ILLINOIS POLLUTION CONTROL BOARD
April 23, 2007

IN THE MATTER OF:

TRIENNIAL REVIEW OF SULFATE AND TOTAL DISSOLVED SOLIDS WATER QUALITY STANDARDS: PROPOSED AMENDMENTS TO: 35 Ill. Adm Code 302102(b)(6), 302.102(b)(8)405.109(b)(2)(A), 405.109(b)(2)(B), 406.100(d); REPEALED 35 Ill. Adm. Code 406.203, PART 407; and PROPOSED NEW 35 Ill. Adm. Code 302.208(h)	)

REPORT OF PROCEEDINGS held in the above-entitled cause before Hearing Officer Marie Tipsord, called by the Illinois Pollution Control Board, taken before Laura Bernar, CSR, a notary public within and for the County of Cook and state of Illinois, at the James R. Thompson Center, 100 West Randolph Street, Chicago, Illinois, on the 23nd day of April, 2007, commencing at the hour of 10:00 a.m.

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Ms. Marie Tipsord, Hearing Officer

Mr. G. Tanner Girard, Acting Chairman
Mr. Anand Rao, Senior Environmental Scientist
Ms. Alisa Liu, Board Member
Mr. Thomas Johnson, Board Member

MS. TIPSORD: Good morning. My name is Marie TIPSORD, and I've been appointed by the Board to serve as hearing officer in this proceeding entitled in the matter of Triennial Review of Sulfate and Total Dissolved Solid water quality standards. I won't repeat all the sections that it's proposed to amend and repeal. It's docket No. RO7-9. To my left is Dr. Tannner Girard, the lead board member assigned to this matter. And to his left is Mr. Thomas Johnson, one of our board members as well. To my immediate right Anand Rao with our technical staff, and to his right Alisa Liu, also with our technical staff.

This is the second hearing to be held in this proceeding. The purpose of today's hearing is to hear prefiled testimony in this matter. I've received testimony from James Huff and Bridget Postel; is that correct.

MS. POSTEL: Postel.

MS. TIPSORD: On behalf of Citgo. I've also received testimony from Glynnis

Collins on behalf of Prairie Rivers Network, Sierra Club, and the Environmental Law Policy Center. I've also received questions for the Agency. We will begin with presentation by Citgo followed by the presentation by Ms. Collins and the environmental groups. When Citgo -- when their two witnesses have read their testimony in, then we will allow for questions. We'll do it as a panel. Same with Ms. Collins. When she's read her testimony, then we'll allow for questions. After we're done with that, we will go to the Illinois Coal Association who notified me last week that a comment that was filed on April 9. They would like to present as testimony. We will allow Mr. Phil Gonet and his expert witness to be sworn in and read in the testimony and present them then for questions.

In addition, there's a sign-up sheet to the side of the room. If anyone else would like to testify today, if you did not prefile, you may sign up, and as time allows we will get to you. After we have

finished with the prefiled testimony, I would like to swear in the Agency witnesses and allow them to answer the prefiled questions. When it comes time to question a witness, anyone may question them. I ask that you raise your hand and let me acknowledge you. After I've acknowledged you, please state your name and whom you represent before you begin your question. Please speak one at a time. If you're speaking over each other, the court reporter will not be able to get your questions on the record. Please note any question asked by a board member or staff is intended to help build a complete record for the Board's decision and not to express any preconceived notions or bias.

Also to the left of me at the back of the room here are sign-ups for the notice and service list. If you wish to receive all filings in this, you would sign up for the service list; if you only wish to receive board action and hearing officer notices, that would be the notice list. If you are on the service list, you must serve

everything on the people on the service list. That does bring me to a note: The service list is all that you need to serve people. Right now our service list is very short. Our notice list is very long, and I've noticed that almost everybody has been serving everything on the notice list. So be sure that when you look at it that you're looking at the service list and not the notice list just to save yourselves some time and money. Like I say, the notice list is very long, the service list is very short. There's only four or five names on the service list.

The second purpose is this rule making is subject to 27(B) of the Environmental Protection. Section 27(B) of the Act requires the Board to request the Department of Commerce and Economic Opportunity to conduct an economic impact study on proposed rule prior to the adoption of the rules. If DCEO chooses to conduct an economic impact study DCEO has 30 to 45 days after such a request to produce a study of

economic impact of the proposed rules. The Board then must make economic impact study or DCEO's explanation of not conducting the study available to the public at least 20 days before the public hearing on the economic impact of the proposed rules. In accordance with section 27(B) of the act, the Board requested by letter dated November 27, 2006, that DCEO conduct an economic study for the above-referenced rulemaking. The Board has not received a response. A copy of the Board's letter is available at the back of the room, and we will accept comments concerning the economic impact study. Dr. Girard, is there anything you'd like to add?

CHAIRMAN GIRARD: Good morning. On behalf of the Board I welcome everyone to the hearing this morning. We are very grateful for all the time that various groups and individuals have put into this rulemaking. We look forward to your testimony and questions today. Thank you.

MS. TIPSORD: Mr. Fort, we'll start

with you.

MR. FORT: Thank you. My name is Jeffrey Fort, Sonnenschein, Nath & Rosenthal, on behalf of Citgo. And with me is my colleague Elizabeth Lifel. We have two witnesses to present today: Ms. Bridget Postel and Mr. Jim Huff. And as the hearing officer just indicated, that they'll present their testimony. We're going to ask that Mr. Huff's testimony also be made an exhibit because he has some data attached, and we do appreciate the board's attention and opportunity to present this information. So I'd ask -- Do you want to swear them both in.

MS. TIPSORD: We'll swear them both in.

(Witnesses sworn.)

MS. TIPSORD: Then if there's no objection we'll enter Mr. Huff's testimony as Exhibit 1. Seeing none, it's Exhibit No. 1.

MR. FORT: Miss Postel?

MS. POSTEL: My name is Bridget Postel. I've been employed by CITGO Petroleum Corporation for the past three

years. I have worked at Lemont Refinery since October of 2003. At Lemont Refinery, I have held the position of environmental engineer --

MS. TIPSORD: Could you slow down just a little bit.

