act.

TDEC also appropriately and lawfully imposed toxicity testing. EPA's regulations provide that BPJ limits may be expressed, where appropriate, in terms of toxicity. When it comes to setting toxicity thresholds, states retain considerable discretion under the Clean Water Act.

In issuing the Bull Run permit, TDEC used

its discretion to impose toxicity limits and to require Whole Effluent Toxicity, or WET, testing at Bull Run, which provides an additional layer of protection over and above permit limits on individual parameters.

In imposing toxicity limits and requiring WET testing, TDEC lawfully and appropriately exercised its discretion to limit TVA's pollutant discharges and to protect the water quality in the Clinch River.

Any one of these three issues may be dispositive in this case. As we proceed through the hearing, I would ask that you keep in mind these three questions and remember that if the Board rules against petitioners on any one of these three questions, then the permit should be upheld.

First, was TDEC correct in determining that an existing effluent limitation guideline for power plants applies to Bull Run and establishes the discharge limits required to be set in the permit? If the Board finds that TDEC was correct on this threshold legal issue, TDEC was not required to exercise best professional judgment analysis, and petitioners lose the appeal.

Second, if the Board determines that a BPJ analysis was required, then was TDEC's consideration of the statutory and regulatory criteria of a BPJ analysis sufficient? If the Board determines that TDEC did

sufficiently consider the BPJ criteria in the analysis it conducted, nothing further was needed to reissue the permit, and the petitioners lose the appeal.

Third, was it proper for TDEC to conclude through its BPJ analysis that imposing best management practices and toxicity testing requirements, rather than numeric effluent limits, in the permit was appropriate? Once again, if the Board determines that TDEC was not required to set numeric effluent limitations, the petitioners lose the appeal.

There are also two policy reasons to deny this appeal, in addition to these three statutory and regulatory reasons. First, if you find that TDEC was required to do a BPJ analysis, and if you find that that BPJ analysis TDEC performed during the permitting process was flawed or insufficient, one option for TDEC is to ask TVA, as the regulated entity, to provide a BPJ analysis for TDEC's consideration.

However, TVA has already done that. TVA retained the foremost expert in the country to conduct a BPJ analysis. Dr. Tom Higgins of the CH2MHILL consulting firm performed an extensive study and prepared a voluminous report for this appeal, which involved performing a BPJ analysis following EPA's guidelines. Dr. Higgins concluded that TDEC reached the correct conclusion in its BPJ analysis.

Dr. Higgins concluded that Bull Run's pond treatment system is BAT for the FGD scrubber wastewater, and alternative technologies are not BAT.

The second policy reason is that EPA has proposed revised effluent guidelines for power plants just in June. These draft ELGs are required by a court order to be finalized by May 22nd, 2014. These ELGs will establish what TDEC must consider and what TDEC must require power plants to do going forward.

The permit before you expires in 17 days. TDEC has in its possession TVA's renewal application. And if it's not already, it will be considering renewal soon.

In addition, by consent order on an Air Act case in federal court, TVA has agreed to apply to be covered by the new ELGs within one year of finality, which is a much faster compliance schedule than even EPA requires as proposed in the draft ELGs. Tennessee is a party to that agreement as well and has the capacity to enforce that EPA.

If this Board were to direct TDEC to set numeric effluent limits for Bull Run, TDEC would be preempted from considering and applying the revised guidelines that are going to be final next May. This could result in a costly waste of public resources, both those of TDEC and TVA. And if the measures that TVA is required to take in response to petitioners' appeal turn out to be inconsistent with the

revised EPA guidelines, then that is a hardship on TDEC, TVA, and others.

EPA has declined to set a requested BPJ limit for the discharge of pollutants in just this type of situation, that is, if the issuance of the final ELG is imminent, EPA has held up its permitting decisions.

A federal court of appeals upheld EPA's decision to do this, stating, quote, "Some special latitude is in order because of the agency's interest in coordinating the standards in this permit with evolving national standards."

And that's exactly the situation we have here, a permit that's about to expire, new national standards about to be released, and EPA and the federal court have said it's okay if the permitting agency withholds renewal of that permit until the new national standards are released.

These two policy considerations are additional reasons why this Board should reject petitioners' permit appeal in its entirety.

TDEC issued this permit correctly. In issuing the permit, TDEC was not required to perform a best professional judgment analysis. It did so voluntarily and correctly concluded that Bull Run's existing pond treatment system is acceptable. Dr. Higgins confirmed TDEC's conclusion through his own BPJ analysis. The Board should uphold TDEC's permitting decision and deny the petitioners' appeal. Thank

you.

MS. MATHENY: Members of the Board, the Tennessee Water Quality Control Act requires TDEC to follow EPA's regulations, and I've already shown you that. Your rules also require that.

And, forgive me, I don't have a slide for this yet. But if you look under tab 8 of the smaller binder on page 9 at the bottom, Rule 1200-04-05-.04 provides that no permit shall be issued authorizing any of the following discharges: When the conditions of the permit do not provide for compliance with the applicable requirements of either the Federal Clean Water Act or the Tennessee Water Quality Control Act.

Failure to impose limits on toxics that these limits would be required by applicable federal statutes and regulations is less stringent and violates the Tennessee Water Quality Control Act.

In this case, Tennessee rules can and must be interpreted to be consistent with federal requirements. And, in fact, TDEC's practice in other NPDES permits is to oppose BPJ limits of the facility for federal ELGs apply to some but not all wastewater streams.

Both TVA and TDEC pointed out to the fact that EPA did not object to this permit. This very same rule has a separate requirement that TDEC can't issue a permit when

EPA objects, but these are two separate requirements. This Board has a separate duty to make sure the permit complies with the federal requirement, in addition to whether or not EPA objects.

And, in fact, the evidence will show that EPA did not concur with TDEC's failure to follow the law in this case. Objection by EPA to a permit is both entirely discretionary and vanishingly rare. In fact, as far as I was able to tell, pursuant to a former request to EPA, EPA has never objected to a Tennessee permit.

Both TDEC and TVA referred to the NPDES Permit Writers' Manual. The first thing I need to point out about that manual is that it is not law. It is an interpretation of law. It is guidance only. The Kentucky court that I referred to earlier addressed this very same argument about the Permit Writers' Manual and expressly rejected it, and binding reliance on that language was arbitrary.

Because in this case, as I showed you before, the pollutants and wastewaters at issue here were not considered by EPA but, instead, were explicitly excluded due to insufficient technology some 30 years ago.

The evidence will show that technologies have developed in the past 30 years. And as you've already seen, Bull Run's untreated scrubber wastewaters have high

concentrations of toxic pollutants.

Mr. Stagg referred to the best professional judgment rule, and he added a little bit of language to Tennessee's rule. Under the same tab, page 26, at the very top of that page, (b)(2), when Mr. Stagg read this rule, he added language about it applying to an industrial category under part 2. What your rule says is for industrial discharges.

So while there's no dispute that the ELG applies to the industrial category, what petitioners will show is that it does not apply to the industrial dischargers that we are talking about in this hearing.

Both TDEC and TVA referred to the ponds as BAT. This assertion ignores the fact that TVA has already decided to close these ponds and, in fact, has said that it will do so, regardless of what rule EPA eventually comes up with, and is doing so, in part, in response to the disastrous Kingston spill, of which we are all very familiar.

These unlined settling ponds pose a significant risk to the environment, because they are partially built on coal ash, they seep, and they might eventually fail. Because TVA has already decided to close these down, I don't think it is proper to consider them available technologies for Bull Run.

There is some emphasis on the distinction

between a once-through and a recycled scrubber. While it is important, what's important to manage is the total loading of pollutants discharged from the scrubber wastewater. Whether you have a high volume, lower concentration waste stream, typical of a once-through scrubber, or a low volume, higher concentration waste stream typical of a recycled scrubber, what matters is the total amount of pollutants that reach our waters.

EPA's draft effluent limitations guideline, in fact, does not distinguish between once-through and recycled scrubbers. However, if you take TVA's testimony at face value and find that these scrubbers are unique to the industry, then it is all the more important for TDEC to take the lead in regulating the dischargers from these scrubbers on a site-specific basis rather than leaving that for EPA's possible future rulemaking.

In fact, we expect that you will hear that TDEC believes that if the ELG does not make this distinction, it would not apply to Bull Run. While petitioners do not necessarily agree, that is yet another reason TDEC cannot sit on its hands and wait for EPA to fix this problem.

Moreover, the data TDEC is requiring TVA to collect, the dischargers of the mixed waste outfall will not allow TDEC to set limits for the scrubber wastewater. TDEC still is not requiring TVA to gather the data necessary to

further characterize the scrubber wastewater at Bull Run.

Finally, Mr. Stagg referred to Dr. Higgins' best professional judgment analysis regarding the pond.

First of all, the evidence will show that TVA's claim that the ponds treat over 90 percent of the dissolved toxic metals is not based on actual metric data but rather on a set of assumptions and calculations.

But, again, Dr. Higgins is, in fact, an esteemed expert, but his analysis ignores the critical fact that TVA has decided to close its ponds. Those ponds are going away. And as they go away, as we will see, they are going to go away in sequence. One pond will be removed at a time. So whatever magic is allegedly happening in these ponds to remove solids is going to change over the next few years.

So in closing, petitioners again ask this Board to find that TDEC must impose BPJ-based BAT limits, because the toxic pollutants at issue in this case were expressly excluded from the 1982 ELGs, and we ask you to do this because Tennessee waters are precious to all of us. Thank you.

ADMINISTRATIVE JUDGE: Mr. Chairman, how would you like to proceed at this point?

THE CHAIRMAN: I think we'll take a lunch break and be back in an hour.

ADMINISTRATIVE JUDGE: All right. It's 11:46. We'll see you all in an hour. Thank you. We will be in recess.

(Lunch recess taken.)

(BY THE ADMINISTRATIVE JUDGE) Okay. We are back on the record after our lunch recess. The Board has agreed to continue until five o'clock this evening. And in order to avoid or to hinder the mad dash for the door at the end of the day, Mr. Chairman, do you all have a preference for what time we start again in the morning?

THE CHAIRMAN: We will start at 9:00.

ADMINISTRATIVE JUDGE: Okay. Now we're commencing our witnesses' testimony -- and you will be charged on this at the end of the testimony.

But just to give you a heads-up as we begin, you will hear testimony from the witnesses, their opinion of how to interpret the laws at issue, and that will be their opinion with respect to the decisions that they made with respect to the permit. But it is not in any way intended to infringe upon the prerogative of the Board to make the ultimate decision about the interpretation of the law.

So with that admonishment, petitioners can begin with their first witness.

MS. LEE: Thank you, Your Honor. Good afternoon, Mr. Chairman, Members of the Board. Thank you for

being here today. Before we get started with the witnesses, the parties would like to jointly move to have the exhibits identified in this case moved into evidence.

ADMINISTRATIVE JUDGE: So we have 97 exhibits and then 45 demonstrative exhibits; correct?

MS. LEE: That's correct, Your Honor.

ADMINISTRATIVE JUDGE: And we intend for all of them to be entered as they are currently marked?

MS. LEE: Yes, Your Honor.

ADMINISTRATIVE JUDGE: Okay, motion granted. We will have in evidence, then, 97 exhibits and 45 demonstrative exhibits. Now, are they already marked, or will the court reporter need to mark them as they're discussed?

MS. WHITTLE: Your Honor, they're in the binders. We don't have exhibit stickers on them, Your Honor.

MS. LEE: Not all the exhibits are included in the binders.

ADMINISTRATIVE JUDGE: Okay.

MS. WHITTLE: The binder (inaudible).

ADMINISTRATIVE JUDGE: Say that again.

MS. WHITTLE: The binder discussed is not the entire group of exhibits. I think maybe another binder is there.

MR. PARKER: We just identified documents that we thought the Board would need to look at and probably

will be testified about so that they would be in front of you so we wouldn't have to give you three binders.

MS. WHITTLE: So, for example, if there's a 400-page document, we put in three or four pages we actually needed from the binder instead of giving you the entire binder.

ADMINISTRATIVE JUDGE: So how are we going to do the full exhibit then? And those have or have not been marked?

MR. STAGG: There are two boxes that have a full set of exhibits copied double-sided, and those will be the official record sets. The books are --

MS. WHITTLE: And those exhibits are tabbed, Your Honor, but they do not have exhibit stickers on them.

ADMINISTRATIVE JUDGE: Okay. Well, I mean, as long as they're --

MS. WHITTLE: Identified?

ADMINISTRATIVE JUDGE: Right. Okay, very good.

(Exhibits 1-97 and Demonstrative Exhibits 1-45 were pre-marked & received into evidence at this time.)

MS. LEE: Thank you again. Good afternoon. My name is Bridget Lee, and I'm an attorney with Earthjustice here on behalf of the petitioners. And as our first witness, the petitioners would call Sam Hixson.

ADMINISTRATIVE JUDGE: You can have a seat over here. If you would, before having a seat, raise your right hand.

SAM HIXSON,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. LEE:

Q. Good afternoon, Mr. Hixson. Thank you for joining us this afternoon. Could you please state your name for the record.

A. Sam Hixson.

Q. And where do you work?

A. TVA.

Q. And what's your current position at TVA?

A. Current position is regulatory manager for waste.

Q. How long have you held that position?

A. Since the end of February 2012.

Q. And if you could just describe for the Board generally what kind of work your job entails.

A. Currently my job entails solid waste permits, hazardous waste determinations.
Q. Anything else?
A. Anything along those lines.
Q. And in this position, do you have responsibility with respect to the Bull Run Fossil Plant?
A. For solid waste, yes.
Q. And what was your position prior to working in the waste department?
A. I was water specialist from September 2009 to February 2012.
Q. What kind of work did you do as a water specialist?
A. As a water specialist, I was responsible for NPDES permit applications, day-to-day advice to the plant.
Q. And in that role, did you have responsibilities with regard to the Bull Run plant?
A. Yes.
Q. Could you describe those, please?
A. The permit application had already been filed. So at the time, we were beginning negotiations on the permit, provided information to the State as they requested.
Q. Did you participate in commenting on the draft permit?
A. Yes, I did.

Q. Did you provide TDEC with any information they needed as they went along with their permitting process?

A. Yes, I did. They asked for additional data that we had. They asked us to plot that data in charts to provide to them in Excel spreadsheets. They asked for several aerial photos and distinguish what each pond was. They asked for low level mercury analysis in the Clinch River, and we arranged for that to be done.

Q. Are you familiar with how the Bull Run plant operates?

A. Yes, I am.

Q. And does TVA operate a flue gas desulfurization system also known as an FGD scrubber at Bull Run?

A. Yes. It was installed and started operating in 2008.

Q. What's the purpose of an FGD scrubber?

A. The FGD scrubber was put in to meet the air pollution regulations, to reduce the sulfur dioxide going out, which is called acid rain.

Q. Can you describe in just general terms how that scrubber works?

A. Yes. I'll go back to Patrick Parker, the attorney for the state's analogy, it's like a shower. But when you look at the flue gas that's coming out of the plant, it goes through a quench system where water is located to wet it. And

then it goes through another quench system where you mix your limestone and water together, and you're injecting limestone into your flue gas.

The limestone is calcium material. It will react with the sulfur, forming calcium sulfate, which is your gypsum, and that will drop out. We say it's a one-time cycle. It's a once-through cycle. But actually the limestone continues -- the slurry continues to be recycled until it is physically used up, and we continue to add more.

At that point the gypsum in the bottom is slurry. That is where you take the solids, and you have water in it to push it out to our treatment system, where it goes through a treatment pond, filtering through the gypsum and sand filter, and then is discharged to the settling pond, which is No. 3 on your picture here, and then comes into the stilling pond, which is the last polishing pond that we have before it goes out the outfall.

Q. And just so the Board can follow along, Exhibit D-7 is included in that blue binder in front of you. Mr. Hixson, how often does the scrubber operate?

A. Well, when the plant is operating, the scrubber operates. So it depends on how often does the plant operate.

Q. So since September of 2010 when the permit was issued, how often was the plant operating?

A. The plant -- and I'll use 2013, if that's all

right. In 2013 we have operated 61 days out of the year so far. Bull Run is -- and in the previous year it would have been in about the 20 to 30 percent range and so forth.

Q. So that's typical for your operation?

A. That's typical.

Q. And does the scrubber at Bull Run generate a waste stream in addition to the gypsum you mentioned?

A. The gypsum waste stream, of course, will have the calcium sulfate, your gypsum, but it will also have some chlorides in it and some metals in it and probably a little bit of antifreeze in it.

Q. And we could call that FGD wastewater or scrubber wastewater or --

A. FGD wastewater would be fine.

Q. Or scrubber purge?

A. Or scrubber purge would be fine.

Q. So we're talking about the same thing?

A. Yes.

Q. Are there any other waste streams generated by the plant and the scrubber?

A. That would be your primary waste stream coming out.

Q. How about fly ash?

A. Fly ash is not generated by the scrubber.

Q. How is fly ash generated?

A. When you have a coal-fired facility like Bull Run, you bring your coal in from your coal power right here. It's brought in by conveyor to your plant. It's burned in the boiler.

So imagine your fireplace at home. Imagine that you've got steel on top of it, and you're heating something up. It is burned in the boiler. Fly ash goes up through the boiler, goes into an electrostatic precipitator where the fly ash drops out as a dry material, and that is pneumatically sent to one of two silos. And then that material is transported by truck to the dry fly ash landfill, which was permitted in 1992 when we started doing dry fly ash.

Q. Does the plant also produce bottom ash?

A. The plant also produces bottom ash. I'll go back to my example where you have your boiler and your fire. The bottom ash is typically your unburned or your large rock-like material that comes out of the coal that's not completely combusted.

Q. And does the plant have waste streams?

A. You would also have low volume waste from the plant. You have your building sumps located inside the plant. You may have a piece of equipment that is cooled and drained to the building sump. You'd have your roof drains. You would have your parking lot drains. You'd have your coal yard runoff pond, and it's drained into this treatment system down

here.

Q. And I think you referred to this picture before, but if you could just maybe talk us through -- you see there's Nos. 1 through 5, what each of those is referring to.