MR. FORT: We have more copies of her testimony if anybody would like those.

MS. POSTEL: I received a Bachelor of Science in Chemistry from the University of Illinois, Champaign-Urbana, and a Master's of Science in Environmental Engineering from Lamar University, Beaumont, Texas.

Prior to my time at Lemont Refinery, I have held various environmental positions in the pharmaceutical, chemical, and power industries.

Citgo operates its Lemont Refinery at 135th and New Avenue in Will County, Illinois. The Refinery was constructed during the period of 1967 through 1970. It became operational in late fall of 1969. Currently, the average daily production is 168,626 barrels per day, and

the Refinery employs approximately 530 people.

Approximately twenty-five different products are produced at the Refinery, including gasolines, turbine fuels, diesel, furnace oil, petroleum coke and various specialty naphthas which can be manufactured into many intermediate products including antifreeze, dacron, detergent, industrial alcohols, particulars, and synthetic rubber. 90 percent of the Refinery's output goes into making gasolines, diesel fuels, home heating oils and turbine fuels for use in Illinois and throughout the midwest.

The Refinery draws from and discharges to the Chicago Sanitary and Ship Canal. The Refinery takes approximately 4 million gallons of water daily from the canal and discharges approximately 3.8 million gallons to the canal, the difference being cooling tower evaporation and steam losses. The wastewater effluent contains dissolved solids derived from

compounds present in crude oil that are removed from the crowd by various Refinery operations, as well as concentrating the TDS present in the intake water from the canal from the evaporation cooling.

The Refinery operates under a National Pollutant Discharge Elimination System, IL0001589 issued by the Illinois Environmental Protection Agency. The NPDES permit became effective September 1, 1994. Citgo filed a timely NPDES renewal application in 1997, and a renewed NPDES permit was issued on July 28, 2006. The NPDES permit included outfall 001 at the Refinery at River Mile 296.5 on the canal.

The purpose of my testimony today is two fold: To support the requested rule change by the Agency and to request that the Board also extend the changes pertaining to TDS and sulfates to Lemont Refinery.

The Refinery has been in operation since 1969. Until recently, however, we did not have occasion to be concerned with the total dissolved solids

component of our effluent. Until the most recent NPDES permit was issued last year, CITGO's NPDES permits had not limited the discharge for TDS.

TDS has become an issue for the Refinery due to the agreement that CITGO reached with the U.S. EPA and the states of Illinois, Louisiana, New Jersey, and Georgia to substantially reduce the sulfur dioxide and nitrous oxide emissions from several facilities, including Lemont Refinery. Due to the discharge from the Wet Gas Scrubber, that is the key component of an emission control project, we found that increased levels of TDS would be discharged. As we were developing the project, we also learned that due to TDS levels in the lower Des Plaines River near the I-55 bridge, that the IEPA would not issue a construction permit for that project.

Treatment for TDS in the wastewater stream was not neither technically feasible nor economically reasonable. Deep well injection was not an option according to

information we obtained from the Agency. Technology for removing sodium sulfate from a dilute aqueous stream are limited. Electrodialysis has never been applied in the chemical or Refinery industries on the scale required at the Refinery. Biological sulfate reduction is theoretically possible, but this will not reduce the overall TDS concentration merely by replacing the sulfate ions with carbonate ions. The concentration of sodium sulfate is too high for reverse osmosis, as scaling problems would develop. The sole technology potentially available is evaporation, an energy intensive approach, which will result in increased carbon dioxide emissions to the atmosphere. This technology would result in a capital cost on the order of $7 million and operating costs including depreciation of $1 million per year, assuming that the Refinery has sufficient steam capacity and that a new boiler is not required.

This situation led to us researching the TDS water quality issues. We

learned of efforts by IEPA to eliminate the existing TDS water quality standard for both General Use and Secondary Contact waters. Thus, CITGO began following the TDS rulemaking since its inception. CITGO was in attendance at the first shareholders meeting which took place in Springfield on spring of 2004. In July 2004 CITGO contacted Linda Holst of U.S. EPA Region 5 to advise U.S. EPA that the TDS water quality standard change affected more than just the Illinois coal industry. In August 2004, Dave Soucec of INHS was contacted by CITGO to discuss the time frame for the additional toxicity testing Region 5 required before they would approve the proposed TDS rule change. It was determined that the requested data could take six months to a year to generate and be approved by Region 5. Also throughout the summer of 2004, Bob Mosher was contacted by CITGO to discuss the proposed TDS rule change and the potential impacts to projects required in a pending consent decree. We learned that the rule change to remove the

TDS standard was proceeding, but it became clear, even two years ago, that it would not happen in a timely manner for the Lemont Refinery.

Given the obligations imposed by CITGO U.S. EPA and Illinois, the only viable option to allow the construction schedule to proceed was to file a variance.

On October 6, 2004, CITGO's consent decree was lodged. One requirement, installation of air pollution control equipment by December 2007, would result in a scrubber wastewater stream with elevated TDS. With the proposed TDS rule change, a variance would not be required; however, in discussions with Bob Mosher, it was evident that the rule change would not be promulgated before a construction permit for the scrubber facilities was needed to meet the timeline outlined in the consent decree. Subsequently on November 8, 2004, CITGO filed a petition for a variance from TDS water quality standards. On December 21, 2004, a construction permit for a purge treatment

unit was submitted to the Agency.

On April 2005, the Board granted a five-year TDS variance to CITGO. It's PCB05-85. On May 1, 2006, IEPA granted a construction permit for the purge treatment unit. CITGO has been proceeding to install the equipment required under the consent decree and the construction permit. That project is on schedule. We have been collecting the water quality data as required by the variance. Jim Huff will include the data as part of his testimony.