A. All right. In our plant, the bottom ash is dropped out right here where the No. 1 is pointing to. There's a small shallow pond here. The bottom ash drops out in the first 10 to 20 feet in that pond.

We then have a rip-wrap check dam to pond that water up. We use a backhoe to take out the bottom ash. We place it adjacent to that area right here. This is our permitted bottom ash landfill, and we place it there. The water continues on down the sluice ditch right here into the settling pond, which is No. 3.

But before I go there with that, let's stay numerically and go to No. 2. Let me go back a second. This is hard-piped. We're not talking about ditches back up to the plant. The only ditch that is there is the sluice channel right here. Everything that comes out to there is hard-piped from the plant.

The gypsum, which comes out of your FGD scrubber, comes out hard-piped to this corner of the gypsum disposal area. The gypsum drops out in, again, the first ten feet of that area. And then you have water pooling up about 18 inches or so in this end of that gypsum disposal area, and water then

filters through what gypsum has already settled out and then through a sand filter and two French drains.

Imagine your water treatment plant where you get your water from, it's the same concept. You have the water treatment plant with like a French drain underneath it and sand above it to filter your solids out, and that's what the gypsum disposal area is designed to do. That water then comes down and mixes with the bottom ash water, the other low volume waste treatment sources, the building sump, the equipment drains into this area here, allowing you for additional settling time here, and it goes across a splitter dike between this settling pond and the stilling pond, goes across a weir. And then in the stilling pond, we have three turbidity curtains.

Turbidity curtains would be -- imagine a boon going across the water with a skirt on the bottom of it that is made of polymer or a rubber material, and it makes the water go under that so that you avoid short-circuiting in the stilling pond. From there, after going past three turbidity curtains, it goes out Outfall 001, Discharge 001, which is No. 5, to the Clinch River.

Q. Thank you. Mr. Hixson, you mentioned the dry fly ash now moved to silos in a landfill. Before that, the conversion of the handling of fly ash to dry handling, where was the fly ash?

A. Prior to 1992 it would have all come out into this area right here. In 1992 we went dry except for when you start up. And at the time we had difficulty being able to take all of the fly ash at that time as dry, and some did get sluiced between 1992 and December of 2010.

And in December of 2010 we added a second silo for fly ash, and that eliminated the issue that we were having. And so since December 2010, all fly ash is going to the permitted landfill.

Q. And I believe you just described a little earlier the scrubber wastewater, which is hard-piped down to the corner of that gypsum disposal area at label No. 2. Could you tell us if it's possible to sample that wastewater stream before it enters disposal area No. 2?

A. You would sample right here at the pipe.

Q. Has TDEC ever requested a sample being taken at that location?

A. No, ma'am.

Q. And has TVA itself ever sampled at that point?

A. As part of the process to look at waste treatment, we have sampled.

Q. And when were those samples taken?

A. This past year, but I couldn't tell you the exact date.

Q. Are you familiar with the characterization of Bull

Run wastewaters performed by HDR Engineering?

A. That study occurred after I had left as a water specialist. I am familiar in that I know that it occurred, but I didn't have access to all of the data, no.

Q. Are you familiar with the purpose of that study?

A. Yes.

Q. What was that?

A. The purpose of that study is to evaluate what type of treatment will be used to replace our current treatment pond system.

Q. And have you reviewed the February 2013 report that HDR prepared following that study?

A. No, ma'am. Again, that is outside of the area that I'm working now.

Q. Do you happen to know whether HDR took samples at the point entering the gypsum pond?

A. No, I do not.

Q. I'm going to show you a page from that report, just if you'll bear with me one moment. All right. This is page 11 of your report, which has been entered into evidence as Exhibit 60. Those pages are not included in the binder, so if the Board would like to follow along on the screen.

Mr. Hixson, do you see just after the first paragraph where it says samples are collected at the following location?

A. Yes.
Q. And could you see item No. 6?
A. FGD absorber effluent. Grab samples were collected at the discharge to the gypsum stack area.
Q. Thank you. Is the FGD absorber effluent, is that the same as scrubber wastewater?
A. That is the same as scrubber wastewater.
Q. And is the gypsum stacking area the same area we were discussing earlier that's No. 2?
A. Yes. If you went back to your aerial photo, it would be the pipe going into -- the hard pipe coming up to that gypsum disposal area.
Q. Thank you. Now, I know you're not familiar with this report, so let me just jump to page 10, page 10 of the report, table 3. You'll see it's labeled "wastewater flows". This table presents various wastewater flows to the plant. Do you see under description where FGD absorber effluent is listed?
A. Yes.
Q. And to the right of that, the measured average is listed as 349 gallons per minute?
A. That is correct.
Q. The measured average. And would 349 gallons per minute convert to about .5 million gallons per day, approximately?

A. I'll take your word on it.
Q. All right. I'm going to show you a schematic diagram to the plant. Do you see this box here where it's labeled "FGD system"?
A. Yes. But may I ask you to scroll down to the bottom part of that just for a second, please?
Q. Sure.
A. Thank you. You can go back up now.
Q. Okay. Do you see an arrow going from that box to the boxes that are labeled "dewatering facility" and "ash pond gypsum stacking"?
A. Yes, I do.
Q. And above this arrow right here, do you see this number?
A. .56.
Q. Does that number represent the flow from the scrubber wastewater into the gypsum pond?
A. Into the gypsum disposal area, yes.
Q. Thank you. Over here on the left of the diagram there's an arrow that says Outfall 001 with a number over it, and could you read that number?
A. It looks like 15.097. It's a little fuzzy.
Q. I think it's 19.037.
A. All right.
Q. But would the numbers there represent the total

flow out of Outfall 001?

A. No.

Q. What would that number represent?

A. That would have been -- in 2007 that would have been correct in that on startup you had to list the total flow that would come through the fly ash on startup. Now, remember, we were still using fly ash through the silo pneumatically and taking it to the landfill. But on startup you still had the potential for it to be sluiced out to the settling pond No. 3.

So that figure includes the total flow, when in 2010 when we took out fly ash going to the settling pond, that number would have dropped by six million gallons. So instead of 19, it would have been around 13.

Q. Thank you. Now I'm going to show you a couple of pages from TVA's 2012 environmental assessment for the bottom ash and gypsum mechanical dewatering facility for Bull Run, which has been identified as Exhibit 63. Just going back -- we'll just stick with this one moment. Could you tell us what the normal operational flow would have been at that time?

A. Which year?

Q. In 2007.

A. In 2007 your operational flow could have ranged from 13 million to as high as 19 million.

Q. This is page 31 from the environmental assessment

I just mentioned, Exhibit 63, table 3-3, which is included in the binder behind tab 63. It's the last sheet. Mr. Hixson, are you familiar with this environmental assessment?

A. Yes.

Q. And for this table, which is titled *Current inflow of sources to the ash pond at Bull Run Fossil Plant*, could you please read the third item under the heading *Source*?

A. "FGD system, .56 million gallons a day." That's the same number that was on our schematic.

Q. All right. I'm going to jump a little further along in this document to page 52, which was not in the binder, but let me just pull it up. And do you see the top of this page where it says, "Based on standard operating conditions, the FGD scrubber below down-flow is estimated to be 300 GPM, i.e., approximately 0.43 MGD"?

A. Yes, I see it.

Q. Do you know what this number was based on?

A. It would be based on capacity.

Q. For the 300 MGD, was that a measured flow?

A. No. That would be a calculated flow.

Q. Mr. Hixson, did the draft permit that TDEC prepared call for use of best management practices, or BMPs, to control the discharge of metal?

A. The original draft that came out did not. The final permit did.

Q. And were these BMPs identified in the BMP plan?
A. Yes. We wrote a BMP plan and turned it in to the State.
Q. And what was your involvement in the preparation of that?
A. Drafted it.
Q. Did you have responsibilities with regard to implementation?
A. The plant had responsibilities for implementation.
Q. And what practices were identified in that plan?
A. The best management practices were, we put in the rock check dams. We rip-wrapped all of the sluice channel. We rip-wrapped all of the dikes, approximately 7200 linear feet of dikes, both on the outside and inside of the dikes, with rock. We dredged the settling pond, which was No. 3, so that we eliminated any potential for short-circuiting.
We rip-wrapped the splitter dike between three and four, between the settling pond and the stilling pond. We installed a weir. We added the capability to add chemical coagulants at three different locations, up here at the rock check dam at No. 1, here at the splitter dike at No. 4, and if any dredging activity was going on in the settling pond, on the dredge itself.
We also added three turbidity curtains here in the stilling pond. We rebuilt the weirs for the discharge going

out to the river. We also lowered the water elevation in these two ponds from 805 mean sea level to 801.5.

Q. So are those practices all part of how to control for suspended solids?

A. They were, one, for stability of the dikes and, two, to improve settling capabilities there, yes.

Q. And were those practices part of the general maintenance of the ponds, and things that would have been done before this permit was issued?

A. Yes.

Q. So does the BMP plan include any additional controls designed specifically to treat for dissolved metals?

A. Well, for metals and solids, the chemical coagulants. We did not have permission to use chemical coagulants until we went through and did this in 2010.

Q. And once TVA completes its conversion to dry handling, will these controls for solids be required?

A. They will still be used. You may not have to call upon the chemical coagulant as much, because you've reduced your flow and you've reduced your constituents coming through.

Q. Could you just tell us generally about TVA's plans for conversion to dry handling of full combustion waste?

A. As I had already stated, the dry fly ash was converted in 1992, with the exception of startup. That was taken care of in 2010. Since 2010 all fly ash has gone to the

landfill via truck. The gypsum dewatering and the bottom ash dewatering, that project started in 2012 and is scheduled to be done in late 2014. That will eliminate an additional six million gallons of water that currently come down the sluice channel into these ponds.

Q. And those dewatering plans, are those included in TVA's 2011 ash pond closure plan?

A. Yes, they are.

Q. And what was your involvement in preparation of that plan?

A. That was a team effort between URS, Stantec, and TVA to draft that.

Q. And did TVA's commitment to close its ash pond to dry handling of coal waste come as a result of the pond failure at the Kingston plant?

A. It came as a result of our CEO at that time, Mr. Kilgore, deciding that we would get out of the pond.

Q. And in addition to the dewatering that you said had been started, that process, had TVA begun any other implementation of that closure plan?

A. Yes -- no. I'm sorry, I gave you two answers. The Kemp pond down here was separate. It has been closed.

Q. And I believe you mentioned that the bottom ash waste stream would be dewatered before 2014?

A. At the end of 2014.

Q. And the same goes for the scrubber wastewater?
A. The scrubber wastewater will be -- and dewatered, I don't want to mislead anyone. We're not getting rid of the water. We are taking the gypsum and applying it across a belt filter in which the gypsum will stay on top of the belt filter. We'll vacuum the water out of it. The water will then be discharged again to these treatment systems right here.
Q. So just to clarify, after the conversion to dry handling, waste streams will remain?
A. The gypsum waste stream will remain. The bottom ash stream, since bottom ash is so inert, that water will be recycled back into the plant.
Q. And the remaining wastewater streams will continue to use this pond system?
A. The remaining low volume waste treatment, low volume waste sources, your roof drains, your coal yard runoff, the property runoff will all continue to use this sluice channel, this treatment pond, and this treatment pond.
q. But does the ash pond closure plan contemplate closure of all these ponds at some point in the future?
A. That is correct.
Q. And by when would TVA plan to complete that closure?
A. It's a stepwise fashion that you have to go

through. You first dewater your bottom ash, and you eliminate an additional six million. At the time of the application that she showed, we were in the 18 and 19 million gallons. We're now in around the 12 million gallon range, based upon our discharge monitoring reports that are turned in to the State. We take out the bottom ash. That's an additional six million gallons. That'll take us down to six million.

And at that point, we need to see what the new ELGs will be before you can build a treatment system. So we have to build a treatment system before you can get out of the pond.

Q. So any wastewater treatment facility will be designed and built only after the final ELG is released?

A. That is so that TVA will be on the same playing field as all other utilities, yes.

Q. And has TVA committed to closing the ash ponds regardless of the outcome or the timing of the ELG?

A. Restate that.

Q. For example, if it gets delayed years and years, how would it affect the closure plan for the pond?

A. You wouldn't build your wastewater treatment plant until you knew what your effluent guidelines are going to be, what specifications you have to meet.

Q. Does the ash pond closure plan identify a 2021 time frame for estimated closure of all ponds?

A. That is our target, yes. That can be delayed by delay of the regulations. And again -- and let me restate. This is not being closed by a regulation. It's being closed because our former CEO elected to do that.

Q. And has TVA estimated that the closure of the pond will cost approximately $100 million?

A. That is correct.

Q. And is TVA currently on target to meet that 2021 closure date?

A. Gypsum dewatering and the bottom ash dewatering will be completed the end of 2014. We are waiting on the ELGs. We would have to see what our wastewater volume at that time is and what the constituents are and what our limitations are for discharge.

Q. Aside from the federal regulation, is there anything else that might delay the schedule of closure?

A. Not that I'm aware of.

Q. In pond No. 3, at the bottom of the exhibit, the eastern portion of that pond, is that referred to as the inactive portion of the ash pond?

A. No, ma'am. The inactive portion is this right here.

Q. Yes, sorry. That's what I was -- okay. And that has been identified for closure first?

A. That would be closure first; that is correct.

Q. Does TVA plan to close that by 2014?

A. No, ma'am. You would try to close it all at one time, primarily because you're placing on it a cap which is two feet of clay, ten to the minus seven on permeability, and then you're putting twelve inches of soil on there and establishing grass.

If you were to go and try to close this corner of it and then come back in and close the whole thing, you might have your drainage, your surface drainage, incorrect. You might have to run equipment near it or by it. So, no, you'll just wait.

Q. Let me just pull up real quick the schedule that was included with the ash pond closure plan, which is Exhibit 62, attachment D. I don't think it's in the binders.

Okay. Do you see here where it has ash pond closure and inactive fly ash pond? It looks like it's aimed to be closing around 2014?

A. Yes, ma'am, and that is modified and kept up-to-date on a quarterly basis with the State through our DMRs. We attach it to the DMR, and it is sent in to the State for them to know if anything has slid on the schedule.

Q. So that has been updated?

A. That has been updated.

Q. Is there anything else in the schedule, to your knowledge, that's been changed?

A. The Kemp pond was closed in 2012 instead of 2013. This shows the gypsum dewatering finishing at the end of calendar year 2014, which is what I indicated to you, gypsum and bottom ash. All of these have already been done and were done at the end of 2012.

Q. Okay. If you look down for phase 2, fly ash pond ending 2019, is TVA still on target to meet that date?

A. That date could be anywhere from 2019 to 2021 currently.

Q. Okay. Then if we look at phase 3 of the ash sluice pond, has that target date changed?

A. Again, that could have slid by a year, yes.

Q. And can closure of that ash sluice pond be completed only after the bottom ash and scrubber wastewater dewatering takes place?

A. Right. That's correct.

Q. And if we look at phase 4, the sluice channel and stilling basin, has that date changed?

A. It could have slid by a year. These are internal dates to TVA.

Q. Right.

A. They are not regulatory-driven.

Q. Does TVA plan to construct new facilities to treat the remaining wastewater streams?

A. That will, again, depend on the ELGs. But, yes,

we're replacing the ponds, as you have pointed out. They may be replaced with a new pond or they may be replaced with some type of treatment applicable.

Q. Do you know if TVA anticipates building more than one facility or if one facility will address all the waste streams?

A. No, ma'am. I do not know that at this time.

Q. And, again, I think you answered this already, but will TVA continue to discharge wastewater streams remaining after dry handling through the stilling pond and out Outfall 001?

A. Yes, ma'am. Your stormwater continues to be routed that way, along with your building sumps, your roof drain. Those waste streams will still go through that way.

Q. And any of the scrubber wastewater until the new facility is built?

A. Until the new facility is built.

Q. You mentioned TVA considering new facilities?

A. I said TVA is looking at new facilities, including ponds.

Q. Has TVA considered chemical treatment for the scrubber wastewater?

A. Again, since I've moved into a waste management activity and not a water, I don't have the details on that.

Q. So would you happen to know whether TVA has done

any cost analysis for that sort of treatment?
A. No, ma'am. I do not have that information.
Q. And in addition to the HDR report, which you were aware of, do you know whether TVA has produced or contracted with another entity to produce any more reports regarding the wastewater --
A. The HDR contract is still an active contract.
Q. Have any seeps been discovered at the Bull Run pond?
A. Define seeps.
Q. Why don't you define seeps?
A. Okay. A seep can be a wet spot on the side of a dike, as defined by TVA.
Q. Could it also be some sort of a breach in the dike?
A. It could be an indicator of a breach in the dike, but it depends upon the volume of water one finds. If it's a wet spot, typically that's not a major concern. One takes care of that as part of your maintenance that you do.
Q. So in the range of wet spots to a seep, that would be more serious. Has anything like that been discovered at the dikes in the Bull Run pond system?
A. A few wet spots have been discovered; anything more serious than that, no.
Q. And has TVA taken any action to address those?

A. Yes. The TDEC permit requires us to do a daily inspection of the dikes, a weekly inspection, and then we follow that up with a monthly, in which we take one of our management members of the Bull Run staff out with the environmental person to look at the dikes. And then on a quarterly basis, when we were doing all of this work, our project team would walk down the dikes.

And then on an annual basis, we bring in an outside professional engineer to walk the dikes to determine if there are any issues with the dikes that need to be replaced or repaired that we have not seen.

Q. So have there been any seeps that were serious enough to require repairs?

A. Not at Bull Run.

Q. Mr. Hixson, do you recall having your deposition taken in this case?

A. Yes, I do.

Q. And do you remember being under oath at the time you gave your deposition?

A. Yes.

Q. I'm going to hand you a copy of your deposition.

A. All right.

MS. LEE: Your Honor, may I approach?

ADMINISTRATIVE JUDGE: Yes, please.

MS. LEE: I'll give you a page number in a

minute.

THE WITNESS: All right.

Q. (By Ms. Lee) Have you seen this before?

A. Yes, ma'am. I have reviewed this deposition.

Q. Okay. If you could, please turn to page 70 and take a look at line No. 9, starting at line No. 9.

A. Yes, ma'am. It says that "the report says a flow of red water seep was observed on the west side."

Q. Okay. And then if we jump down to line 14, and this is your answer to question -- explaining what a seep is. I'm sorry, let's just jump to page 71 at the top.