On May 2, 2006, CITGO attended a stakeholder meeting convened by IEPA to discuss changes to the sulfate, TDS, and mixing zone regulations. It was at this time that CITGO learned of the significant change to the previously proposed TDS rule. Secondary Contact TDS water quality standards would remain intact, and the General Use water quality standard would be eliminated. Secondary Contact TDS water quality standards would be a component of a DRAFT UAA proposal. In the UAA proposal, TDS for Secondary

Contact waters would also be eliminated. CITGO has made multiple written requests to IEPA to amend the Secondary Contact TDS standard concurrently with the General Use TDS standard. The Agency has responded that the Secondary Contact TDS standard will be addressed during the UAA process. It is apparent that the UAA process is experiencing delays. At a March 20, 2007 stakeholder advisory meeting, there was much controversy surrounding the definition of attainability and water quality criteria such as the ammonia, dissolved oxygen, temperature, and bacteria. Elimination of TDS water quality standard was not commented on by industry, environmental groups, or U.S. EPA. To CITGO's knowledge, TDS has never been raised as an issue during UAA discussions.

Moreover, we understand that the only point source permitted dischargers into Secondary Contact waters who are adversely affected by the TDS water quality standard are Lemont Refinery and the Exxon-Mobil Joliet Refinery. We base this

conclusion on several conversations with Agency staff and a review of the Board's dockets. The Board recently granted site-specific relief to Exxon-Mobil, and it's PCB R06-024. CITGO did not have that amount of the time under our consent decree.

CITGO does not agree that the UAA process is the only correct avenue to amend the Secondary Contact TDS water quality standard. We see no reason why the Board cannot amend the Secondary Contact TDS standard at the same time as General Use waterways, at least as it pertains to CITGO, and any other discharger adversely affected by the present standards.

If the Secondary Contact TDS standard is not amended during this proceeding, CITGO may be compelled to begin the process of a site-specific rulemaking, similar to the recent rulemaking granted Exxon-Mobil. Such a proceeding would repeat the same testimony and evidence as presented in this proceeding. We fail to see why duplication is necessary.

The conclusions are: The information which justified the deletion of the TDS standard in General Use waters applies equally to Secondary Contact standards such as Lemont Refinery's receiving waters. The UAA proceeding is not the only appropriate avenue from removing the TDS standard for Secondary Contact waters. Due to the delays that have occurred in the UAA proceeding, CITGO's obligations under its consent decree may come due before the UAA proceeding materializes into a final rule.

We urge the Board to recognize that removal of the TDS standard for Secondary Contact waters is consistent with the Agency's proposal to remove the TDS standard for General Use waters by eliminating the TDS standard for Secondary Contact waters in this proceeding, to the extent applicable to the CITGO Refinery.

MS. TIPSORD: Before we go to Mr. Huff, I have a couple of -- I'll reserve most questions, but you skipped over some stuff in your testimony that was in parens in

your written testimony. And I just want to be sure that we get that in. First of all, is it correct that the UAA is the Use Attainability and Analysis draft?

MS. POSTEL: Yes.

MS. TIPSORD: And Page 5 of what you submitted as a written comment, and you read in, "Moreover, we understand that the only permitted discharge is into Secondary Contact waters who are adversely affected by the TDS water quality standard," and then in brackets you have either in General Use waters or the Secondary Contact waters are CITGO and Exxon; is that correct?

MS. POSTEL: Yes.

MR. FORT: I think we should probably limit that statement about General Use waters in the Chicago River System, Ship Canal, and lower Des Plaines River System as opposed to the whole state. That could be an implication from the way we wrote this.

MS. TIPSORD: Is that correct, Miss Postel?

MR. FORT: We're limiting it to

the Ship Canal --

MS. TIPSORD: But unless you want me to -- Mr. Fort, unless you want me to swear you in, we need to ask her if that's correct.

MS. POSTEL: Yes.

MS. TIPSORD: Thank you. Go ahead, Mr. Huff.

MR. HUFF: My name is James E. Huff and I'm vice president and part owner of the environmental consulting firm Huff and Huff, Inc. I'm here to day on behalf of CITGO's Lemont Refinery which discharges into Chicago Sanitary and Ship Canal, a Secondary Contact waterway. I'm a registered professional engineer in Illinois and have been involved in Illinois water quality issues since 1971, including the original Pollution Control Board water quality standards. I have been following closely the Agency's efforts to amend the total dissolved solids, TDS, and sulfate water quality standards since 2004. Attachment 1 to my testimony is a copy of my education and experience.

The Agency's efforts to amend

the water quality standards for TDS and sulfate, which included expanding our knowledge of sulfate toxicity as it relates to hardness and chlorides are to be commended. Illinois has an opportunity to develop water quality standards based on better science than what has historically been available that will be protective of the designated stream uses.

Bob Mosher and Brian Koch of the Illinois Environmental Protection Agency addressed in detail the aquatic toxicity as well as livestock watering impacts associated with higher sulfates along with describing the U.S. EPA procedure utilized to derive the General Use sulfate water quality standard. I have reviewed the Agency's testimony and exhibits and fully support the Agency's proposed changes as they apply to General Use streams.

Secondary Contact and Indigenous Aquatic Life (Secondary Contact) Standards are not currently included in the Agency's proposed changes to the sulfate and

TDS water quality standards. I would recommend that changes to the Secondary Contact waterways for these same constituents be included in this proceedings. Secondary Contact waterways are not suited for General Use activities such as swimming. Barge transportation is a major stream use on the Chicago Sanitary and Ship Canal and Des Plaines River above the I-55 bridge. Given the Agency's testimony in this rulemaking, there is no technical reason not to eliminate the TDS water quality standards proposed for General Use streams to the Secondary Contact waterways. The evidence already presented by the Agency to support the General Use proposal certainly applies to Secondary Contact waterways as well.

At the March 7, 2007 hearing, Toby Frevert indicated that the hardness and chloride levels in the Ship Canal are similar to the levels found in the lower Des Plaines River. Mr. Frevert indicated that the Agency was planning to modify all the Secondary Contact water quality standards at one time,

and that was why the Agency was not proposing sulfate and TDS changes at this time.