A. All right.

Q. And do you see where it says -- this was your testimony. But it did mean you observed water coming from that portion of the dike and that a repair would be necessary?

A. Yes, ma'am, but that didn't mean it was serious.

Q. I asked you if a repair was done, sorry.

A. If we find a rut in the dike, that may have been caused by erosion. If we find -- or someone got off of the road and got stuck and then tried to drive their truck back onto the road and left a tire mark in the dike, if we had a bush or a tree start to grow, and we tried to take out the roots that would have been associated with it, those are all maintenance repairs.

If we find a wet spot, we do put dirt back on top

of it. If it is a persistent one, then we would dig to determine what the cause of that wet spot is. That would be more serious. Have we had one of those at Bull Run? No, ma'am.

Q. Thank you. For any of the seeps or the wet spots on the Bull Run dike, has TVA made any attempt to quantify discharge of water through the dike?

A. A wet spot is not discharging water to the -- in this case, the Clinch River. It's like you're walking out in your yard, and you have a septic tank, and there is a wet spot there. That's not discharging to a stream or anything of that sort, but it may be an indicator that there is an issue that you need to address.

Q. So just to be clear, TVA hasn't made any attempts to quantify, sort of, water?

A. No, ma'am. It would be difficult to measure, because this is not flowing.

MS. LEE: All right. Thank you, Mr. Hixson. Petitioners have no further questions for you at this time.

MR. CALLAWAY: TVA has.

ADMINISTRATIVE JUDGE: Okay.

MR. CALLAWAY: Ed Callaway with Waller for the intervenor, Tennessee Valley Authority. I just have a couple of questions for Mr. Hixson.

CROSS-EXAMINATION

BY MR. CALLAWAY:

Q. Mr. Hixson, you were asked a number of questions about the characterization of the wastewater flowing into the gypsum disposal area. Do you recall that?

A. Yes.

Q. You were not involved in the preparation of that report that she was referring to; is that correct?

A. No, I was not.

Q. Is it your understanding that the Water Quality Act, based on your experience and your position working with permits, regulates discharges to waters of the state?

A. Yes, it does.

Q. Do you sample at Bull Run -- does TVA sample at Bull Run all points of discharge to waters of the state?

A. Yes, we do, discharge 001, 002, yes.

Q. Does the Act regulate wastewater quality upstream of that before the wastewater is treated?

A. Internal to the plant, no.

Q. And is that what you believe the influent to the gypsum sulfur area is?

A. That's an internal monitoring point, if one were to monitor it, yes.

Q. Okay, thank you. With respect to the pond closure discussion, when did TVA decide to close the ash pond at Bull

Run? When was that decision taken?

A. That decision was taken after the Kingston incident.

Q. And what was the reason, as you understand it, for that decision?

A. At that time our CEO, Mr. Tom Kilgore, made that decision, that that was a safety issue to the public and that he wanted to eliminate that. And I'm paraphrasing, but I believe that is what he told Congress.

Q. Was it related at all to the effectiveness of the ponds for wastewater treatment?

A. No. It didn't address anything associated with the ponds as a treatment system.

Q. And the ash pond closure plan that you were involved in the preparation of, does it address the closure of all ponds existing in here, or does it simply address the ponds that exist in --

A. The existing ponds that were shown in the aerial photo.

Q. If the federal effluent limitation guideline, the revised version that there's been a lot of discussion on, if that came out and allowed it, would TVA consider using a new pond to treat remaining wastewater?

A. Yes.

Q. So does the pond closure plan and the future

closure mean that ponds are not an acceptable treatment technology now or may not be in the future?

A. No, not at all. It simply is addressing the existing ponds from a safety standpoint.

Q. So that's a completely separate evaluation?

A. Yes.

Q. And is there any regulatory reason that is driving TVA's decision for a timetable to close the ponds?

A. No. Again, it was a decision made by our former CEO to avoid a potential Kingston incident.

MR. CALLAWAY: That's all I have. Thank you.

ADMINISTRATIVE JUDGE: Anything from the Department?

MR. PARKER: No, Your Honor.

ADMINISTRATIVE JUDGE: Any questions from members of the board?

Mr. HEAD: Mr. Hixson, you talked a little bit earlier in your testimony about there were metals in the sulfurization waste. I was curious about what metals were present.

ADMINISTRATIVE JUDGE: Can we get you to repeat your question for the record, please?

MR. HEAD: Sure. Earlier in your testimony you talked about there were metals in the

sulfurization waste, and I was curious about what metals were present.

THE WITNESS: You would have copper, zinc, iron. Because it is coming from a coal-fired facility, you could see selenium, arsenic. But they would all be at trace levels, and that is what our discharge to the Clinch River has shown.

MR. HEAD: You also mentioned that you had been requested to determine levels of mercury in the Clinch River upgradient of outfall No. 1. What type of levels of mercury did you find there?

THE WITNESS: Mr. Alexander asked that we -- he's the permit writer, Mr. Alexander, asked that we provide, if we could, samples from the Clinch River. We sent a sampling crew out using a low level mercury analysis, and we're talking in the nanograms per liter.

MR. HEAD: Talking about nanograms per liter?

THE WITNESS: Yes, sir.

MR. HEAD: Parts per trillion?

THE WITNESS: Parts per trillion, upstream of the facility, parallel to our intake, parallel to our outfall.

MR. HEAD: And you mentioned earlier that you did a chemical analysis for the effluent leading into -- I

guess discharge into the Clinch at discharge 001. Do you happen to recall what kind of levels they had in the effluent?

THE WITNESS: Again, in the parts per trillion range, yes. And those numbers are turned in on the DMR monthly to the State of Tennessee, to TDEC, and are also charted on an Excel spreadsheet that we share with the State.

MR. HEAD: And do you happen to know what the MCL is for mercury in drinking water?

THE WITNESS: Not right off the top of my head, no, sir. But it is on that Excel spreadsheet chart that I just spoke of.

MR. HEAD: And then I wanted to follow up with two or three questions on the reason for the change in operation of the facility, just to make sure that I understood.

In your current operation, are you having any trouble meeting the requirements of the NPDES permit in terms of discharge that's going into the Clinch River?

THE WITNESS: No, sir, not at all.

MR. HEAD: And you are conducting regular monitoring for metals in that?

THE WITNESS: Yes, sir. It's a report only. It's not against a numerical limit. But it's a report only, and those are turned in on the DMR on a monthly basis.

MR. HEAD: Now, what I thought I heard you

say when he asked you this question, any changes that TVA is making in the water treatment system that is currently present is due to obtaining fundamental changes in the operation, moving from a wet ash operation to a dry ash operation?

THE WITNESS: That is correct.

MR. HEAD: And part of the driving factor for that, is that due to structural stability concerns about the facility or ...

THE WITNESS: It is -- if you look at Mr. Kilgore's commitment, it is a two-part commitment. One, you would upgrade the current dikes so you would not have that Kingston event happen again. And, two, you would go dry. So we took care of the first one immediately.

The second one we are in the process of building the gypsum dewatering and the bottom ash dewatering so that we can eliminate water from the bottom ash, the gypsum water. Currently we're planning to discharge the .56 million gallons a day into the treatment system.

MR. HEAD: And in your opinion, is management of coal combustion byproducts more effective than managing dry waste and wet waste?

THE WITNESS: Yes.

MR. HEAD: Thank you.

ADMINISTRATIVE JUDGE: More questions?

MR. McCLURKAN: I have just one. I think

you mentioned that the Bull Run plant, so far in 2013, has operated 61 days?

THE WITNESS: That is correct.

MR. McCLURKAN: What does that mean?

THE WITNESS: Well, TVA outlines for each of its plants its capacity that it's going to use, its capability. My term is incorrect, and I apologize for that. The plant in TVA, you're either online, and that's for our base load facility. That's your Sequoia, your Watts Bar Nuclear, your Browns Ferry Nuclear, and your large fossil plant like Cumberland.

Those are all what we call baseline, and baseline run every day the maximum that you can run out at that plant. It may not be the boilerplate tag that is for that plant, but it's within a hundred megawatts below that. Those run all the time.

Then you supplement that with your hydros and your gas. And then you have other smaller coal plants like Colbert that can turn on and turn off a lot easier than Bull Run. Bull Run is a single-unit plant, and it's rated boilerplate at 950. It does a nominal 750 to 850 megawatts in generation.

It's so large you can't -- it's like taking a semi or an aircraft carrier and trying to turn an aircraft carrier around on a dime. You can't do that. You

can't stop and start it. When you run Bull Run, you need to have it run for three -- usually about three weeks minimum.

MR. McCLURKAN: So when it's offline --

THE WITNESS: It's called NID, not in demand, and Bull Run is currently classified NID, not in demand. So it is not the first plant you're going to turn on. If we had a cold snap come through or a heat wave come through, other plants would go online in front of Bull Run. Right now it is scheduled to run no greater than four months out of the year.

MR. McCLURKAN: And when it is offline, not running, is there discharge from this scrubber unit?

THE WITNESS: There is no discharge from the FGD scrubber unit. There's no discharge of bottom ash. The only thing that you will have at that time will be stormwater runoff from the coal yard pond, your building sumps, because you do still have activity within the building itself. But these are all classified as low volume waste treatment, very small quantities of water going out.

That's why if you looked on our DMRs, originally it was listed as 18 to 19 million gallons. We took out six million. That dropped us in the 12 to 13. Our DMRs for the last three years, 12 million is the high that we've hit. That includes our stormwater. And the low that we've had has been in about the high eight or low nine million

gallon range.

MR. McCLURKAN: Thank you.

THE CHAIRMAN: Mr. Hixson, we saw three charts in the petitioners' opening argument that showed high spikes for arsenic, mercury, and selenium. Do you know whether those were measured at the point of discharge into the Clinch, or were those measured pretreatment?

THE WITNESS: May I see your chart again?

(Pause in proceedings.)

MS. MATHENY: May I approach?

ADMINISTRATIVE JUDGE: It was on his monitor there for a second.

MS. MATHENY: Oh, it was?

THE WITNESS: Yeah. It wasn't on the screen, but it flickered. I see it on my screen. Thank you. The value that's shown here, the .34, that is going into the gypsum disposal area, which was the pond No. --

THE CHAIRMAN: Pretreat?

THE WITNESS: That's pretreat, yes.

THE CHAIRMAN: Not what you're --

THE WITNESS: That is not what's being discharged; that is correct.

THE CHAIRMAN: Thank you.

ADMINISTRATIVE JUDGE: Questions from the parties? Ms. Lee?

MS. LEE: Brief redirect, Your Honor.

REDIRECT EXAMINATION

BY MS. LEE:

Q. Mr. Hixson, you were asked a couple of questions regarding requirements of the law and the monitoring discharges into waters of Tennessee. Were your answers to those questions your opinions and your understanding of what the law requires?

A. That is correct.

Q. And can you confirm that when the scrubber wastewater is not flowing because the plant is not running, are other waste streams flowing into the pond system?

A. As I answered for the Board, the low volume waste sumps, some equipment drainage and cooling are still occurring; that is correct.

Q. Thank you. And you mentioned that TVA would consider, depending on what the ELG required, to build new ponds and replace the ponds that TVA is now closing and is spending $100 million to close; is that correct?

A. That is correct.

Q. Was that consideration disclosed in the 10(k) filing for the company?

A. It was disclosed as part of the treatment options that we would be looking at.

MS. LEE: Thank you. Nothing further.
ADMINISTRATIVE JUDGE: More from TVA?
MR. CALLAWAY: No, Your Honor.
ADMINISTRATIVE JUDGE: Anything more from the Board?
THE CHAIRMAN: No.
ADMINISTRATIVE JUDGE: You're excused. Thank you so much.
THE WITNESS: Thank you.
ADMINISTRATIVE JUDGE: Petitioners' next witness? Is everybody good? Are you good?
COURT REPORTER: Yes.
MS. MATHENY: Petitioners call Robert Alexander.
ADMINISTRATIVE JUDGE: If you would, raise your right hand.

ROBERT ALEXANDER,
having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. MATHENY:

Q. Good afternoon, Mr. Alexander.
A. Good afternoon.
Q. As you know, I'm Stephanie Matheny. We've had

occasion to talk once or twice. Can you please state your name for the record?

A. Bob Alexander.

Q. And I want to ask a logistical question. Can you see the exhibits that are being projected right now on your screen?

A. I can see a copy of the permit on the screen.

Q. Okay. I believe all of the exhibits I'm going to refer to are in your book, and it's primarily the permit which is Exhibit 1. Mr. Alexander, what is your position at TDEC?

A. I'm a NPDES permit writer.

Q. And did you write the NPDES permit for TVA's Bull Run Fossil Plant?

A. Yes, I did.

Q. Okay. Can you please turn to the cover sheet for Exhibit 1, which is the permit, I believe. That's the first sheet.

THE CHAIRMAN: That does not appear to be what --

MR. PARKER: There's three --

THE CHAIRMAN: Which book?

MR. PARKER: The big book, and there are demonstratives and then there are the actual exhibits. I guess that's the last set.

Q. (By Ms. Matheny) All right. Mr. Alexander, do

you see the first page of Exhibit 1?

A. Yes.

Q. And is this a copy of the permit that's at issue in this appeal?

A. Yes.

THE CHAIRMAN: Your Honor, one of our board members would like to be able to see this on the screen.

ADMINISTRATIVE JUDGE: Is there any way we can fix our technology?

MS. MATHENY: May can we take a short break?

ADMINISTRATIVE JUDGE: Let's take five minutes, and we can do what needs to be done.

(Recess taken.)

(BY THE ADMINISTRATIVE JUDGE) All right, we're back on the record. Technical difficulties fixed. You may proceed, Ms. Matheny.

MS. MATHENY: Thank you.

Q. (By Ms. Matheny) We're on the cover sheet of the permit, which is marked TVA_BRF_0000688. Is that correct, Mr. Alexander?

A. Yes.

Q. And, Mr. Alexander, what was the issuance date of this permit?

A. The issuance date was September 30th, 2010.

Q. And when is the permit set to expire?
A. November 1st, 2013.
Q. Mr. Alexander, TDEC received an application for renewal from TVA?
A. Yes, we have.
Q. Did it receive the application in a timely manner?
A. Yes, we did.
Q. And, therefore, can TDEC extend the permit, administratively, beyond November 1st?
A. By deeming the permit application complete, the facility's permit is in administrative leave standing.
Q. Thank you, Mr. Alexander. Is TDEC waiting for the results of this hearing before it issues a draft renewal permit?
A. Not that I'm aware of.
Q. Is TDEC waiting for anything else before it issues a draft renewal permit?
A. Not that I'm aware.
Q. Let's turn to page 1 of 20 -- I'm sorry, page 1 of 28, and the top of this is marked part 1, "Effluent Limitations and Monitoring Requirements". Is that correct, Mr. Alexander?
A. Correct.
Q. Now, this page shows that the permit covers three outfalls to the Clinch River; one, two, and four; is that

correct?

A. That's correct.

Q. And the permit allowed TVA to discharge various coal combustion wastewaters and coal power runoff and other miscellaneous runoff wastewaters to the Clinch River via Outfall 001?

A. Correct, yes.

Q. And is one of these wastewater streams the scrubber wastewater stream that we have been talking about?

A. Yes, it is.

Q. And does the FGD wastewater stream carry pollutants removed from the scrubber?

A. Outfall 001, which discharges to the Clinch River, does carry wastewater from the FGD scrubber, yes.

Q. And, more specifically, does the FGD wastewater stream carry pollutants that are removed from air emissions by the scrubber?

A. Yes.

Q. So, Mr. Alexander, this permit involves moving pollutants from air emissions to surface water discharges; is that correct?

A. Yes.

Q. And as we've heard Mr. Hixson testify, TVA is in the process of converting to dry handling of coal ash; is that correct?

A. Yes.
Q. And will that affect which of the wastewater streams at Outfall 001 will remain?
A. Yes.
Q. And, in particular, the scrubber wastewater stream will remain after dry conversion; is that correct?
A. Yes.
Q. Okay. Let's turn to the next page. Mr. Alexander, does this page list the limits applicable to Outfall 001?
A. Yes, and the monitoring requirements associated with it.
Q. And, Mr. Alexander, at Outfall 001 there are permit limits for pH, oil and grease, and total suspended solids; is that correct?
A. That's correct.
Q. And are these limits derived from EPA's 1982 Effluent Limitation Guidelines?
A. Yes.
Q. And are these guidelines based on the performance of settling ponds?
A. In part, yes.
Q. But there are no treatment technologies available for these coal combustion wastewater streams since 1982; is that correct?

A. Correct.
Q. And TVA uses settling ponds for its coal combustion wastewaters at Bull Run?
A. Yes.
Q. And these ponds at Bull Run are not lined?
A. I'm told they are not lined.
Q. And these unlined ponds at Bull Run have seeps; is that correct?
A. I don't recall.
Q. Does the permit require TVA to monitor and report the metals listed on this page?
A. Of course.
Q. But there are no limits on these metals at Outfall 001?
A. That is true.
Q. And the last item on this chart is IC-25. Is that a measure of whole effluent toxicity?
A. Yes.
Q. And the permit imposes a monitor-only requirement for whole effluent toxicity; is that correct?
A. That's true.
Q. So there is no whole effluent toxicity limit at Outfall 001?
A. That's true.
Q. Let's turn to your response to comments, which

starts at page NOD-1. Mr. Alexander, is this the first page of the Notice of Determination you wrote for the final permit?

A. That's correct.

Q. And does this Notice of Determination respond to comments that were submitted regarding the draft permit?

A. Yes, it does.

Q. Let's turn to page NOD-17. Did you draft this section in the permit that starts on this page that's titled *Best Professional Judgment Analysis*?

A. Yes. I drafted it, and it was reviewed by my supervisors and the chief engineer of the division.

Q. And your supervisor to whom you're referring, is that Mr. Janjic?

A. Mr. Janjic, yes.

Q. And the chief engineer to whom you are referring, is that Saya Qualls?

A. Ms. Qualls, yes.

Q. And did you add this section titled *Best Professional Judgment Analysis* because the Tennessee Clean Water Network asked for this in their comments on the draft permit?