As the Board is aware, the CITGO Lemont Refinery was granted a five-year variance from the TDS water quality standard in April 2005 to allow for the discharge of additional TDS associated with the Wet Gas Scrubber for sulfur dioxide removal. CITGO elected to go with the variance route because of the time constraints imposed by the U.S. EPA in its concent order with CITGO and the understanding the Agency's pending rule to eliminate the TDS water quality change would eliminate the need for the variance for the entire five-year period requested. I would note that in R06-24, Exxon-Mobil's site specific request, the Agency noted in its post-hearing comments that conditions 3, 5, 6, 7, and 10 in CITGO's variance would no longer be pertinent. As part of CITGO's variance conditions, TDS data at the I-55 bridge on the Des Plaines River is being collected during the winter months. Attachment 2 presents the data collected to

date. TDS levels exceeded the 1,000 milligram per liter from February 21 to March 7, 2007.

The Agency's sulfate and TDS proposal was delayed in getting to the Board and excludes Secondary Contact waterways. This has put CITGO in a difficult position, either file for a site specific rule change or hope that the Secondary Contact water quality changes will be submitted to the Board and adopted within the next three years.

Attachment 3 presents historic sulfate water quality at the I-55 bridge on the Des Plaines River. As Mr. Frevert noted, similar levels would be expected in the Chicago Sanitary and Ship Canal. With the exception of one apparent outlier of 490 milligrams per liter sulfate (when the TDS was only 720 milligrams per liter) the levels had been below 120 milligrams per liter. In RO6-24, Scott Twait of the Agency testified that the hardness in the Des Plaines River is 205 milligrams per liter, and the chlorides

are 450 milligrams per liter. Using the proposed agency equation as found in section 302.208(h)(2)(A), the sulfate water quality standard would be 1,138 milligrams per liter. The monitoring data at the I-55 bridge demonstrates the sulfate levels are not only well below the proposed water quality value, but also well below the existing 500 milligram per liter sulfate water quality standard. The combined impact from CITGO's and Exxon-Mobil's Wet Gas Scrubbers will result in the sulfate level at the I-55 bridge, increasing 29 milligrams per liter at the 7-day, 10-year low flow of 970 million gallons per day. Such an increase will not cause the sulfate to increase above the existing 500 milligrams per liter water quality standard or the proposed 1,138 milligram per liter water quality standard.

As Bridget Postel from CITGO has testified, the stakeholders meeting on the proposed water quality changes last month was contentious, and achieving consensus on other issues is going to be a difficult task.

Sulfate and TDS were not part of the disagreements, but use attainability and changes to other pollutants, notably temperature, ammonia, and bacteria are very controversial. Clearly, relying on the Secondary Contact water quality changes for TDS is fraught with uncertainty from a timing perspective, leaving CITGO with the one option, filing a site-specific rule change request before the board. This is not only an unnecessary cost to the Board, Agency, and CITGO, but also places an additional burden on the same three groups. I'm sure there are more critical issues that can be focussed upon. That the Agency desires to amend Secondary Contact water quality standards only once seems like inadequate justification for not adopting the TDS changes now.

As the Board is aware, there are currently no sulfate or chloride water quality standards on the Secondary Contact waterways. The General Use sulfate standards are limited to waterways having chloride levels less than 500 milligrams per liter,

which is a General Use water quality standard for chlorides. Attachment 4 to my testimony is recent chloride data from CITGO's water intake from the Chicago Sanitary and Ship Canal. This location is upstream from the CITGO outfall and reflects the stream quality coming from the Chicago metropolitan area. While there has been an overall decline in peak chloride over the past decade, this past winter was particularly challenging from a de-icing perspective. The chloride levels stayed elevated for a longer period of time than in recent years. From February 19, 2007, to at least March 5, 2007, the chlorides stayed above 500 milligrams per liter. This is essentially the same time frame that the TDS at the I-55 bridge exceeded 1,000 milligrams per liter as presented in Attachment 2. It is not clear from the proposed regulations what sulfate water quality would apply during such a period of elevated chlorides on General Use waterways, if the proposed General Use sulfate standard were to be adopted.

However, the Agency's draft regulations for Secondary Contact waterways has the same equation as the General Use waterways, but without the 500 milligram per liter chloride cap on the use of the equation, as presented below.

And that equation is sulfate in milligrams per liter is equal to 1,276.7 plus 5.508 times the hardness in milligrams per liter. And that quantity you're going to subtract 1.457 times the chlorides in milligrams per liter and then multiply the entire equation by 0.65.

In summary, the Agency's proposal is appropriate for primary contact waterways with some clarification on the standards when the chlorides exceed 500 milligram per liter. Adopting the above equation for Secondary Contact waterways as part of the R07-009 proceeding would also be appropriate and consistent with the Agency's intentions. Given the delays that will undoubted ly occur in adopting revised Secondary Contact Water Quality Regulations,

I would urge the Board to eliminate the TDS water quality standard for Secondary Contact waterways as part of these proceedings and adopt the above sulfate standard. If the Board is unwilling to do this for all Secondary Contact waterways, we would ask the Board to consider the deletion of the TDS water quality standards it applies to CITGO. This concludes my pre-filed testimony.

I will be happy to address any follow-up questions.

MS. TIPSORD: Thank you, Mr. Huff. At this time are there any questions for CITGO witnesses? Ms. Liu?

MEMBER LIU: Good morning, Mr. Huff and Miss Postel. Thank you for coming. CITGO's variance in PCPO5-85 contains several conditions which for which CITGO is allowed to be granted relief from the TDS water quality standard. If a site-specific rule or some sort of exemption is allowed for CITGO in this proposed rule, are you also proposing that those relief contain similar conditions as the variance?

MR. HUFF: Could you be more specific? I'm sorry.

MEMBER LIU: Do you remember the conditions that were part of the PCPO5-85?

MS. POSTEL: Yes.

MEMBER LIU: If some sort of site-specific rule or exemption were granted to CITGO for the TDS water quality standards in this proposed rulemaking, would that also carry similar conditions to what is now in your current variance?