A. That was one reason, yes.

Q. What was the other reason, or was there any other reason?

A. Well, we felt it was our duty as the regulatory

agency to use this document, this approach, this BPJ analysis as a vehicle for communicating our responses to those comments that were raised during the public comment review process.

Q. And, Mr. Alexander, the goal of a BPJ analysis is to determine technology-based permit requirements; is that correct?

A. That's one of the goals, yes.

Q. And when you prepared the analysis for this permit, you were not trying to develop technology-based permit requirements; is that correct?

A. No, it's not correct.

Q. Mr. Alexander, do you recall being deposed for this case?

A. Yes.

Q. Do you recall that your lawyers were present --

A. Yes.

Q. -- during the deposition?

A. Yes.

Q. Do you recall that you were under oath?

A. Yes.

Q. I'm sorry?

A. Yes.

Q. Okay. You said yes. And have you seen the transcript of that deposition?

A. Yes, I have.

MS. MATHENY: Your Honor, may I approach?

ADMINISTRATIVE JUDGE: Yes.

Q. (By Ms. Matheny) Please turn to page 25 of your deposition transcript. And can you please read into the record lines 8 through 16?

A. Well, this is the question.

"In this permit, why would the division conduct a BPJ analysis?"

Answer: "Because it was necessary to clarify. It was necessary to say what the BPJ analysis was in response to comments that were raised during the permit review process." How much further?

Q. To line 16, please.

A. Question: "Were you trying to develop technology-based permit requirements?"

Answer: "No."

Q. Thank you, Mr. Alexander. Early on in your BPJ analysis, did you write an email to Ron Jordan of EPA?

A. Yes. I think you showed the excerpt from it in your opening remarks.

Q. And we're going to bring it up right now. It's Exhibit 95. Mr. Alexander, in this email did you write that you were trying to address the EIT comments in response to BPJ's permit limits, in essence, a discussion as to why Tennessee will not and cannot set numeric metals limits in

advance of EPA's revised ELGs?

A. Yes, I did.

Q. And was this early on in your response to comments?

A. Hold on a second. I think I wrote this -- if you'll give me one second, I want to look at the date that we developed the rationale. That was in January, and we wrote the Notice of Determination in August. So this was about midway between that point, yes.

Q. Was this written on April 27, 2011?

A. That's correct.

Q. Let's turn back to the permit, and specifically page NOD-34. Can you please read the first two sentences of your conclusion from this page?

A. Yes. "With a permit term of 2010 to 2013, the watershed cycle year, the NPDES permit for TVA Bull Run Fossil Plant should incorporate nonnumeric best management practices to control concentrations of toxic metals as described herein."

Q. Can you please read the next sentence, too?

A. "Consistent with 40 CFR 122.44, subparagraph (k)(3), the BMP approach is appropriate, because establishment of numeric limits is infeasible pending EPA publication of revised Effluent Limitation Guidelines."

Q. So, Mr. Alexander, is it fair to say that your

final conclusion was pretty much consistent with what you had told EPA you were trying to do in April of 2010?

A. Yes. I think that what I was trying to say in the EPA memo is that we could not establish numeric limits, and that was what we ended up determining in this Notice of Determination.

Q. And, Mr. Alexander, you concluded numeric limits were infeasible, in part, due to a lack of data; is that correct?

A. That's correct.

Q. But TDEC determined that TVA's application was complete; is that correct?

A. Yes. The application is complete in terms of the amount and types of information that it was required to submit under the rules. But our determination that establishment of numeric metals limits wasn't feasible was because we lacked numeric data on the performance of treatment technologies that would have been deemed as best available treatment technology.

Q. Thank you, Mr. Alexander. Now, in conducting a BPJ analysis to determine that the EPA established specific factors to evaluate --

A. Yes.

Q. And did its factors include the age of the equipment?

A. Yes.

Q. Do they include the process employed?
A. Yes.
Q. Do they include the process changes?
A. They do.
Q. Do they include non-water-quality environmental impact?
A. Yes, they do.
Q. Do they include engineering aspects for various types of control technology?
A. They do.
Q. And do they include the cost of achieving that reduction?
A. Yes, they do.
Q. Let's walk through your consideration of these factors. Regarding the age of the facility, Mr. Alexander, did you conclude that the age of the Bull Run facility was not a significant factor, because it was infeasible to set permit limits in numeric form?
A. No, not for that reason.
Q. Mr. Alexander, can you please turn back to your deposition transcript on page 41? Can you please read lines 14 through 21?
A. Line 14 is the answer. So I'm saying: "Un-huh, I don't think age was a significant factor at all in determining the decision that we reached in the

BPJ analysis."

Then the question: "Why not?"

The answer: "Because the decision that we reached in this BPJ analysis was that there wasn't available information upon which to establish numeric effluent metals limits, that doing that wasn't feasible." It still is.

Q. And, Mr. Alexander, I don't have the deposition in front of me, but did you just add "it still is", or was that from the transcript?

A. No. But if I could, I would add that it still is.

Q. Okay. Thank you, Mr. Alexander. Regarding the process employed, did you conclude that the type of coal used at the facility could fundamentally affect the constituents in the ash?

A. What we said in this BPJ analysis was that information that we had to date pointed to that very fact.

Q. So is that a yes?

A. Yes.

Q. But does the permit specify the type of coal that TVA can use at Bull Run?

A. No.

Q. Mr. Alexander, for process changes let's look at page NOD-33. I'm going to read the final sentence under "process changes". It says, "Based on public statements made

by TVA regarding conversion to dry ash, to eliminate ash sluiced water, this process change negates the need for consideration of additional control since no additional technology could be installed sooner than the dry ash conversion system." Did I read that correctly?

A. Yes.

Q. And, Mr. Alexander, as we discussed earlier, these process changes will not eliminate the scrubber wastewater; is that correct?

A. Yes, that is correct.

Q. So regardless of the process changes you considered here, the scrubber wastewater will remain and will require treatment?

A. That is true.

Q. Since we're on this page, let's go ahead and address non-water-quality environmental impacts. Was it your conclusion that you could not identify non-water-quality environmental impacts until EPA issues the revised ELGs?

A. The conclusion we reached in this BPJ analysis is that we didn't have information on the non-water-quality environmental impacts that would allow us to determine the best available technology and, thus, the numeric limits that we could impose that technology would be expected to provide.

Q. And, Mr. Alexander, can you please read the last sentence under factor 5 starting with the word "given"?

A. "Given that this aspect of analysis cannot assist us in selecting optimal treatment technologies for coal ash wastewater, non-environmental impacts cannot be identified or used in a decision-making process in the EPA's publication of revised ELGs expected in 2013."

Q. And you no longer expect to provide the ELGs in 2013, do you, Mr. Alexander?

A. No, I do not.

Q. All right. Let's discuss the factor regarding engineering aspects of the application of various types of control technology. Mr. Alexander, does your discussion of this factor address the performance of settling ponds?

A. Yes. The first paragraph mentions that that's the predominant control technology employed in the U.S.

Q. And, Mr. Alexander, your discussion of this factor and the Notice of Determination did not go into the performance of other treatment technologies, because EPA's 2009 study report did not select a technology of that; is that correct?

A. It is correct that the 2009 report did not select a technology as a BAT.

Q. And, Mr. Alexander, is that the reason your discussion of this factor as a determination did not go into the performance of other treatment technologies?

A. That's one of the primary reasons, yes. The

purpose of this factor is to evaluate "is there an engineering approach to treatment of this wastewater that works today; is there an available solution."

And what we were attempting to do in this section of the Notice of Determination is to look at all the various information that EPA had presented and TVA had given us to see could we pick a treatment technology that was the best that there was, and what we concluded from looking at all of this is that there's no way to make that decision.

Q. Okay. And, Mr. Alexander, I really want to be clear on this one point. Your discussion of the engineering factor in the Notice of Determination did not go into the performance of other treatment technologies; is that correct?

A. Well, it discusses the 2009 report, which did address settling ponds, physical/chemical, and biological treatment. So, by reference, it has knowledge that there's information on those other technologies that exist.

But, again, none of that information says that "here is the technology; that is the best in the U.S.," and then you would know what numbers that technology provides so that you could set those as numeric metals limits.

Q. So, Mr. Alexander, in your cite that this was a case-by-case best professional judgment analysis, were you relying on EPA to make a conclusion before you could make a conclusion?

A. We presented the best available information that we had at the time, and that included EPA information. It included other articles, technical articles, and things that we could find on the web, et cetera.

Q. But in the section titled *Best Professional Judgment Analysis*, Mr. Alexander, did you evaluate the comparative effectiveness and costs of various treatment options?

A. We primarily referenced the EPA 2009 report, which discussed in detail the performance of these technologies at a small set of FGD wastewaters that EPA had information on. In relying on the 2009 EPA study, we found that that study hardly at all addressed the cost of these technologies.

And so even though we were aware that there were engineering solutions to treating this wastewater, nothing that we had to rely on could prove to us what the best technology was and what the numeric limits of that technology ought to be.

Q. Okay. And, Mr. Alexander, are you familiar with a draft permit EPA prepared for Merrimack Station in New Hampshire?

A. Yes, ma'am, I am.

Q. And for the Merrimack permit, did EPA conduct a BPJ analysis to propose case-by-case limits on scrubber wastewater?

A. Yes, ma'am, they did. It was a very detailed examination of the recycle scrubbers, the scrubber that that facility had, and ended up comparing the likely performance of a scrubber that was still under construction and beginning operation to scrubbers that Duke Power had in North Carolina.

Q. And, Mr. Alexander, I just put up Exhibit 90, which is attachment E from the Merrimack Station analysis. Mr. Alexander, have you reviewed this document before?

A. Yes, ma'am.

Q. Let's turn to page 14 of 52.

A. Do I have that here? Are we going --

Q. Is it on your screen, Mr. Alexander?

A. Yes. Go ahead.

Q. I actually have page 16 of the PDF document.

A. Yes. I see it.

Q. And it starts with section 3.0, "Technological Alternatives Evaluated"; is that correct?

A. That's correct.

Q. Does part 3 list the technology EPA analyzed in its BPJ analysis for Merrimack Station?

A. Yes.

Q. And does that list include discharge to a POTW?

A. Yes.

Q. Does that include evaporation ponds?

A. Yes, and a flue gas injection, fixation, deep well

injection, and all those are shown on the screen here.

Q. Does that include FGD WWTS effluent reuse/recycle?

A. It does, indeed.

Q. Does that include settling ponds?

A. Yes, ma'am, and treatment by the existing WWTS, vapor compression evaporation, physical/chemical treatment, and physical/chemical with added biological stage.

Q. So I count, roughly, about 11 alternative technologies that EPA considered. Does that appear to be correct, Mr. Alexander?

A. That appears to be correct.

Q. And did EPA choose physical/chemical treatment?

A. Yes, I believe they did, with biological treatment for this recycle scrubber.

Q. Okay. Let's turn back to your analysis for Bull Run. Mr. Alexander, did you consider effluent data as part of your evaluation of this engineering aspect factor?

A. Yes, via use of the effluent data that was presented in EPA's 2009 report, and from the ash pond data that TVA presented in their permit applications for 1998, 2003, and 2007.

Q. And when you wrote this permit, did you conclude that you did not have enough effluent data from TVA regarding toxic metals?

A. I'm not sure -- enough data to do what?

Q. Let's turn to page NOD-34. Mr. Alexander, under your conclusion, part A, can you read the paragraph labeled 1, "Limited Data", please?

A. Yes. "Limited data - Effluent data for toxic metals consists of only three measurements by TVA over the previous 14 years; most effluent metals concentrations are less than detection." These are the effluent metals from the ash ponds.

Q. And Mr. Alexander, it was possible to have analyzed the untreated scrubber wastewater at Bull Run; is that correct?

A. I'm not sure what you mean by "it was possible".

Q. Was it feasible to have analyzed scrubber wastewater at Bull Run?

A. In what context are you saying, could anyone have done it?

Q. Yes. Could it have been done?

A. Oh, yes, ma'am.

Q. And, Mr. Alexander, you did not consider asking TVA to provide data regarding untreated FGD wastewater at Bull Run; is that correct?

A. We did not ask for that, but that's only half the picture in defining what best available technology is, because you have to have both the influent and the effluent data of all the candidate types of wastewater treatment so that you'll

know which one is the best.

Q. So, Mr. Alexander, it's correct that you did not consider asking TVA to provide data regarding untreated scrubber wastewater at Bull Run?

A. Yes.

Q. And, Mr. Alexander, the reason you did not ask TVA for this data is that you concluded it wasn't feasible to set numeric limits; is that correct?

A. I would not say that was correct. That might have been one of the reasons, but I'm sure that's not the only reason.

Q. Was it one of the reasons?

A. Yes, it was one of the reasons.

Q. And you did not evaluate alternative treatment technologies for scrubber wastewater, because you believe there wasn't existing data on which to base that analysis; is that correct?

A. We referenced what EPA had already published in its 2009 study about the available treatment technologies and relied on that.

Q. Mr. Alexander, was that a yes or a no?

A. It's not a question you can answer by yes or no.

Q. Mr. Alexander, can you please turn to page 63 of your deposition transcript? Can you please read lines 20 to 24?

A. Line 20:
Question: "Why didn't you evaluate other treatment technology for the FGD wastewater strength?"
Answer: "There wasn't existing information on which to base any of that analysis."
Q. Thank you, Mr. Alexander. And you would want to have the best data that exists in the U.S. to set limits; is that correct?
A. Of course.
Q. And you believe that this is especially true for TVA, because it is a governmental entity that means so much to the environment and the economy of our region?
A. That sounds like a quote. Yes.
Q. So you would want all of the treatment data EPA is collecting through its national rulemaking to determine BAT-based effluent limits for Bull Run?
A. I would love to have that, and especially as these rules are finalized. But the way it looks right now, EPA has placed all of that data behind the confidential business information door, and permit writers may never have access to that if the rules are finalized the way they are now.
Q. So your answer is yes, you would want all of that data?
A. Yes, I would want all of that data.

Q. Let's turn to your consideration of the factor regarding cost of achieving effluent reduction. Mr. Alexander, your analysis of this factor did not go beyond what EPA had published in its 2009 report; is that correct?

A. Well, in the NOD we described what information had been published about costs. I'm referring back earlier in the NOD. That -- give me one second here. I can refer you back to that.

In the process of EPA's updating the effluent guidelines, they indicated that the 2009 study lacked enough cost data to support the economic and financial impact analysis that would be required to set BAT.

So that's the most important wording that we have about cost in the BPJ analysis is that EPA, at the time that we wrote this, didn't even have enough cost information to decide what the treatment technology is that would be determined to be the best available technology.

Q. And, Mr. Alexander, I'm afraid I might have lost your answer there. Is it correct that your analysis of the cost of achieving effluent reduction did not go beyond what EPA had published in its 2009 report?

A. Correct.

Q. And, Mr. Alexander, when you wrote the permit, did you conclude the data on costs of achieving effluent reduction were not available from existing data collection sources,

including the 2009 study?

A. We concluded that there was not cost data adequate for us to select a candidate treatment technology as best available technology.

Q. And among the data sources that you considered in reaching that conclusion was the EPA 2009 study; is that correct?

A. That's correct. As I mentioned, that 2009 study has very little cost information in it.

Q. Mr. Alexander, in a case-by-case EPA analysis, you would want all of the economic data that EPA is collecting to develop national Effluent Limitation Guidelines?

A. If that data existed, yes.

Q. But would you want that data in order to be able to conduct a BPJ analysis?

A. I'm not sure how to answer that, because as we sit here today, there is this roomful of cost data that exists at EPA. And I'll say again, if EPA rules are published today the way they are, that cost information is hidden behind the confidential business information door, and permit writers like me may never have access to that in any state. So I don't know how I can answer your question, I'm sorry.

Q. Mr. Alexander, do you think that you would need all of that data in order to do a case-by-case BPJ analysis?

A. I think our responsibility in the public interest,

to serve the public interest, says that we must have -- that the permit writer must have enough cost information on the various treatment options to be sure that we are doing the best job we can in picking a candidate treatment technology and labeling that as the best available treatment upon which the people of our state are going to spend money on to meet a set of effluent limits.

Q. Now, Mr. Alexander, EPA did not publish the draft ELG in the Federal Register until June of 2013; is that correct?

A. That is correct.

Q. Yet other states have managed to develop BPJ-based BAT limits in NPDES permits for power plants; is that correct?

A. I have only seen the Merrimack permit and maybe one from Indiana that I have not fully evaluated yet. But I think, for the most part, those are not the same type of process equipment that TVA operates. They are recycle scrubbers as opposed to once-through scrubbers, for the most part.

Q. And as we discussed earlier, EPA's BPJ BAT limits for the Merrimack power plant?

A. Yes, ma'am.

Q. Let's go back to that exhibit, Exhibit 9-D, and I'd like you to turn to the bottom of page 28 of 52.

A. Yes. I see it on the screen.

Q. Mr. Alexander, what is the title of part 4 here?
A. Cost of achieving effluent reductions.
Q. Can you please read the first sentence under part 4?
A. "PSNH" -- I'm sure that's the name of the utility there -- "chose to install and has largely completed installation of the physical/chemical treatment system at Merrimack Station in New Hampshire."
Q. Please read the next sentence.
A. "This demonstrates that the cost of the system was not prohibited."
Q. Please turn to the next page, which is page 29 of 52. And I'm starting in the middle of this paragraph 8 lines down after footnote 16. Can you see that where it says "thus"?
A. Yes.
Q. "Thus, EPA estimates that the total FGD WWGS, including biological treatment, would be approximately $1,654,000, based on approximately $9,823,000 and capital costs of approximately $727,000 in yearly operating and maintenance costs. Costs on this order of magnitude can reasonably be borne by PSNH. PSNH has been a profitable company and should be able to afford to install biological treatment if it is determined to be part of the Merrimack Station." Did I read that correctly?