MR. HUFF: I think the intent under the variance was to determine the size of holding kinds when the stream exceeded the 1,000 milligrams per liter TDS. And I think it's part of a site-specific request where the goal would be to eliminate the need for that holding, which is really where the variance comes out at the end.

MS. POSTEL: But we would continue to do monitoring as worked out with the Agency.

MS. TIPSORD: Thank you.

MR. ETTINGER: Mr. Huff, at the risk of stealing a little of my witness's thunder,

I just want to read a couple of lines from our testimony, pre-filed testimony to see if you agree with it, and if I understand your proposal. Miss Collins' testimony states, her prefiled testimony states, "Proposed rule does not define the sulfate standards for those waters that is waters with" -- I'm sorry.

"While it is true that Illinois waters should not have chloride levels in excess of the water quality standard of 500 milligrams per liter, it is a regrettable fact that many Illinois waters do not meet these standards. The proposed rule does not find a sulfate standard for these waters unless hardness is greater than 500 milligrams per year, in which case under 302.208(H)(3)(B), the sulfate standards would be 2,000 milligrams per liter. Proposed rule must provide an equation, numeric standard, or procedures for site-specific standards development covering the entire range of possible chloride and hardness levels in Illinois waters."

As I understand your testimony, you agree with that statement; is that correct?

MR. HUFF: My testimony is more of a question: What happens when the chloride levels are above 500 milligrams per liter for the sulfate standard. So substantially I do agree with that.

MR. ETTINGER: You agree there's a hole in the rules?

MR. HUFF: There appears to be from my reading. Yes, sir.

MR. ETTINGER: And you make a proposal as to how to fill that hole by what to do when the chloride levels is over 500 milligrams per liter?

MR. HUFF: I don't believe I did for General Use waterways. In the proposal for UAA, there doesn't seem to be that 500 milligram per liter cap on equation. So I would assume you would plug in the actual chloride value as I read that now, but I'm not clear that that's the Agency's intent.

MR. ETTINGER: I'm not asking the

Agency's intent. I'm asking do you think that that is a reasonable way to solve the gap or answer the question as to what to do when we're over 500 milligrams per liter chloride.

MR. FORT: I think Mr. Huff made his suggestion on how it might apply to CITGO in a Secondary Contact.

MR. HUFF: Would you ask your question again, Mr. Ettinger?

MR. ETTINGER: I doubt I can get it right.

MS. TIPSORD: Could you read back his question.

(Record read back.)

MR. HUFF: Well, if the question is just plugging in whatever the chloride value is, I think there's a problem there because of the potential toxicity of the chloride, and, as I understand, the toxicity testing that was done by Dr. Soucec it was capped at 500 milligrams per liter. It would seem to me an easier way to do that is to limit the chloride value to 500 milligrams per liter

when those conditions occur. So if you've got a 600 milligrams per liter in the receiving stream, you would plug 500 in to determine what the sulfate water quality standard would be.

MR. ETTINGER: I guess I'm still confused. What if -- Unfortunately as you said happened this winter, we have water which has more than 500 milligrams per liter of chloride in it, or at least that's a reasonable thing to plan for in writing the permit. How would you write the sulfate standard if you had a chloride level above 500 milligrams?

MR. HUFF: I think I just answered that. I'll try again. Whenever the chloride levels are above 500 in the equation, to determine the sulfate water quality standard I would plug 500 milligrams per liter chloride into equation. So I would not allow you to have higher chloride levels in the equation to determine the sulfate water quality standard.

MEMBER RAO: Mr. Huff, I have a

question. Going back to this equation that you were talking about, you mentioned in your prefiled testimony that you got this out of Agency's draft regulations.

MR. HUFF: The one they shared with the Safe Coalers (ph.) earlier on, the use attainability for the redesignation on the Chicago waterways and the Des Plaines River.

MEMBER RAO: Is this draft regulations voluminous set of rules? Or if it's few pages, would it be possible for you to put that in the record now or later in your comments?

MR. FORT: We can share what we have, although I think the Agency has circulated this as a way of building a consensus, and this is a very small piece of the whole package. So maybe we can submit the TDS and sulfate and chlorides piece of that, because I think the rest of it is still being formed, if you will.

MEMBER RAO: That would be helpful.

MS. TIPSORD: Anything else?

MR. FORT: There is one other thing

that perhaps would help the record here, and I don't know if Miss Postel or Mr. Huff wants to take this. We've been -- CITGO has been collecting data on TDS and sulfate and chlorides before 2007 and 2006, data that's included in your testimony, correct? You have those data beyond what we've presented today?

MR. HUFF: Well --

MS. TIPSORD: We didn't hear that answer.

MS. POSTEL: We just began collecting TDS data from the I-55 bridge this year as required by our variance.

MR. FORT: With respect to chlorides you collected data before?

MS. POSTEL: We only have intake data.

MR. FORT: How would you characterize that data for chloride levels as compared to the data that we've seen from this past winter? Higher? Lower?

MS. POSTEL: The data is under 500.

MS. TIPSORD: I didn't hear that.

MS. POSTEL: The effluent data is

showing for previous years that the chloride data is less than 500 part per million.

MR. FORT: Thank you.

MS. TIPSORD: Part per million?

MS. POSTEL: Yes.

MS. TIPSORD: Any other questions.

MEMBER RAO: I have a clarification for Mr. Huff. Mr. Huff, you recommend that the Board believe that TDS water quality standards for Secondary Contact waterways, statewide, or if the Board is unwilling to do that, to believe that TDS water qualities standard as it applies to CITGO for the Secondary Contact waters. Are you recommending that we just believe that TDS water quality standards and not anything relating to the sulfates for the Secondary Contact waterways?

MR. HUFF: Well, if you're trying to satisfy the Agency where they want to do all of the secondary contacts as part of the use attainability analysis, they could do the sulfate as part of that. So I'm open either way. I just think that to create a comment

here for CITGO that's kind of the unintentional that we have an opportunity or the Board has an opportunity now to resolve that problem now and the Board going through another site-specific rule change.

MR. FORT: I think I can say that on behalf of CITGO, we would be willing to accept the formula for sulfates that Mr. Huff included in his testimony.

MEMBER RAO: Okay.

MS. TIPSORD: Anything else.

MR. SOFAT: The Agency will make a statement, if possible. We don't have any questions, we just want to make a statement.

MS. TIPSORD: Do you want to do it now or would you rather wait and do it when -- why don't we wait until we swear you in to answer questions, unless --

MR. ETTINGER: I'm pleased to hear their statement now.

MS. TIPSORD: All right. Let's swear in the testifiers then.

(Witnesses sworn.)

MS. TIPSORD: For the record, it's

Mr. Mosher and Mr. Koch.

MR. MOSHER: We brought this up at the first hearing and the Agency stated that we have a rule/making and preparation for the lower Des Plaines River and the Chicago waterways which are those waters presently designated as Secondary Contact and Indigenous Aquatic Life Use. That rulemaking will dramatically change the water quality standards for those waterways. We intend to file that rulemaking later this year, so coming fairly quickly.

We said that we believed it would be better to wait to include the changes to TDS sulfate chloride for those waters at the time we filed that rulemaking for several reasons: There is a stakeholders group currently meeting discussing issues, and those stakeholders should be given the opportunity to hear what is said about TDS sulfate chloride for those waters that they're interested in. We've seen today the fact that those waters in the Chicago area, more so than almost all other waters in the

state, are likely to exceed 500 milligrams per liter chloride in the wintertime due to road salt. So there is that extra problem to review of what should the sulfate standard be when chloride is greater than 500. We don't believe that the solution is as simple as Mr. Huff, I believe, just testified as to just plug in 500 chloride into the equation and use the sulfate standard that comes out of that. We don't believe that would necessarily be protective of aquatic life.

So it is still our preference that the Board wait for the adoption of different TDS, sulfate, and chloride standards until this rulemaking comes before it. And we believe that CITGO will have plenty of time before their variance expires that the Board will adopt those new rules before that happens. If, for some reason it doesn't happen, the Agency believes that the Board could simply extend the variance for CITGO until the general rulemaking for those waters is completed. Thank you.

MS. TIPSORD: Mr. Mosher, later this

year. Could you be more specific? I mean if we're talking December of this year on what appears to be a very controversial rulemaking, that's December 2007, at best you're looking at maybe first note sometime in 2008, correct? So I guess can we be more specific than later this year? Does that mean December? Does that mean September?

MR. MOSHER: We still have stakeholders meetings, so I would say it would be late in the year 2007.

MS. TIPSORD: Thank you.

MR. SOFAT: We with Toby was here. He's the one working on that with Bob and Brian, and they're not working on that. So sorry we could not be more specific.

MR. ETTINGER: I want to ask you a question. Are you aware of stakeholder meetings in that proceeding? Because I haven't been at them.

MR. SOFAT: Me either.

MR. ETTINGER: I thought we were done with the stakeholder meetings in the UAA.

MR. SOFAT: I don't know.

MR. ETTINGER: I don't know if I need to be sworn, but it doesn't sound like we have the right witness to answer your question as to when that planning is filed.

MS. TIPSORD: And that's okay. The Agency can address that in their comments and give us a better idea in their comments. Because I do think that that's important. We're talking about what may be a controversial rulemaking, and, you know, we're willing to do all we can, but we also are in the middle of doing a lot of new cleaner act rules for boards, so.

MR. MOSHER: All I can tell you is that Toby Frevert instructed us to say that it would be filed in 2007.

MS. TIPSORD: And that's great. That's -- I appreciate that. Mr. Forth?

MR. FORT: If I may, just not make a statement, but I believe the record would show that the variance conditions that we have call for being in compliance with the TDS limits by 2009, and the variance has a series of steps before then that requires us

to begin construction and before that to begin design, and effectively, I believe, we have another six months or so before we have to start deciding which path we're going down. So waiting for the long promised UAA concept package is just too long.

MS. TIPSORD: Thank you, Mr. Forth.

MR. ETTINGER: May I ask another question of Mr. Mosher? Mr. Mosher, you discussed the problem we have that I asked Mr. Huff about regarding the -- what to do when you have over 500 milligrams per liter chloride in your statement. I believe you suggested that the proposal Mr. Huff made was a little too simple. Does the Agency have an alternative proposal or is it developing an alternative proposal as to what to deal -- to do to deal with the over 500 milligram per liter chloride?

MR. SOFAT: We can answer that question or we can answer it later on when you guys testify. We were going to make a statement on that.

MR. ETTINGER: We'll wait and hear

that statement. That's fine.

MS. TIPSORD: Then with that, I think we'll swear in Miss Collins.

(Witness sworn.)

MR. COLLINS: I am Glynnis Collins, Watershed Scientist for Prairie Rivers Network. Today I am presenting testimony in the proposed modification to the Illinois Environmental Protection Agency's proposed water quality standard. This testimony and proposal is being made on behalf of Prairie Rivers Network, the Illinois Chapter of the Sierra Club, and the Environmental Law and Policy Center of the Midwest, ELPC. Prairie Rivers Network, the Sierra Club, and ELPC have numerous members in Illinois who are concerned about water quality and protecting aquatic life in Illinois rivers, lakes, and streams. I have a Master's degree in biological sciences from the University of Southern California in Los Angeles, I worked as an environmental scientist for the San Francisco Bay Regional Water Quality Control Board in Oakland California from 1998 to

2003, and as a visiting senior research specialist in agriculture at the Department of Natural Resources and Environmental Scientists, University of Illinois in Urbana, from 2003 to 2004. I have been a Watershed Scientist at Prairie Rivers Network since 2005. Prairie Rivers Network, Sierra Club, and ELPC are generally supportive of the IEPA proposals regarding sulfate, total dissolved solids, and mixing zones. Of course we strongly approve of the proposal to delete the provisions of Subtitle D which were construed to allow mining operations to discharge dissolved solids in concentrations that could cause violation of water quality standards.