A. Yes, ma'am.
Q. Mr. Alexander, when you prepared the Notice of Determination, had you reviewed the 1982 Effluent Limitation Guidelines?
A. Of course.
Q. And was it your understanding that EPA had included scrubber wastewater as a low volume waste in this ELG?
A. That's correct.
Q. Let's go back to the permit on page NOD-25. Mr. Alexander, can you please read the last paragraph on this page?
A. The one beginning "federal"?
Q. Yes.
A. "Federal ELGs are both existing and applicable to waste streams in question. Nevertheless, TDEC must follow the procedure defined under 40 CFR 125.3 to impose technology-based treatment requirements for discharges on a case-by-case basis, using BPJ."
Q. But your conclusion at the time was that federal ELGs are both existing and applicable; is that correct?
A. That is correct.
Q. Please turn to page NOD-26 and the first sentence of the second paragraph under item 2. It says, "In developing the 1982 ELG, EPA considered but did not establish numeric

ELGs for toxic metals due to lack of available data." Did I read that correctly?

A. Yes, ma'am.

Q. All right. We're going to turn to Exhibit 74, which is a copy of the development document. Mr. Alexander, I've turned to page 2 of the document, which is No. TDEC BRF 0000487; is that correct?

A. Yes.

Q. Can you please read the first sentence of paragraph 4?

A. Paragraph 4. Bottom ash transport wastewater?

Q. Yes, Mr. Alexander.

A. "For bottom ash transport wastewater, there are no BAT limits or pretreatment standards, with the exception of a prohibition on PCB discharges. NSPS is revised to equal BPT. The existing recycle requirement is withdrawn. The existing BAT limits for conventional pollutants are withdrawn because they will be covered by BCT."

Q. And, Mr. Alexander, can you please read just the first sentence of the next paragraph, paragraph 5?

A. "For low volume wastes, the BAT limits for conventional pollutants are withdrawn because they will be covered by BCT."

Q. Okay. Mr. Alexander, let's turn to the next page. Can you please read paragraph 7?

A. "BAT, NSPS, PSDS and PSNS are non-chemical metal cleaning wastes, wet air pollution control devices, chemical handling area runoff, and ash pile/construction area runoff are reserved for future rulemaking."

Q. And, Mr. Alexander, does Bull Run have wet air pollution control devices?

A. Yes.

Q. Mr. Alexander, if you would turn to page 248 of this document, and I believe that it's an excerpt, not all of the 664 pages of the entire document.

A. BRF 493?

Q. Yes. Mr. Alexander, can you please read the last paragraph titled *Summary*?

A. "Summary - in general, data sufficient to characterize waste loadings from flue gas cleaning processes are not available. No net discharge data, i.e., influent/effluent data are currently available for those systems. Additional studies will be needed to provide this data and to confirm the current discharge practices in the industry." That's still true today.

Q. And this statement was made in 1982; correct?

A. That's correct.

Q. Let's turn to page 488 of this document, which is labeled TDEC BRF000973. And, Mr. Alexander, the top of the page indicates that these comments apply to all wastewater

streams; is that correct?
A. That's what this page says.
Q. Please read the last sentence in paragraph 1-A.
A. "The agency is also withdrawing the BAT limitations now in the Code of Federal Regulations for TSS and oil and grease since those pollutants are now regulated under BCT, not BAT."
Q. Okay. We're going to turn to Exhibit 75. Mr. Alexander, what is the title of this document?
A. This is an excerpt from the Federal Register of Friday, November 19, 1982.
Q. And as the Federal Register noted, that accompanied the 1982 Effluent Limitation Guidelines?
A. I assume so.
Q. Mr. Alexander, can you read -- I'll read the title and ask if it's correct. "Steam electric power generating point source category; Effluent Limitation Guidelines, pretreatment standards, and new source performance standards." Did I read that correctly?
A. Yes, ma'am.
Q. I'm looking on the first column about halfway down. It says, "EPA is reserving effluent limitations for four types of wastewaters for future rulemaking. These four waste streams are: Non-chemical metal cleaning wastes, flue gas desulfurization waters, runoff from materials storage and

construction areas other than coal storage, thermal discharges"; is that correct?

A. That's correct. It looks like EPA had studied these and is placing these in limbo.

Q. And I turn to the page that's labeled on the top as 52303 of the Federal Register notice; is that correct?

A. Yes.

Q. And in the far right column, there's a section titled *Low Volume Wastewaters*; is that correct?

A. Yes. I see that.

Q. "The following 34 toxic pollutants are excluded from national regulation because they are present in amounts too small to be effectively reduced by technologies known to the administrator"; is that correct?

A. That's correct. It appears that they looked at the technologies that were available at the time and determined that there was not sufficient information to set effluent limitations for those 34 toxic pollutants.

Q. And it says that these toxic pollutants were excluded from national regulations; is that correct?

A. Yes, ma'am. That means there was no regulation being imposed in this rulemaking at this time.

Q. As we scroll down to the bottom of that page, do these pollutants include arsenic, cadmium, chromium, cyanide, and lead?

A. They do.
Q. Let's turn to the next page. Do they also include mercury, nickel, selenium, silver, thallium, and zinc?
A. Yes, ma'am, they do.
Q. Thank you. When you prepared the Notice of Determination, did you review an EPA memorandum regarding NPDES permitting at steam electric power plants by James Hanlon?
A. Yes, ma'am, I did.
Q. Let's turn to that. It's Exhibit 82. And just to confirm, Mr. Alexander, is the memorandum I'm showing here the one that you referred to in the Notice of Determination?
A. Yes, ma'am. I think there is -- this is only partially present here. It appears that there's a second attachment that's not present that was attached to the original memo.
Q. And if you recall, is that attachment referring to water-quality-based permitting?
A. Yes, ma'am. That's exactly right.
Q. And water-quality-based permitting is not at issue in this appeal; is that correct?
A. That's correct.
Q. Mr. Alexander, this memorandum covers both scrubber wastewater and ash impoundment; is that correct?
A. The memorandum does. The attachment specifically

refers just to scrubber wastewater.

Q. And the first paragraph of this letter states that "the purpose of this memorandum is to provide you with interim guidance to assist National Pollutant Discharge Elimination System, NPDES, permitting authorities establish appropriate permit requirements for wastewater discharges from flue gas desulfurization, FGD, systems and coal combustion residual, CCR, impoundments at steam electric power plants." Did I read that correctly?

A. Yes, ma'am.

Q. And, Mr. Alexander, so this memorandum provides guides to the NPDES permit writers like yourself; is that correct?

A. Yes, ma'am.

Q. Let's turn to page 2. Mr. Alexander, can you please read the first two sentences on page 2?

A. "In December 2008, an impoundment failure released 5.4 million cubic yards of coal cash at the Tennessee Valley Authority's Kingston Fossil Plant in Tennessee, and a subsequent release at TVA's Widows Creek Fossil Plant in Alabama brought CCR storage and disposal into the national spotlight."

Q. Thank you, Mr. Alexander. Let's turn to attachment A, which begins on the next page. And its page is labeled TDEC BRF 0004179; is that correct?

A. That's correct.

Q. And under the first paragraph, Background, it begins, "In October 2009, the Environmental Protection Agency, EPA, completed a study of wastewater discharges from the steam electric power generating industry. EPA's Office of Water evaluated wastewater characteristics and treatment technologies, focusing to a large extent on wastewater from flue gas desulfurization, FGD, air pollution control systems and coal ash ponds, because these sources comprise a significant fraction of the pollutants discharged by steam electric power plants.

"Based on this study, EPA decided to begin a rulemaking to address pollutants and waste streams not covered by existing regulations issued in 1982," 40 CFR paragraph 423. Did I read that correctly?

A. Yes, you did. Well done.

Q. Please turn to the next page. Mr. Alexander, can you please read the first sentence?

A. "Where EPA has not promulgated technology-based effluent guidelines for a particular class or category of industrial discharger, or where the technology-based effluent guidelines do not address all waste streams or pollutants discharged by the industrial discharger, EPA must establish technology-based effluent limitations on a case-by-case basis in individual NPDES permits, based upon its best professional

judgment, or BPJ."

Q. Thank you, Mr. Alexander. Can you please read the first line of the next paragraph beginning with "States authorized"?

A. "States authorized to implement the NPDES program act in the place of EPA for the purpose of issuing NPDES permits to dischargers," 33 USC, paragraph 1342(b).

Q. Please continue.

A. "Although authorized states may include more stringent restrictions than the federal program, an authorized state must comply with specific minimum federal requirements of the NPDES program," 40 CFR 123.25. "Therefore, an authorized state must include technology-based effluent limitations in its permits for pollutants not addressed by the effluent guidelines for that industry," 33 U.S. Code, 1314(b), 40 CFR 122.44(a)(1), 123.25, 125.3.

"In the absence of an effluent guideline for these pollutants, the CWA requires permitting authorities to conduct the BPJ analysis discussed above on a case-by-case basis for those pollutants in each permit."

Q. Please turn to the next page, and I'm going to start with the second paragraph. This says, "The Steam Electric Power Generating Effluent Limitation Guidelines and Standards promulgated in 1982 include wastewater from wet FGD systems under the catchall category of low volume wastes,"

40 CFR 423.11(b).

"However, the 1982 rulemaking did not establish best available technology economically achievable (BAT) limits for FGD wastewaters, because EPA lacked the data necessary to characterize pollutant loadings from these systems." Did I read that correctly?

A. That's correct. That's still true.

Q. And I'm going to read the final sentence of that paragraph. "Accordingly, EPA determined that BAT limits for the FGD waste stream were outside the scope of the rulemaking and explicitly reserved the development of such limits for a future rulemaking." Did I read that correctly?

A. Yes, ma'am.

Q. And I've turned to page 5, which is No. TDEC BRF 0004183; is that correct?

A. I'm lost here.

Q. On the bottom of the page, if you scroll down, can you read that now?

A. On page 5? Yeah, I got you, page 5.

Q. Page 5 of the Hanlon memo.

A. I see where you are.

Q. And, Mr. Alexander, can you please read the second paragraph under item 4 starting with "Many power plants"?

A. "Many power plants combine FGD wastewater with ash transport wastewater and/or cooling water prior to discharge,

which can result in FGD wastewaters being diluted by several orders of magnitude prior to the final outfall.

"In addition, ash ponds typically contain a variety of wastes, e.g., ash transport water, coal pile runoff, landfill/pond leachate, et cetera, that when mixed with the FGD wastewater may make the analysis to measure compliance with FGD wastewater technology-based effluent limits impracticable.

"Because of the high degree of dilution and the number of waste stream sources containing similar pollutants, NPDES permits may need to include effluent limits and monitoring requirements on the internal FGD waste stream to ensure effective control of the pollutants present in FGD wastewater."

Q. Thank you. Mr. Alexander, that's quite a mouthful. Now, at Bull Run does TVA mix its FGD wastewater with other wastewater streams in the ash pond prior to discharge?

A. Yes, indeed. That's been discussed at length this morning and this afternoon.

Q. And, Mr. Alexander, in general, does TDEC impose limits on internal wastewater streams when they are diluted?

A. We impose internal monitoring point monitoring for multiple reasons. I'm not sure what you're getting at.

Q. Is one of those reasons because the pollutants

from a particular wastewater stream would be diluted at the ultimate outfall to waters of the state?

A. That is correct. That's one of the reasons we do that to that wastewater prior to dilution.

Q. But TDEC chose not to impose an internal limit of the FGD wastewater at Bull Run, because you did not foresee there to be an effluent guideline requiring that; is that correct?

A. That's correct.

Q. And for purposes of evaluating best available technology, you would want to know both the influent and the effluent characteristics of FGD wastewater; is that correct?

A. That's correct, what we discussed earlier.

Q. And to get that influent data would require internal monitoring of the FGD wastewater at Bull Run; is that correct?

A. That's correct.

Q. But the permit did not require internal monitoring of the FGD wastewater at Bull Run; is that correct?

A. That's correct, because we deemed that the limits for that waste stream were not required.

Q. And I just want to clarify. The question I just asked was not about a limit. It was about monitoring. So I want to make sure you answer the right question. The permit does not require internal monitoring of the FGD wastewater; is

that correct?

A. That's correct.

Q. And, Mr. Alexander, as we sit here today, it's been about three years since the permit was issued; is that right?

A. That's correct.

Q. And during this time, TVA has been collecting additional data and providing this to TDEC; is that correct?

A. That is correct.

Q. And during this time EPA has published a draft rule; is that correct?

A. EPA has posted a draft of a guideline, yes.

Q. And as we mentioned before, at least one other state, Indiana, has issued a case-by-case BPJ limit; is that correct?

A. If you're referring to the permit that you shared with us prior to this hearing, yes, it was an Indiana permit with the EPA analysis.

Q. And, Mr. Alexander, as you sit here today, do you have enough information to conduct a BPJ analysis to set limits at Bull Run?

A. Of course not.

Q. Okay. Let's turn to a different topic. This is the best management practices provision. And I'm going to turn back to the permit, which is Exhibit 1, specifically page

24. Mr. Alexander did you write the section titled *Part 4 - Best Management Practices*"?

A. I created the original draft. It went through a review process within my agency, yes.

Q. And did that review process include Mr. Janjic?

A. Yes, and Ms. Qualls.

Q. Mr. Alexander, was this section added to the final permit as the result of the analysis you did in response to comments?

A. Yes, that's correct.

Q. And, Mr. Alexander, this is relatively short. Can you please just go ahead and read part 4 of the permit here?

A. Yes. "Best management practices, BMPs, are incorporated as permit conditions to specifically address controls on toxic metals in ash pond discharges. These controls can be site-specific to BRF operations and practices to address the circumstances of individual fossil plants. Each practice must be developed and measured to document the relationship between operations and effluent metals concentrations.

"BMPs should be established based on guidance shown in attachment 1, with submission of a BMP plan for division review within 90 days following the permit effective date."

Q. And the cite then refers to attachment 1, but that

was included in error; is that correct?
A. That is exactly correct.
Q. So the language here on page 24, excluding the reference to attachment 1, is all the permit requires in terms of BMPs?
A. That's correct.
Q. And when you wrote this language, you were just trying to learn the starting point?
A. That's what I said in my deposition, yes.
Q. And, in fact, you included the language here about developing and measuring processes in order to get a baseline for the permit in the future; is that correct?
A. That is correct.
Q. And this provision does not describe that the BMP plan must yield a reduction in the discharge of metals over time; is that correct?
A. That's generally correct. What I also must say about these operations and practices, that includes the practices that they employ at the ash pond itself. And so the operation of the treatment system is one of the practices that's included here.
Q. And, Mr. Alexander, the permit BMP provision would not necessarily be violated if the metals increased over time; is that correct?
A. That is correct. As I explained in my deposition,

if the plant generation rate increases, if demand goes up and Bull Run is activated on a pre-schedule, those numbers go up and down based on the demand -- at the plant. So an increase in the discharge doesn't automatically mean a violation of the permit.

Q. Mr. Alexander, are you familiar with the EPA's NPDES Permit Writers' Manual?

A. Yes, ma'am.

Q. Let's turn to that document. It's Exhibit 79, and let's go ahead and turn to page 9-4. And, Mr. Janjic, section 9.1.2 -- I'm sorry, Mr. Alexander, section 9.1.2.2 addresses BMPs in NPDES permits; is that correct?

A. That's correct. I could never be Mr. Janjic.

Q. And turn to page 9-6. Do you see that at the bottom? That is 9-6; is that correct?

A. That's correct.

Q. And is this page the beginning of an example of BMP plan requirements?

A. Yes, ma'am.

Q. And this example is about two pages long. It includes seven sections. I'll show you this next page to see if that's correct.

A. Yes. I have it here in the exhibits.

Q. So is it correct that it includes seven sections?

A. Yes, that's correct.

Q. And going back to the first page of Exhibit 9-1 in the Permit Writers' Manual, one of the sections is titled *Purpose*. Can you please read that section?

A. "Through implementation of the BMP plan, the permittee must prevent or minimize the generation and the potential for the release of pollutants from the facility to the waters of the United States through normal operations and ancillary activities."

Q. And, Mr. Alexander, does the Bull Run permit state that TVA's BMP plan must minimize the release of pollutants to waters of the United States?

A. I'm not sure if those exact words are in there as we speak.

Q. Would you like me to turn back to the permit?

A. Ma'am, you asked if the plan had that in there, I believe.

Q. Okay. Does the permit require TVA's BMP plan -- I'm asking about the permit requirement. Does the permit require that TVA's BMP plan must minimize the release of pollutants to waters of the United States?

A. Just give me one second, and I'll tell you.

Q. Okay.

A. Yes. The permit mentions the words "specifically addressed controls on toxic metals and ash pond discharges".

Q. Does that say it needs to minimize release of

pollutants?

A. It's implied to me that controls on toxic metals in ash pond discharges are minimizing pollutants, yes.

Q. So the requirements to minimize the release of pollutants is implied by the permit?

A. Implied by this requirement for a best management practices plan to identify the practices that do minimize those pollutants, yes.

Q. Is there a reason you didn't put that language in the permit itself?

A. Just my normal incompetence. That's the only reason.

Q. I'm going to turn back to the Permit Writers' Manual. And part 3 here is titled *Objectives*, and part C just below that, can you please read that first sentence?

A. Under objectives, "The permittee must develop and amend the BMP plan consistent with the following objectives for the control of pollutants."

Q. And does the Bull Run permit state that TVA must establish specific objectives for the control of pollutants?

A. Not explicitly in the wording of the requirement for a BMP plan.

Q. Is that something else that you believe is implied?

A. What I believe is that the plan that they gave us

was a very clear picture of the operating practices at that plant and the factors that cause the metals concentrations in the ash ponds to be what they are, and that was our intent. We wanted that plan to spell that out.

Q. Okay. And, Mr. Alexander, we're almost done. Can you please read the first sentence under part 4 *Requirements*?

A. "Requirements - the BMP plan must be consistent with the objectives in the Objectives section above and the general guidance contained in the publication entitled *Guidance Manual for Developing BMPs*, EPA 833B-93-004, at that website link or any subsequent revisions to the guidance document."