We believe that scientific work regarding the effects of dissolved solids on aquatic life should continue even after adoption of standard changes. We are not convinced that Illinois standards are fully protective of aquatic life as there are some potentially dissolved toxics solids for which numeric quality do not exist in the

Illinois standards. We are concerned about waters with high calcium levels and we are concerned regarding waters that have chloride levels higher than 500 milligrams per liter.

Regarding calcium, some data suggests that when calcium is the primary cation in a solution, it may serve to increase the toxicity of sulfate. We understand that in some cases, mining operations use calcium hydroxide in their processing, which could result in the presence of large amounts of calcium in effluent. We recommend that the Agency investigate the potential for calcium hydroxide use to influence sulfate toxicity, and if necessary restrict or regulate its use in individual permits.

Turning to chloride, the data we have reviewed showed that with chloride concentrations higher than 25 milligrams per liter, the toxicity of sulfate increases as chloride bubbles increase. This relationship holds true for chloride concentrations up to 500 milligrams per liter, the upper limit of

chloride concentrations in the available experimental data. While it is true that Illinois waters should not have chloride levels in excess of the water quality standard of 500 milligrams per liter, it is a regrettable fact that many Illinois waters do not meet these standards. The proposed rule does not define a sulfate standard for those waters unless hardness is greater than 500 milligrams per liter, in which case under 302.208(h)(3)(B), the sulfate standard will be 2,000 milligrams per liter. The proposed rule must provide an equation, numeric standard, or procedures for site-specific standards development covering the entire range of possible chloride and hardness levels in Illinois waters. The proposal as written lacks this information for waters with chloride concentrations over 500 milligrams per liter when hardness is less than or equal to 500 milligrams per liter.

More critically, we believe that the proposed changes to the mixing zone standards in section 302.102 must be

clarified by the Board and that current agency practice regarding the area and volume in which mixing occurs must be codified by the board so as to make the current Agent practice fully known to the public and fully enforceable. In particular, we propose that the language of section 302.102(8) be changed to state:

The area and volume in which mixing occurs alone or in combination with other areas and volumes of mixing must not contain more than 25 percent of the cross-sectional area or volume of flow of the stream, except for those streams where the dilution ratio is less than 3 to 1. In streams where the dilution ratio is less than 3 to 1, other than streams that have a zero flow for at least seven consecutive days recurring on average in nine years out of ten, the volume in which mixing occurs alone or in combination with other volumes of mixing, must not contain more than 50 percent of the volume flow.

This proposal does not change

the first sentence of the current rule and accepts the change proposed by IEPA to delete the second sentence of the current rule. Our proposed second sentence clarifies and specifies what dilution ratio is required when the dilution ratio is less than 3 to 1 and the stream is not among those streams that the proposal would regulate under 302.102(b(6). We believe this is critical.

Currently, the standard simply does not say what is to happen when there is less than 3 to 1 dilution available but does provide that the discharge must meet water quality standards at the end of the pipe if the discharge is made to zero 7q10 streams.

As stated by the Agency in its hearing -- in the hearing held March 7, the Agency has generally adopted a practice of requiring that mixing occur in no more than 50 percent of the flow in such cases. Although we have misgivings about this practice, we are willing to accept its continuation. This practice must, though, be spelled out in the standard, particularly as

the proposed deletion of the current second sentence of 302.102(8) will allow mixing in waters providing less than 3 to 1 dilution to occur more frequently.

Our proposal deliberately allows an exception for the streams that frequently have zero flow that are covered by the Agency's proposed changes to section 302.102(6) and, thus, should allow the mine discharges to very low flow streams that are contemplated by the Agency proposal.

Our proposal closes a lacuna the current standard that is already unfortunate and that would be magnified in importance by the Agency proposal if it is adopted without our proposed language.

I want to stress that there is a great difference between most zero 7q10 streams that have no flow for a seven-day period once in ten years and the small subsets of those streams that have zero flow for seven executive days in nine out of ten. Many of the former waters have flow almost all of the time. These smaller but

significant streams play a critical role in determining water quality, flow characteristics, and the health of aquatic life both locally and downstream. Protection of the ecological functions and water quality and flood mitigation services they provide is essential to overall protection of waters of the state.

Thank you for your consideration of these comments.

MS. TIPSORD: Thank you, Miss Collins. Just as a point of clarification, in your testimony you referred to 302.102(8) and 302.102(6). You mean 302.102(B)8 and (B)6, correct?

MR. COLLINS: Yes.

MS. TIPSORD: Thank you. Are there any questions of Miss Collins?

MEMBER LIU: Good morning, Miss Collins. Thank you for your testimony. There are a couple of places where you refer to data, and I was wondering if you could provide some citations to that data.

MR. COLLINS: I may have to provide --

I can provide full ones, I guess, in writing after today.

MEMBER LIU: That would be helpful.

MR. COLLINS: I'd be happy to do that.

MS. TIPSORD: Anything else?

MEMBER RAO: I had a clarification. Miss Collins, you made a recommendation to the Agency to investigate further the effect of calcium in the streams. And is this something that you want the Agency to investigate and get back to during this rulemaking?

MR. COLLINS: Not necessarily. I think it would be reasonable for it to be addressed possibly through monitoring requirements and individual permits, and then be determined whether or not the larger policy needs to be in place or -- we really don't have any idea whether it's a problem or not. It's just at this point a potential --

MEMBER RAO: I guess I'm just getting a clarification. Thanks.

MS. TIPSORD: Anything else for Miss Collins? The Agency has a statement?

MR. SOFAT: Yes. Bob?