Q. And, Mr. Alexander, are you familiar with this guidance manual?

A. Generally, yes.

Q. And, Mr. Alexander, does the Bull Run permit require TVA to develop BMPs consistent with this guidance manual?

A. No, ma'am, it does not. And the next time we do that, we will certainly put this reference in there.

MS. MATHENY: Thank you, Mr. Alexander. Petitioners have no further questions at this time.

ADMINISTRATIVE JUDGE: Let's take a short break, five minutes if possible. We'll be in a short recess.

(Recess taken.)

(BY THE ADMINISTRATIVE JUDGE) If we're ready, we can take our seats, and we'll begin again. Mr. Alexander, if you'll remember, you're under oath.

THE WITNESS: Yes, ma'am.

CROSS-EXAMINATION

BY MR. PARKER:

Q. Mr. Alexander, I want to go to the email from Ron Jordan. I believe that's Exhibit 90, if I'm correct on that.

A. 95.

Q. No. 95. Now, what you were trying to do in this email was trying to get more information from EPA to do the BPJ BAT analysis; correct?

A. Oh, yes. That's the whole question here is when you start researching this, and you see from this '82 development document all those factors that go into making the wastewater from an ash pond have certain kinds of concentration of metals. They say that it all originates from the coal.

So the question here was, well, can you tell us more about that. We believe Bull Run burns eastern bituminous, so what do you know about eastern bituminous that makes the metals what they are?

Q. You also tried through email and maybe by phone calls to get other information from EPA; is that correct?

A. Yes. We tried and --
Q. Did EPA ever respond to any of your requests?
A. No, sir. I'm sorry to say they were too busy doing other things. We got zero help from EPA in this whole process.
Q. You talked about -- there was some discussion about the technology in 1982 that was considered in the ELG. Physical/chemical and biological treatment both existed in 1982; is that correct?
A. I'm sure physical/chemical was discussed. I just don't remember biological.
Q. I asked you did it exist.
A. Did it exist in '82? I just don't --
Q. The technologies.
A. The technologies existed, but I'm not sure the extent to which biological was an accepted method of removing metals in the '82 guidelines. I just don't recall.
Q. Okay. When we're doing a case-by-case TBEL, we're not trying to tell people what the technology is. We're telling them what the number is that they've got to meet; is that correct?
A. That is exactly true.
Q. And a case-by-case TBEL analysis can have no limit as an outcome; is that correct?
A. That is absolutely true. We say the effluent

guideline is a number and expressed as a concentration in the wastewater or a mass loading in the wastewater. And we select that number based on what we think that number represents the performance of a wastewater treatment technology. And if the best technology is known to produce effluent with a certain numerical limit, that's the limit we put in. But the way the permittee accomplishes that, that's his choice, his or her choice.

Q. In doing a BPJ analysis, the factors can be weighted differently; is that correct? I mean, it's not weighted any certain way?

A. There is no ranking of the factors; that's correct. And the references that we were shown earlier today go on and on about how EPA and states can use their discretion in making their selection of which factor is dominant.

Q. Now, I'd like you to -- let's go to page 5 of Exhibit 74, please.

A. The one that says *Final Regulations*?

Q. Part 5 in *Regulations* talks about a specialized definition. And if you could, in (b) the term "low volume waste sources", that includes wastewaters from wet scrubber air pollution control systems; correct?

A. That's what it says right here.

Q. And an FGD system is a wet scrubber air pollution control system; correct?

A. That's correct. The FGD term was just being used.
Q. Turning to page 267 -- 265 first, and this is the section that talks about low volume wastewater; correct?
A. That's correct.
Q. And, by definition, that includes the wet air pollution; correct?
A. That's correct.
Q. Okay. Go to page 267 real quick. And it says, "The following 34 pollutants are excluded from national regulation because they are present in amounts too small to be effectively reduced." And those exclude those metals that Ms. Matheny got you to read out; correct?
A. That is correct.
Q. So those pollutants were considered; correct?
A. That's what it says.
Q. But EPA just chose to exclude them. Because they were considered, is that ELG applicable --
A. Well, of course.
Q. -- to these waste streams?
A. Of course. That's the whole point here is that if EPA knew in 1982 what the best available technology for these kinds of wastewaters was the best technology to choose, and the effluent limits that would come from that type of wastewater treatment, they would have said so.
Q. Let's talk about the Merrimack permit real quick,

and we don't have to bring that up. You can take that down. The Merrimack scrubbers, they're recycled scrubbers; is that correct?

A. That is correct. That's what we understand.

Q. And the Merrimack permit, we've been talking as it is a permit. What we are talking about is a draft permit?

A. That I understand is -- if you look at the website this week, it shows it as a draft permit.

Q. And that's 2010; correct?

A. That is correct.

Q. And there hasn't been a final permit issued on there; right?

A. As of yesterday's website, it showed that they had recently made changes to the draft permit still again.

Q. Okay. I want to go to the Hanlon memo, which is 82, and I want to go to the disclaimer at the end of the memo part. Could you read the first three or four sentences of that into the record, please.

A. Yes. "This guidance document does not change or substitute for any legal requirements, though it does provide clarification of some regulatory requirements. While EPA has made every effort to ensure the accuracy of the discussion in this document, the obligations of the regulated community are determined by the relevant statutes, regulations, or other legally binding requirements. This guidance document is not

legally enforceable and does not confer legal rights or impose legal obligations upon any member of the public, EPA, states, or any other agency."

That's the whole issue that we have about trying to enforce EPA memos. It's our rule.

Q. If you would, read the sentence that says, "This guidance may not".

A. "This guidance" -- let's see --

Q. About halfway down.

A. "This guidance may not apply in a particular situation based upon the circumstances, and EPA, states, and Tribes retain the discretion to adopt approaches on a case-by-case basis that differ from the recommendations of this guidance document where appropriate." Is that what you're talking about?

Q. Correct. Then read the next sentence. Just read the rest of it.

A. "Permitting authorities will make each permitting decision on a case-by-case basis and will be guided by the applicable requirements of the Clean Water Act in implementing regulations, taking into account comments and information presented at that time by interested persons regarding the appropriateness of applying these recommendations to the particular situation.

"In addition, EPA may decide to revise this

guidance document to reflect changes in EPA's approach to implementing the regulations or to clarify and update text."

Q. And did you know, Mr. Alexander, that up until 2010 you couldn't get a sample of untreated FGD wastewater prior to entering this area -- or prior to entering the settling pond, because the pipe was underwater? Did you know that?

A. I was made aware of that, yes. But also -- yeah, that's right. I started to get confused about the 2010 change from sluicing fly ash. That's correct.

MR. PARKER: That's all I have.

ADMINISTRATIVE JUDGE: TVA?

MR. STAGG: TVA has no questions.

ADMINISTRATIVE JUDGE: Okay. Questions from the Board?

MR. HEAD: I have some.

MR. UNGER: I just have a simple question. Is cost a factor in identifying the best available technology --

COURT REPORTER: I can't hear you.

ADMINISTRATIVE JUDGE: We need the board members to speak closer into the microphone. That would be great.

COURT REPORTER: Thank you.

MR. UNGER: Is cost a factor in

identifying the best available technology?

THE WITNESS: Exactly. It is indeed.

MR. UNGER: Is efficiency of the treatment system a factor in applying the best available technology?

THE WITNESS: Well, sir, when you speak of efficiency, that's like the percentage of the pollutant that's reduced. We really usually don't always base our judgment of the best treatment technology on the efficiency. It might be which one could get that concentration down to the lowest level as opposed to what the efficiency is.

MR. UNGER: And at the time of the permit writing, was any of that information available from EPA?

THE WITNESS: We couldn't hang our hat on anything that said that physical/chemical is the best or a treatment pond is the best or evaporation is the best, best meaning it had the best efficiency or performance and it cost the cheapest. If we knew that, we wouldn't be here today.

MR. UNGER: Okay. That's all I have.

THE WITNESS: Thank you, sir.

MR. HEAD: Mr. Alexander, I have several questions. The first thing I want to make sure I understand is that the question here today was written and, I guess, finalized on September 30th of 2010; is that correct?

THE WITNESS: Correct.

MR. HEAD: Okay. Now, my first question

is, you contacted EPA and tried to find out about best available treatment technologies and costs of as you were preparing this permit.

THE WITNESS: That's correct.

MR. HEAD: Did you get anything from EPA that indicated -- or any information from EPA that you could use for making the permitting recommendation for the Department?

THE WITNESS: Not very much, sir. I can't disparage EPA totally. But one of the things that we were really searching for that we didn't get is an example of one of these analyses that it might have been done, say, for the metal finishing waste category or the inorganic chemical waste category.

I mean, someone who had done a BPJ analysis like this that said, "Well, the effluent guideline doesn't spell out exactly what the best available technology is, but here's a way you could follow that example to use, say, another industrial category to get that." And EPA just never would find that for us, and so we are sort of plowing new ground here.

MR. HEAD: You made mention of some information that you thought EPA had regarding cost. You said something to the effect that it was deemed to be -- I guess the terminology is proprietary, because it was provided to EPA

by industry. And because of that, even if EPA had that type of information, they couldn't release that to you, could they?

THE WITNESS: Well, a big part of the current effluent guidelines that are out for review now is volume of cost and treatment performance information that would be the exact basis for how you would select BAT. And in that manual, it keeps referring to all of that information that's in the appendix.

Well, if you go to the appendix, all of that is redacted as confidential business information. And so when the rules say that for certain types of scrubbers, they do say that the very large scrubber like Cumberland has, Cumberland Fossil is one of the largest plants in the EPA system, and it has a large scrubber. They say, we've determined that the effluent guidelines should have these numeric metals limits based on a physical/chemical treatment technology. We've made that decision.

But on the size of the scrubbers for Bull Run and Kingston, it says that the state permit writers have got to evaluate that on their own best professional judgment. And that performance and cost data that's in the appendix, well, by the way, you can't have that. So I don't know what we'll do if it passes that way.

MR. HEAD: So basically you've had this report from EPA since 2009. But the background data --

THE WITNESS: The background data in the 2009 report was mostly on treatment performance. It didn't really say what the cost decision would be on BAT.

MR. HEAD: Now, there was a reference made to the EPA NPDES permitting guide. When that was shown, I noticed that it was dated October of 2010; is that correct?

THE WITNESS: Yes, sir. I think that's the latest EPA update on that. There's not been a whole lot of rule changes on how permits get written since then.

MR. HEAD: But did you have any access to that information when you were preparing the permits that were issued on September 30th of 2010?

THE WITNESS: Yes, sir.

MR. HEAD: So you did have that document?

THE WITNESS: Yes, sir. The permit writers' guide is what we've been taught to use.

MR. HEAD: The one that was issued in October 2010?

THE WITNESS: Yes, sir.

MR. HEAD: There was mention made of a flue gas desulfurization NPDES permit for Merrimack. When I saw that on the screen, you also had a date of October 2010. Did you have access to that before you made this decision --

THE WITNESS: No, sir. That wasn't available.

MR. HEAD: -- or before you made the recommendation?

THE WITNESS: No, sir. That wasn't available until after we had already gone through the permitting process.

MR. HEAD: And then I think there was also a reference to the Indiana -- permit for Indiana, or in Indiana, pardon me -- to have a permit of a similar type. Do you know when that permit was issued?

THE WITNESS: Yes, sir. That's a 2013 permit just recently issued.

MR. HEAD: Okay. Did you have any knowledge of the terms and conditions of that permit when you were making a recommendation on this permit in September of 2010?

THE WITNESS: No, sir. We had no other example of a BPJ analysis like the one we needed to draw from.

MR. HEAD: So from your perspective, you reached out and asked for assistance on this particular permit issue, and the sources that you contacted provided you with no additional information, and things that you mentioned here today were things that occurred after the permit was issued. So you had no knowledge of it?

THE WITNESS: In many cases, yes, sir, that's true.

MR. HEAD: The permit in question, the effluent from Outfall 001 is for several combined wastewater streams; is that correct?

THE WITNESS: Yes, sir. That's true.

MR. HEAD: If you were looking at this particular discharge, what percentage of the flow that's being treated by the ponds comes from the flue gas desulfurization treatment system?

THE WITNESS: Probably less than 20 percent.

MR. HEAD: And when you issued or when you made a recommendation to issue this permit, it was for all of the combined wastewaters coming into that treatment system?

THE WITNESS: Yes, sir. You know they applied in 2007 for this renewal. Then we picked it up after the Kingston event and began actively pursuing the renewals in 2009 and 2010, and so there were some changes along the way, as we heard this morning. But that is correct.

MR. HEAD: And if there were significant modifications by TVA at this facility for a substantial amount of wastewater that was currently going into this treatment facility was no longer going into that, would they be required, pursuant to permit modification, to cut a change in the volume and types of wastewater going into the system?

THE WITNESS: It's possible. We could --

yes, sir, that is one possibility. They could have applied for a permit modification.

MR. HEAD: And based on the results from the DMR guides received over the last three years, do you think that the system is effectively treating the effluent before it goes into a stream?

THE WITNESS: There's no doubt about it, sir. The numbers that we're seeing are based on the measurements of the metals' concentrations. Those numbers are clean enough that you could practically put that effluent into a zero flow stream, and fish and the other aquatic life would be protected, and our air quality criteria would be met.

MR. HEAD: I recall during some of the questions that you were answering, there was a point brought up about the testing that's required under this permit. I believe it's 4 --

THE WITNESS: That's exactly right.

MR. HEAD: And the purpose for that monitoring, does it determine the entire impact of the effluent going into the stream? It would take into account not only the constituents going into the stream from the effluent but also synergistic effects that might happen because of the combination?

THE WITNESS: Yes, sir. That's the magic word, "synergistic". You know, you might have concentrations

that approach but not be above a criteria for a certain reason. But, in total, all of those things might be toxic to aquatic life in the receiving stream, and that's exactly why we do a whole level of toxicity tests like that. It's sort of a catchall umbrella that says, is this toxic to anything or not.

MR. HEAD: And just to make sure I understand, what you're talking about is a hundred percent effluent, no dilution?

THE WITNESS: That's right. That's what the permit requires.

MR. HEAD: And my last question is, to your knowledge, has the discharge from this facility in Outfall 001 caused any change in the stream use classification for the --

THE WITNESS: To my knowledge, no. That stream is classified for drinking water supplies, and that use is still protected as we speak.

MR. HEAD: Thank you.

MR. HALCOMB: Mr. Alexander, my name is Monty Halcomb, and I'm a member of the board. I didn't pick up on this during your testimony. What is your specific position?

THE WITNESS: I'm a NPDES permit writer in the water quality branch.

MR. HALCOMB: How long have you been in that position?
THE WITNESS: Ten years this month.
MR. HALCOMB: What is your background and experience academically and also work-wise?
THE WITNESS: I'm a civil engineer, B.S. civil engineer, master's in environmental engineering, and I've done just about everything that you can think of to make a buck.
MR. HALCOMB: You've been in your current position for ten years. What did you do prior to that?
THE WITNESS: I was self-employed for a while. Before that I worked as an environmental consultant, a consultant engineer working on various kinds of -- a lot of petroleum remediation. And prior to that, I worked at the Marine Corps base at Camp LeJeune as the base environmental engineer.
MR. HALCOMB: All right. Thank you. Would it be accurate or inaccurate to say that what may be the best technology used at one plant may not be the best technology used at all plants? I mean, there could be differences that might have one choose to use some type of technology different than, say, a plant in Indiana or a plant in Arkansas or Alaska, New York, depending on where there's urban or close to urban areas versus rural areas. Go ahead.

I'll let you answer the question.

THE WITNESS: Well, sir, I think that's very obvious in our documentation here is that when we went into this study, trying to find out these answers, we determined that the recipe for this wastewater is so variable, based on the kind of water you pull out of the river to make steam out of and then cool it down and discharge from the coal that's there, from what you do to the coal while you burn it, what you burn it in, how you control the air pollution decides. All of those things are part of that recipe. And so type of treatment technology that's used on that wastewater can vary.

Now, there's some -- every wastewater system that we know of is designed to treat changes every day in wastewater flow. So you've got some common things that you've got to address, but one size does not fit all.

MR. HALCOMB: Would there be any differences, in your opinion, in best management practices or choosing whatever would be the best available technology based upon the hours or days of operation of one plant, and I think this one was like two months, versus those plants that are being operated for 12 months?

THE WITNESS: Well, sir, not as significant in the industrial wastewater treatment that we're talking about here, because it's inorganic. It's not

biologically -- you know, you're not depending on that wastewater system to keep those bugs alive until you feed it the new waste. And these inorganic things, you can start and stop those a whole lot easier.

But what we've seen, one of the big things that we've noticed in these three years of effluent data that we've gotten from Bull Run is that during those high-demand times when the plant is really cranking out the megawatts, if you look at the effluent metals concentration that happened three or four months before that coming out of the pond and the effluent concentrations coming out during those three or four months of high demand, there's not that much difference.

So that pond system is affected year-round, no matter what the plant is doing.

MR. HALCOMB: Okay, two more questions. One, what do you think TDEC -- or what would you do if one of those water samples came back with a higher level of mercury or selenium than EPA considered safe?

THE WITNESS: I'd resample it.

MR. HALCOMB: And then what if it came back high?

THE WITNESS: Well, I'd compare that, first of all, to the reasonable potential analysis that we did to see is it high enough that it could have affected what's in the river. As we mentioned earlier, there's a lot of room

between what the plant is putting out, month in and month out, and what we project is the worst case that could hurt the river. So I would have to see how close to that upper limit that it was getting.

MR. HALCOMB: What if it was over the upper limits?

THE WITNESS: Well, then we're going to have a serious conversation about what needs to be done. If that is a valid test, and there's no question about the validity of the data, we're going to have to see what's causing that plan. That's what the purpose of the BMP plan is to do is to tell us all the factors that make up that recipe for your wastewater so we can go back and see which one of those ingredients is off.

MR. HALCOMB: And my last question, would you amend the plant's existing permit prior to its renewal date if they knew the best available technology came out?

THE WITNESS: Like if EPA had finalized the rules?

MR. HALCOMB: Correct. Let's say the plant is operating, and they're operating using, at that time, the best available technology. Then halfway through the permit period, there's a new technology that comes out that's even better than what they're using at that point. Would you amend the permit?

THE WITNESS: That's a tough call, because you're changing horses in the middle of the stream after you've required a permittee to make a huge investment in, in the wastewater technology. You can only do that for a darn good reason.

MR. HALCOMB: And the cost factors are also considered?

THE WITNESS: Correct. Now, every permit we issue has a re-opener clause in it that says, if at some point EPA decides that there's going to be a best available technology decision that's issued, we get to reopen that permit for that very reason, because times are always changing.

MR. HALCOMB: But you also have the authority to reopen that permit whether EPA does or not; right?

THE WITNESS: That is correct.

MR. HALCOMB: Thank you.

MR. McCLURKAN: Just one question. Regarding the original permit, the way I understand this, is that this permit was written using the effluent limitation guidance from 1982 --

THE WITNESS: Yes, sir.

MR. McCLURKAN: -- which did not require the BPJ analysis initially. What transpired to make you --

while the permit was issued and on notice or a draft permit, how was the decision made to go ahead and do the BPJ analysis?

THE WITNESS: Yes, sir. During the public comment period, there was substantial comment received from a consortium of environmentalist interest groups. And the thread of that comment was that you need to examine technology-based limits, because EPA hasn't done that.

And, in fact, we even got a letter from Region 4 that said, you ought to look at these technology-based limits. And the comments were also made that you've got to do a best professional judgment analysis, because this is a case-by-case situation that isn't covered in the rules.

And, quite frankly, we thought we had told that story well enough in the past, but apparently the comments were of such a nature that we felt like it was our duty to go through that process and use that same analysis, look at every one of those factors, the age and the process and all that. We felt like if that's what the commenters are asking for, then that's our duty to respond to that. That's why we did it.

MR. McCLURKAN: Thank you.

THE CHAIRMAN: I think you've already answered my question when you were talking with Mr. Head. But it's my understanding, based upon your testimony,

Mr. Alexander, that the permit that you wrote and BMPs that were implemented, in fact, did control the concentration of toxic metals in this discharge?

THE WITNESS: Well, sir, the permit doesn't control anything.

THE CHAIRMAN: Well, it allows for BMPs.

THE WITNESS: Yes, sir. I'm talking about the physical control. What we tried to do is to do the best we could to say what the rules called for at the time, and we just couldn't formally say that the State is going to require TVA to put in X kind of wastewater treatment with these numbers coming out the end of the pipe without having solid numbers to back that up with.

MS. MANNERS: I just have one question about internal monitoring .5 dischargers throughout Outfall 001. I understood Patrick to say that the flue gas desulfurization discharge was underwater and couldn't be handled. So why is this internal monitoring point required in this permit?

THE WITNESS: I believe -- I checked that. I think that is the Kemp pond -- let me double-check that right quick. Yes, ma'am. Internal monitoring .5 is a carryover from the previous permit, and that's for the metal cleaning waste pond. That waste stream is specifically called out in the Effluent Limitation Guidelines for steam electric

facilities.

And it says that if you're going to do this metal cleaning, which they flush the pipes with acid, or whatever they do to clean those pipes, and you take those wastewaters out in a separate waste stream, you've got copper and iron limits that you've got to meet from the '82 effluent guidelines. That's always been the case.

So we said, the only way that you can prove that you're meeting what those effluent guidelines said before you put all this into this huge ash pond and it gets diluted is that you've got to monitor that.

MS. MANNERS: And just a follow-up from that. Because the FGD effluent use of that pond was underwater at the time, it couldn't be monitored, and dilution isn't dilution from the discharge, will the new permit require the same monitoring point to be included?

THE WITNESS: Well, if I understand you clearly, internal monitoring .5 has gone away, because that pond has gone away. We don't have that discharge anymore. That's been a part of this pond closure. That was one of the quickest, easiest ways, and I think TVA actually does their metal cleaning in a way that they capture that, and they send it off for treatment someway. They don't put that in the river anymore.

In the new permit, what we'll do in regard

to the FGD waste stream is really yet to be determined. There are so many things happening at one time. I could waste your all's entire afternoon talking about the possibilities, but that's not the right thing to do.

MS. MANNERS: So we don't know?

THE WITNESS: We do not know.

MR. DALES: I just have one question. Cost keeps coming up. I've heard it twice. The Merrimack situation, I think you said, is still in the draft phase, recently updated, I think you said. Has there been any change in the cost? Has it increased, the maintenance and the initial estimates that we saw?

THE WITNESS: I don't think so. I think that was a deal where that electric utility company didn't put that treatment technology in because EPA or the State told them to. They went ahead and did that sort of on their own, didn't have the limits. And that's a big part of the discussion there, is that they sort of went out on a limb thinking that they were guessing right. It was a substantial thing, to spend tens of millions of dollars to do that.

And I don't say many good things about TVA sometimes, but one thing I do say is that their engineering is very solid, and I don't believe they would do that. I think their attention to the cost that we pay is probably a little bit more serious than that. I don't see them doing that.

They're going to want to be sure that whatever the cost that we get charged for the wastewater treatment is going to be justifiable.

MR. DALES: Thank you.

ADMINISTRATIVE JUDGE: Ms. Matheny?

REDIRECT EXAMINATION

BY MS. MATHENY:

Q. Mr. Alexander, I have just a few questions. Would you please turn to Exhibit 76 in the large binder. It's towards the back. Are you there?

A. Yes, uh-huh.

Q. Mr. Alexander, is this the EPA 1996 NPDES Permit Writers' Manual?

A. Yes, ma'am, I think so.

Q. So when you wrote this permit, there was an EPA Permit Writers' Manual?

A. Yes, ma'am, there was.

Q. Okay. I believe I heard you say earlier about somewhere less than 20 percent of the wastewater at Outfall 001 is scrubber wastewater; is that correct?

A. By volume, yes, ma'am.

Q. So doesn't that mean that the FGD scrubber wastewater is substantially diluted at Outfall 001?

A. Yes, ma'am.

Q. Regarding the best management practices plan, did TDEC approve of the practices that TVA was already using?

A. I will say yes to that, because what the best management practices plan did was essentially document the things that were going on in the recent years at the plant.

Q. So in other words, TVA didn't change anything it was already doing at Bull Run because of the BMP plan; is that correct?

A. The way I would look at it is, what TVA was doing at the Bull Run plant was changing from one quarter to the next, had been for two or three years, and has changed ever since then. It's one of the most dynamic situations that we see in Tennessee in trying to define what's happening at an industrial wastewater plant that's totally redeveloping itself.

Q. And TVA can change the process without violating a permit; is that correct?

A. There is a provision under part 2 of the permit called *Plan Changes*, and this is a thing that we -- flexibility that we allow every industrial discharger that, if they are making process changes in the plan that don't really affect the wastewater being discharged into the stream, we require them to notify us. If it is going to be significant, we require them to notify us. So there's that feedback loop that we have in every permit that attracts those kinds of

changes.

Q. And I believe I heard you discuss the last three years of effluent data, and I believe I heard you say that the ponds are removing pollutants; is that correct?

A. Yes, ma'am, that's correct.

Q. And these pollutants the ponds are removing, to some extent, include toxic metals?

A. Yes, they do.

Q. So are these pollutants present in the untreated coal combustion wastewater and treatable concentration?

A. That's correct.

Q. And I have one last question, which is, if TDEC issued a permit to TVA now requiring a BAT-based effluent limit, and then EPA issues final guidance, will TDEC reopen that permit based on what you know from the draft ELGs?

A. I'm going to answer that like this. Based on the legal decision that TVA is operating under now, vis-a-vis the settlement of a lawsuit, I think it was North Carolina sued multiple states. I don't know exactly how to describe it.

But there's a federal lawsuit consent, that you know better than I about, that says at the time the effluent guidelines are finalized, TVA agrees to reapply for all their permits based on what those new guidelines say they've got to do. They have 12 months from the time those guidelines are finalized until TVA has to reapply. This coming July, if the

rules are finalized then, TVA has got 12 months to reapply for all their permits.

As we've heard said today, if those rules are stayed and there's lawsuits for ten years, then that reason for TVA to reapply won't happen. We believe that TVA's process, from our discussions with their staff, will follow along with permit renewal applications six months ahead of the expiration dates, just as though those guidelines aren't final.

So it's difficult to say today at what point all this will happen, but we know that there is the certainty of TVA's response to the federal consent decree, and we know of their ongoing practice to reapply, as they normally would, pending permit expiration. So whichever of those comes first is what we would see happen, I suppose. Does that ...

Q. And I have a follow-up or two. My question actually wasn't about TVA submitting a new application. My question was, will TDEC reopen the permit if EPA finalizes it in the Effluent Limitation Guidelines?

A. I'm going to say most likely.

Q. I want to be clear about what I just heard you say. If, in fact, the ELG is delayed or it is issued and stayed, would TDEC reopen the permit and conduct a BPJ analysis to set BAT limits?

A. I'm just a permit writer. I only work here. That

would be a management decision.

MS. MATHENY: Okay. I have no further questions for this witness. Thank you, Mr. Alexander.

RECROSS-EXAMINATION

BY MR. PARKER:

Q. You were in the room when Mr. Hixson testified about the BMP plan in relation to questions about adding chemical coagulants and that that was something new that happened as a result of the BMP plan?

A. I was in the room.

Q. So that's something new they are doing as a result of the BMP plan; correct?

A. I believe that is true, yes, the timing of things. I think that is correct. There's a new factor in that chemical coagulation that they do in the ponds that makes the suspended solids out of those ponds as good, practically -- well, as good as any domestic wastewater treatment plant that we have in Tennessee. The solids are practically zero.

MR. PARKER: Thank you.

ADMINISTRATIVE JUDGE: Anything from TVA?

MR. STAGG: TVA has no questions.

ADMINISTRATIVE JUDGE: Anything more from the Board? This witness is excused. Thank you so much for your testimony. Mr. Chairman, your preference at this point

to start with the next witness or --

THE CHAIRMAN: We've got 30 minutes or so. Let's see what we can get done.

ADMINISTRATIVE JUDGE: Okay.

MS. MATHENY: I'd like to call Mr. Janjic.

VOJIN JANJIC,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. MATHENY:

Q. Good afternoon, Mr. Janjic. As you know, I'm Stephanie Matheny.

A. Correct. Hello, Ms. Matheny.

Q. Can you please state your name for the record.

A. Vojin Janjic. That's V-o-j-i-n, J-a-n-j-i-c.

Q. And, Mr. Janjic, what is your position at TDEC?

A. I'm a manager of the water-phase systems unit, which used to be a permit section in the division of water resources.

Q. And just to clarify, other than for mining, you oversee all of TDEC's NPDES permitting; is that correct?

A. That is correct.

Q. And I'm going to ask a quick follow-up question. If the ELG is delayed, will TDEC reopen the permit and oppose

BPJ-based BAT limits?

A. Typically, when new Effluent Limitation Guidelines are introduced by the federal government, those include schedules of compliance. We will see what the final Effluent Limitation Guidelines say, and depending on the schedule of compliance, and depending where in the permit cycle.

As you know, NPDES permits are issued for five years maximum. Depending where we are in the permit cycle, we'll make a determination whether Effluent Limitation Guidelines will be incorporated in the next permit cycle or the permit needs to be modified or revoked and reissued.

Q. And, Mr. Janjic, I believe you just answered what would happen if the ELG was issued in final form; is that correct?

A. That is correct.

Q. The question I had asked is, if the ELG is further delayed or stayed, would TDEC reopen the permit and oppose BPJ-based BAT limits?

A. I think it would be irresponsible for us to change anything. The permit is based on draft Effluent Limitation Guidelines.

Q. So is that a no, Mr. Janjic?

A. That's a no.

Q. Thank you. Mr. Janjic, can you briefly describe your role in permits?

A. My role?
Q. Your role.
A. My role was to help review the permit application, draft permit, correspondence with the permittee and interested third parties during the issuance of the permit, draft permit public comment period, public notice period, following the permit issuance coordinate any permit appeal activities.
Q. And, Mr. Janjic, you reviewed the draft of the BPJ section that was included in the final permit and provided that to Mr. Alexander; is that correct?
A. Yes.
Q. Mr. Janjic, normally when TDEC prepares a NPDES permit for which no ELG exists, you would use BPJ to establish technology-based effluent limits; is that correct?
A. Yes.
Q. And normally when TDEC is issuing a permit to a facility for which no ELG is applicable, you would use BPJ to establish technology-based effluent limits; is that correct?
A. I'm sorry, maybe I was not listening carefully, but that sounded like exactly the same question, and I think it's yes.
Q. The distinction, my first question was if no ELG exists. My second question is about no ELG that is applicable. So let me restate that. Normally when TDEC is issuing a permit to a facility for which no ELG is applicable,

you would use BPJ to establish technology-based effluent limits?

A. Yes.

Q. And if no ELG is applicable, there are no other procedures to follow in developing BAT-based effluent limits except as professional judgment; is that correct?

A. Yes. It is referred to on a case-by-case basis, yes.

Q. And, Mr. Janjic, in general, a BPJ analysis should identify a minimum level of technology for a facility that is economically achievable; is that correct?

A. Yes.

Q. And in this case for Bull Run, TDEC prepared the BPJ section in the Notice of Determination, because EPA, Region 4, and other commenters recommended this be done?

A. That's something that I can maybe clarify. In Mr. Alexander's testimony, he mentioned that we had received a letter from EPA in which they suggested that we might want to take a look at the BAT and BPJ analysis, but they want everybody to know that that letter was not in reference to the Bull Run permit. It was in reference to the Kingston permit.

But, yes, the answer to your question is that we have received comments of volume in nature so that we thought that it would be responsible that we try our best to include BPJ BAT analysis in the final version of the permit, although

we were not required to do so, since Effluent Limitation Guidelines were existing and applicable.

Q. So you believe that TDEC was not required to conduct a BPJ analysis because there's an applicable ELG for this industrial category; is that correct?

A. There is existing and applicable Effluent Limitation Guidelines for this category, yes, for coal combustion products.

Q. And, Mr. Janjic, you believe the ELG applies to all the waste streams within the facility; is that correct?

A. That is correct.

Q. And you believe the ELG applies to all of the pollutants at the facility; is that correct?

A. Yes.

Q. And when TDEC prepared the permit, you thought TVA provided information sufficient to characterize the existing waste stream; is that correct?

A. That is correct.

Q. In the BPJ analysis for Bull Run, TDEC did not consider the comparison and level of reductions of metals using treatment options other than sedimentation; is that correct?

A. That is correct.

Q. And TDEC did not consider the level of reduction of ELGs in chemical precipitation; is that correct?

A. That is correct, except for what we had looked at in the 2009 study that EPA provided us, and that is the most information that we've had at the time for any treatment of pollutants at coal combustion facilities.

Q. But was it your conclusion at the time that because the 2009 EPA study did not select BAT, the study did not provide enough information for a BPJ-based permit?

A. That is correct. That study mostly contained information about recycle systems rather than once-through systems, which is the case here.

Q. And TDEC did not consider the potential level of reduction of metals using biological treatment; is that correct?

A. That is correct.

Q. And TDEC did not consider the level of rejection of metals using zero liquid discharge; is that correct?

A. That is correct.

Q. And TDEC did not analyze whether an alternative to settling ponds would be affordable to the industry as a whole; is that correct?

A. That is correct.

Q. And TDEC did not evaluate the cost for TVA to install chemical precipitation at Bull Run; is that correct?

A. That is correct.

Q. And TDEC did not evaluate the cost for TVA to

install biological treatment at Bull Run; is that correct?
A. That's correct.
Q. And TDEC did not analyze whether an alternative to a settling pond would be affordable to TVA; is that correct?
A. That's correct.
Q. But for metals present in both soluble and particulate form, such as mercury, the settling pond will not effectively remove the dissolved metals; is that correct?
A. That is incorrect.
Q. Mr. Janjic, do you recall that you testified in a deposition for this case?
A. I have testified, and I know exactly what you're going to talk about, and that is how efficient are settling ponds in removing dissolved solids. And my testimony then and now is that they are not particularly efficient. But your previous question is, do they have any effect on dissolved metals, and that is not the same question.
Q. My question was, for metals to have been in both soluble and particulate form, such as mercury, the settling ponds will not effectively remove the dissolved metals. Is that correct, Mr. Janjic?
A. I guess that all depends on what you mean by "effectively remove". There will be some removal through co-precipitation and absorption, but settling ponds are not deemed the most effective way for removing dissolved metals in

general.

Q. Are they minimally effective in removing dissolved metals?

A. I'm sorry?

Q. Are they minimally effective at removing dissolved metals?

A. I honestly don't know what that means, "minimally effective", but they are not as effective as some other treatment methods would be.

Q. Mr. Janjic, I'm going to have to go back to your deposition. Do you recall that you were under oath at this deposition?

A. Yes, ma'am.

Q. And do you recall that your attorneys were present?

A. Yes, I do.

Q. And have you seen a transcript of that deposition?

A. Yes, I have.

MS. MATHENY: Your Honor, may I approach the witness?

ADMINISTRATIVE JUDGE: Yes.

Q. (By Ms. Matheny) Mr. Janjic, can you please turn to page 59?

A. I'm there.

Q. Can you please read lines 10 through 17?

A. "Do you agree with the statement that for metals present in both soluble and particulate form, such as mercury, the settling pond will not effectively remove the dissolved fraction?"
"Yes."
"Why?"
"Because setting ponds are never effective in removing any solid substances, including metals."
Q. Thank you. And when TDEC issued this permit, you did not know the portion of metals that were present in dissolved form; is that correct?
A. I honestly do not remember if we had information on the ratio between total metals and dissolved metals. I don't think we had that data, but I don't remember.
Q. It may assist you to refresh your memory to look at the same page at lines 18 through 20. You don't need to read them out loud, just to yourself. Did that help you remember?
A. Well, I didn't remember then, and I don't remember now.
Q. All right. Mr. Janjic, does this permit allow TVA to continue to use the settling ponds?
A. Yes, it does.
Q. And TDEC decided to allow continued use of the settling ponds at Bull Run, provided the imminence of Effluent

Limitation Guidelines being revised and promulgated in the near future; is that correct?

A. I'm sorry, I didn't follow that question. Can you please repeat?

Q. I would be happy to. In part, TDEC decided to allow continued use of the settling ponds at Bull Run, provided the imminence of Effluent Limitation Guidelines being revised and promulgated in the near future; is that correct?

A. That is certainly one of the factors that we took under consideration when preparing this permit.

Q. Mr. Janjic, you heard Mr. Hixson testify earlier, I believe, that Bull Run uses once-through FGD scrubbers; is that correct?

A. That is correct.

Q. And, Mr. Janjic, is it your position that if EPA promulgates an ELG that is based on a recycled FGD system, that ELG would not apply to Bull Run?

A. At this time you're asking me to speculate a little bit, which is nice to see what the effluent guidelines are, how they described the stream. Are those coming from the same source? Yes, they're from flue gas desulfurization. Is the nature of those two waste streams the same? Absolutely not.

So that would be, certainly, for us a consideration of the fundamentally different factors, as

described in the rules, to whether or not such Effluent Limitation Guidelines can be applied for once-through scrubbers. Our comments to EPA have included a request for once-through systems to be included in the analysis and the final Effluent Limitation Guidelines consideration.

Q. Mr. Janjic, my question called for a yes or no answer. I just want to ask it one more time. Is it your position that if EPA promulgates any ELG that is based on a recycle FGD system, that ELG would not apply to Bull Run?

A. Well, I don't believe that I have a position right now.

Q. Has your position changed since about a year and a half ago?

A. I don't remember that I had a position.

Q. Can you please turn to page 75 of your transcript and read lines 16 through 18?

A. Did you say 75?

Q. Seventy-five, yes.

A. And which lines again, please?

Q. Sixteen through eighteen, please.

A. "If EPA promulgates an Effluent Limitation Guideline that is based under recycle FGD system, would that ELG apply to Bull Run?"

Answer: "No, it wouldn't."

Q. And I just want to be clear on this, Mr. Janjic.

Are you saying today that your position is different from what you'd said earlier?

A. I'm not saying that my position is different. I'm saying that those two are completely different waste streams, and we would have to look at the fundamentally different factors to determine whether or not once that rule is promulgated whether or not it would be applicable or not.

Q. Okay. Thank you, Mr. Janjic. It sounds like you have reviewed the draft ELG. Are you aware that the draft ELG does not distinguish between once-through and recycle FGD scrubbers?

A. Yes.

Q. And are you aware that the draft ELG has an option for continued case-by-case permitting of FGD wastewaters?

A. Yes.

Q. And is that an option that TDEC supports?

A. I don't know that the word "supports" is a good use of the word there. What we would prefer would be that EPA, in the Effluent Limitation Guidelines, describes all types of waste streams, wastewater treatment processes, and corresponding limitations or restrictions for those processes.

If EPA makes a decision that certain waste streams would have to be dealt with on a case-by-case basis by state agencies, then we will do so.

Q. Thank you, Mr. Janjic. I'm turning to the

question of internal monitoring and limits now. When this permit was issued, you believed it was unnecessary for TDEC to evaluate different wastewater treatment options for internal wastewater streams, because the flue gas desulfurization wastewater is part of the ELG; is that correct?

A. That is correct.

Q. And TDEC did not include an internal monitoring point for FGD wastewater, in part, because your analysis showed that the contribution of pollutants from the FGD waste stream is not significant to the overall effluent quality; is that correct?

A. That is correct.

Q. All right. Let's turn to Exhibit 69. And, Mr. Janjic, this exhibit, does it reflect the result of TVA's wastewater study of internal wastewater streams?

A. This appears to be a Bull Run Fossil wastewater stream and data for dry handling conversion study. It identifies in the first column different characteristics of wastewater and then, in columns and the table, various locations at the facility where data was collected.

Q. And what is the date on this document?

A. There is only one date that I see, which says Kingston Fossil Plant dry ash conversion data collected January 7, 2010.

Q. Mr. Janjic, I believe that may be an error. I'm

pointing to the date I believe is correct and applicable to this case.

A. March 24, 2010.

Q. Okay. Thank you, Mr. Janjic. Now, is it your understanding this is the statistics of the concentration of pollutants in untreated wastewaters?

A. That's what it appears to be, yes.

Q. I'm turning to the second page of this document, which is arsenic, and this is the slide I showed earlier. There's one tall line here. Which wastewater stream does that represent, Mr. Janjic?

A. FGD system, plus at gypsum stacking pipes.

Q. And that's for scrubber wastewater; is that correct?

A. Yes.

Q. Okay. Now, Mr. Janjic, what was the concentration of arsenic in this untreated FGD wastewater?

A. .34 milligrams per liter.

Q. And I'm turning to the sixth page of this document, which is regarding mercury and the tall blue line there. Which wastewater stream does that represent?

A. FGD system at gypsum stacking pipes.

Q. And did this show that the other wastewater streams were non-detect for mercury?

A. It appears that they are non-detect.

Q. And approximately how much mercury -- what was the concentration of mercury in the FGD wastewater?
A. It appears to be slightly over 0.0035 milligrams per liter.
Q. I'm turning to the eighth page of this document, which is for selenium. There's one tall blue line. Which wastewater stream does that represent?
A. FGD system at gypsum stacking pipes.
Q. And what is the concentration of selenium listed here?
A. 9.9 milligrams per liter.
Q. Okay. Thank you, Mr. Janjic. I'm going to turn to the subject of performance-based effluent limits. Mr. Janjic, a performance-based effluent limit would be considered a type of technology-based effluent limit; is that correct?
A. That's correct.
Q. And TDEC has the option to impose a performance-based effluent limit on any wastewater treatment facility if there's a large enough data set; is that correct?
A. Just the mere existence of a large data set at the facility in itself does not require or mean that we have to impose a performance-based limit.
Q. My question was whether TDEC has the option in that situation.

A. Yes.
Q. So if there were a large enough data set, TDEC would have the option of imposing a performance-based effluent limit at the renewal of the Bull Run permit; is that correct?
A. That is correct.
Q. And is the performance-based effluent limit derived from the performance characteristics of a wastewater treatment system?
A. Yes.
Q. And typically TDEC would use the 95th percentile of the data set for the performance-based effluent limit; is that correct?
A. That is correct, yes.
Q. And, Mr. Janjic, 24 data points would be a good data set; is that correct?
A. Yes.
Q. All right. Let's turn to Exhibit 21. Mr. Janjic, do you recognize this exhibit?
A. It reminds me of a spreadsheet that we had received from TVA in which they have summarized Outfall 001 data for a period of about two years.
Q. Let's go to the next page. Well, actually this includes -- the column on the far left includes data on arsenic; is that correct?
A. I'm sorry, can you say that again?

Q. I'm sorry. My voice is starting to -- the column on the far left, that shows that arsenic is one of the metals for which you are obtaining data?

A. Yes. I see arsenic and arsenic DRS, which is dissolved.

Q. Is there also selenium monitoring reported?

A. I remember that it was. I don't see it on the screen; selenium and selenium dissolved, yes.

Q. And at the very bottom, is there data on mercury?

A. Yes. There is total mercury.

Q. And, Mr. Janjic, if you look at the two pages here, and all of the columns with data, do you now have more than 24 data points?

A. Well, we would look at data points per parameter, not a total of 24 data points for everything.

Q. Mr. Janjic, do you have more than 24 data points for arsenic?

A. I guess I can count them.

Q. All right. Let me know when you're done with this page, please.

A. Fifteen. I see 15 columns on this page, and I believe that there is data available following. So, yes, there seems to be more than 24.

Q. Okay. And is that true for selenium as well?

A. It seems it would be true for all the parameters

here.

Q. And that includes mercury as well?

A. It looks like it. Don't make me count.

Q. Okay, thank you. So, Mr. Janjic, do you have enough data now to develop performance-based effluent limits for arsenic, selenium, and mercury at Bull Run?

A. The data set is plentiful. It looks like there is a lot of information that could be used for developing permit limits. And if I wanted to make a case of how effective is the pond in removing pollutants, thank you for helping me do that. I couldn't have done a better job myself.

MS. MATHENY: Well, thank you, Mr. Janjic. Petitioners have no further questions at this time.

CROSS-EXAMINATION

BY MR. PARKER:

Q. Mr. Janjic, I have some questions. You would want 24 valid data points; is that correct?

A. I would not use -- of course, "valid" is a good word. But in regulatory terms, we would use the word maybe "representative". We would like to see data points that are representative of the facility's operation and wastewater treatment plant effectiveness.

Q. And whether something is representative might be because a plant is operating or not operating; is that

correct?

A. Well, that would be one of the factors. But we also have to remember statements that Mr. Alexander made that when you look at the data over time, we do not see a significant difference in changes in concentrations as a result of plant operating versus not operating and the data that was submitted.

So we have to -- I don't know what would be representative. Certainly this looks like a pretty decent data set. Operation of the plant is directly proportional to amount of pollutants present.

MR. PARKER: That's all I have.

MR. STAGG: TVA has no questions.

ADMINISTRATIVE JUDGE: Members of the Board?

MR. HEAD: Mr. Janjic, I have five or six questions here, so bear with me. My first question is, when the Department prepared its permit and took into consideration comments that were received from the public comment period, at some point did the Department submit its draft permit to EPA for review?

THE WITNESS: The memorandum of agreement with EPA requires us to submit a final version of the permit, so to speak, to EPA, if there are any substantial changes in the permit that would be less restrictive than the version

that EPA had an opportunity to review and provide their comments on. If anything, the final permit with its BMP plan and additional requirements that we included in it was more restrictive than the draft permit that EPA had a chance to review.

So if I remember correctly, we did not send another revised draft to EPA for additional review and approval. We just provided them with the final permit.

MR. HEAD: When EPA provided feedback to you, they approved of the permit language that you had submitted, they didn't make any changes in the permit or anything like that?

THE WITNESS: EPA did provide comments on our draft Bull Run permit, but they were strictly regarding 316(a) variance, which is a variance that is related to thermal limitations in the permit. It's a thermal variance. It had nothing to do with any flue gas desulfurization, Effluent Limitation Guidelines, or other limits and restrictions in the permit.

MR. HEAD: So when the Department issued the final permit, there was nothing from EPA that objected to the requirements that were in the permit?

THE WITNESS: Well, there are two steps where EPA can provide us with their comments. It is during the draft comment period, which, as I said, they had no

comments whatsoever about who gets this authorization. And then upon issuance of the final permit, EPA has a right to object to terms and conditions of the permit. They haven't done that or provided us any feedback regarding the final issuance.

MR. HEAD: So to your knowledge, EPA has no objection to the permit?

THE WITNESS: To the best of my understanding, they have no objection.

MR. HEAD: If you will look at Exhibit 21, the one that was just discussed about the different levels of metals in water concentrations, there were questions about the arsenic levels and the selenium levels. Hold on. I've got to get closer, I apologize.

My first question is, from your perspective, what type of levels of metals, arsenic, mercury are you seeing discharged in the effluent from Outfall 001? Do you know what those DMR data might be?

THE WITNESS: They're great. I mean, these concentrations are so low that they are practically lower than end of pipe water quality criteria. If this effluent was going to a zero receiving stream, the limits that we would have on the permit would be higher than what is being discharged from the Outfall 001.

MR. HEAD: There's been a lot of talk

about best available technology for treatment here. We have what I would consider to be very, very low levels of metals in the effluent being discharged into the Clinch River.

Part of that, if you're looking at this in terms of best available technology for that analysis, would be evaluating cost to remove the metals further or reduce them to lower level for discharge to the stream.

When you're talking about the level of metals being less than part per billion amounts or, at the most, below ten parts per billion, what would the cost be to remove, as an example, mercury below five parts per billion?

THE WITNESS: Well, we didn't have information and data from EPA or other sources that would enable us to come up with the calculation, but I can give you my opinion that that would be an extremely expensive thing to do.

MR. HEAD: I'm looking at this table here. And, I apologize, my eyes are not as good as they used to be. I'm looking at arsenic numbers, and I see an arsenic. It says DIS beside it, and then I see right above it arsenic, and they're both analyzed at 228.

And one of the questions that you were asked about this was whether there was valid data. So given this information that's in this table, can you tell me whether the data that's reported is -- is it a sample that's collected

directly from the flue gas desulfurization pipe that's coming into the pond?

THE WITNESS: We're still on Exhibit 21; right?

MR. HEAD: Yes.

THE WITNESS: This is data from the effluent coming through the ash pond of Outfall 001. It includes all the waste streams that are monitored, internal monitoring points that exist and then subsequently treated on system and discharged into the Clinch River. So this is what is in the permit described as Outfall 001.

MR. HEAD: And when you look at this table and look at the data that's represented there, I read this to be parts per million. It says milligrams per liter at the very top. Is that your understanding?

THE WITNESS: That is my understanding. My first order of business tonight is to go to Target and buy new reading glasses. But I would say that it is milligrams per liter, except, if I can read correctly, that mercury maybe is expressed in micrograms per liter.

MR. HEAD: Would be parts per billion?

THE WITNESS: Yes.

MR. HEAD: So when you look at the arsenic levels there, we're seeing arsenic levels at -- the highest level that I see is M part -- 11 parts per billion. Then when

I look at the mercury numbers, the numbers there are below parts per billion.

THE WITNESS: That is correct.

MR. HEAD: So, again, this gets back to my question about the technology and treatment there. Would you consider this effluent that's being discharged into the river to be very high quality effluent?

THE WITNESS: Yes.

MR. HEAD: And what conceivable advantage would there be to add additional treatment to this in terms of protection of fish and aquatic life?

THE WITNESS: I cannot imagine any treatment being added or anything being done to make this effluent be of better quality.

MR. HEAD: That's my questions. Thank you.

THE WITNESS: Thank you.

MR. UNGER: I do have one question. Just so I understand, Exhibit 21 is effluent data for 001 Outfall, and Exhibit 59 is influent data?

THE WITNESS: Yes.

MR. UNGER: That's all.

ADMINISTRATIVE JUDGE: Ms. Matheny, any redirect?

MS. MATHENY: Yes.

ADMINISTRATIVE JUDGE: Will it be short?

MS. MATHENY: It will be very short.

ADMINISTRATIVE JUDGE: Okay.

REDIRECT EXAMINATION

BY MS. MATHENY:

Q. Mr. Janjic, you're an engineer; is that correct?

A. Yes.

Q. But you're not a PE; is that correct?

A. I'm not a licensed engineer, no.

Q. And are you qualified to give an opinion about wastewater treatment in this case as an expert?

A. I don't think I'm here as an expert witness.

Q. Now, Mr. Janjic, is dilution the same thing as treatment?

A. No.

Q. Mr. Janjic, when the Bull Run ponds are closed and the flows are decreased, will you have higher concentration of FGD waste in the stilling pond?

A. Proportionately, the volume of FGD waste will be higher.

Q. And is that particularly true when TVA takes its bottom ash wastewater to dry handling?

A. Well, any removal of other waste streams from that ash pond is going to result in a different proportion of the

flue gas desulfurization waste stream.

Q. And as TVA closes its ponds sequentially and the flows are decreased, and the FGD wastewater concentration is increased, would that violate the permit?

A. No.

MS. MATHENY: Thank you, Mr. Janjic. Petitioners have no further questions at this time.

RECROSS-EXAMINATION

BY MR. PARKER:

Q. One quick question based upon what they just asked you. Mr. Alexander testified that the flow of FGD was about 20 percent of the total flow of the ash pond. It's much lower than that; is that correct?

A. Well, everybody can scribble down and figure out the percentage. If we know that currently we're looking at about, what, 13 million gallons, and the flue gas desulfurization makes about 400,000, maybe half a million, whatever that percentage is, it seems less than 20 percent to me.

MR. PARKER: Okay. Thank you.

MR. HALCOMB: Sir, while you may not be an expert, are you familiar with the potential adverse effects of mercury on a living body; a human, for example?

THE WITNESS: I'm familiar with it.

MR. HALCOMB: Whether it's mercury or selenium or some of these other metals found in the charts that you were shown, are there any of those figures that you believe are a threat to human health?

THE WITNESS: No.

MR. HALCOMB: Thank you.

MR. HEAD: Mr. Janjic, I have two questions. The first one is, as I understand it, we're here to hear an appeal of the permit that was issued for this facility in 2000, and what was submitted to the Department for evaluation was the conditions at that facility, the amount of wastewater and where it came from for that particular permit application; is that correct?

THE WITNESS: That is correct.

MR. HEAD: Now, in your decision-making process about whether a permit should be issued, can you forecast into the future and make a determination about what's going to happen and how that might affect the permit limits in 2013 in making a decision in 2010?

THE WITNESS: Obviously the answer to that is no. However, we try to be as professional, as responsive to what we know will happen with regards to whether it's a water treatment Effluent Limitation Guidelines, water quality standards, not being blind to what is happening in the regulatory environment.

MR. HEAD: So the Department made a decision in 2010, based on information submitted by the applicant, upon review of the comments received by the different folks that submitted comments to the Department. This is a similar question that I asked Mr. Alexander.

If conditions change at the facility, such that the different waste streams are reduced significantly, would the Department have, at that time, an opportunity to require or ask TVA to perform a permit modification because of the changes made in its operation?

THE WITNESS: Yes. Both the permittee has an obligation to report any changes in the flow or nature of the wastewater streams at the facility, and we have an obligation, if necessary, to modify or revoke and reissue the permit.

MR. HEAD: At this time has TVA notified you of any intent to change the flow that's going into the pond and the amount of outflow at outfall No. 001?

THE WITNESS: The latest information that we have regarding the discharges would be in the application that we have received from EPA, and we can pull up that application. No substantive changes are expected in the immediate future.

MR. HEAD: Thank you.

ADMINISTRATIVE JUDGE: Okay. Well, we

will stand in recess until nine o'clock in the morning. Mr. Parker, what are the arrangements for the room over the night?

MR. PARKER: You mean will it be locked?

ADMINISTRATIVE JUDGE: Is it possible? I mean, I understand. But what you all might want to do with your computers --

MR. PARKER: It'll be locked.

ADMINISTRATIVE JUDGE: Okay. Well, then I guess everyone can make their own judgment.

(Whereupon, the hearing was adjourned, to be reconvened at 9:00 a.m. on October 16, 2013.)