MR. MOSHER: I'd like to just address a couple items: One is the calcium hydroxide item. Calcium hydroxide or sodium hydroxide and any number of other additives at mines are controlled by the Agency's NPDES permit. And if a mine wanted to use calcium hydroxide for that pH neutralization purpose or whatever purpose, the Agency has the option to ask the mine to provide information on what that might do to toxicity or what alternatives might exist. So we would have that opportunity, as we do routinely, for additives used at any kind of facility discharging. A new mine would also be subject to antidegradation review, and we could ask a mine -- if the mine said we are going to use calcium hydroxide in our process, we could ask them to review alternatives and tell us if there isn't something better that could be used for that same purpose. So we think we do have that issue under control of controlling calcium ions as much as possible at mines.

I'd also like to make a comment about the proposed change that Glynnis mentioned to the mixing zone regulation involving what proportion of dilution is allowed when the dilution ratio is less than 3 to 1. The Agency has been able to deal with that regulation well, I believe, all these years that we've had that on the books. We've made some decisions to allow 50 percent mixing when dilution ratio is less than 3 to 1. But as I said at the first hearing, we would like to keep those options open and look at cases individually. I can think of reasons that we might want to sometimes allow less than 50 percent and sometimes allow a bit more than 50 percent depending on the condition. Of course, we always want to make sure aquatic life is protected whenever we grant an allowed mixing or a mixing zone or a ZID. And I can envision a situation, let's say a discharger needed 51 percent mixing and they had an untreatable component of their effluent, needed that much to meet water quality

standards, and that discharger provided a vital function or service for society. I think the Agency would want the option to allow 51 percent mixing. So we'd like to keep that the way it is.

What's also missing, I think, from Glynnis's proposal is any scientific basis that 50 percent has to be that maximum limit. Why, again, couldn't it be more than 50 percent. What reasoning could be offered to establish that what you're proposing is the ideal and correct thing to do. We know that's difficult, and that's why we think our site-specific approach is probably the best way to go. And I believe we're finished. Thank you.

MS. TIPSORD: With that then, I think we're ready --

MR. ETTINGER: I'm sorry. I had two questions. Maybe I didn't hear the answer. I thought you were going to address the other -- the chloride issue as to what to do with 500 milligrams chloride.

And then I have a couple of

questions regarding the Agency procedure.

MR. MOSHER: Okay. Our chloride standard for General Use waters is 500 milligrams per liter. We believe that is a good protective standard. We believe that when waters exceed 500, that's probably bad for aquatic life. There's probably some sensitive species of aquatic life that would suffer when that condition happens. Therefore, we do not like the fact that some of our waters do exceed 500. That's a bad thing for the environment. We work to try to alleviate that condition from occurring, and there are TMDL studies out there that have -- that will be done on waters that exceed 500 milligrams per chloride. The TMDL program is what the Agency does to try to fix problems. We're very cautious about proposing a rule for sulfate linked as it is to chloride that would ever imply that the level of 500 -- over 500 milligrams per liter of chloride is somehow okay and that somehow we can derive a protective sulfate standard using those equations. So our intention was to not

propose that. To say at 500 chloride -- I'm sorry -- greater than 500 chloride, there is no sulfate standard proposed in this rulemaking. I don't know that we were exactly precise in our language. It may need to be fixed a bit, but that was our intention, to never imply that it was okay to have greater than 500 chloride.

So as time goes on, and especially in light of the UAA that we're doing on the Chicago waterways and the rulemaking that we will have sometime this year proposed for the Chicago waterways, lower Des Plaines River, we may come upon a solution to that dilemma. But as for right now, we do not intend to not for General Use to have a sulfate standard derivable for those high chloride situations.

MS. TIPSORD: Go ahead.

MR. ETTINGER: Okay. I guess my first question is there are waters that we agree do have more than 500 milligrams per liter of chloride right now, and they're not only the waters that are subject to the UAA which

we've looked at around the state; is that correct?

MR. MOSHER: That's correct. I looked at Agency Ambient Water Quality Monitoring Network data, and it's fairly rare to have chloride over 500 and have sulfate also pushing the upper level. I found one instance that that means one sample that the Agency took where chloride was above 500 and sulfate was also elevated. So other than the Chicago waterways, lower Des Plaines River, we think it's going to be a rare event that we'll have that to face. And our intention is to look at it again site specifically. If there's a permit downstate somewhere that has to have a sulfate limit determined when chloride is greater than 500, we're just going to have to sit down and figure something out.

MR. ETTINGER: So you wouldn't have a water quality standard as such for that rare situation. You would just go to a tier 2 test or something like that where you would work out individual numbers?

MR. MOSHER: I look at it as a potential permitting issue. If some new discharger like a mine wants to locate in an area where chloride in the stream is over 500, that's the case where we may want to say since we don't know what sulfate is appropriate at this time, maybe that's not a good place to locate a mine; maybe you should look elsewhere for the receiving water for a new type of discharge. I think on a strictly water quality standards basis where you're just going out, there is no facility, but you're just going out and sampling the stream and you find chlorides above 500, well, you wouldn't be able to determine what the sulfate standard was. But you do know that there's a problem with that stream that needs attention. It's violating the chloride water quality standard. Something is wrong, something needs to be taken care of.

MR. ETTINGER: Getting back to the mixing zone rule, my first question would be are you aware of any scientific basis that the Board uses when they set the 25 percent

number for the 3 to 1 ratio situation.

MR. MOSHER: No. I am not aware of the scientific basis. I'm aware that back in the early '70s that was a very common zone of passage decision that many states chose to say that when the dilution ratio is such we want 75 percent of the stream to be unaffected by the mixing zone. So I don't know how they arrived at that, but I do know that that was a common choice.

MR. ETTINGER: And in the situation in which there is less than 3 to 1 dilution, now using a 50 percent number is a common Agency choice.

MR. MOSHER: Yes.

MR. ETTINGER: Okay. Thank you.

MS. TIPSORD: Anything further? Mr. Forth?

MR. FORT: Mr. Mosher, I think I heard the testimony, your testimony accurately or your statement accurately, but let me try to recast it a little bit. The point here on the formula for sulfates is that you don't want to be appearing to endorse a sulfate

number when you have chloride values in the stream over 500. Is that a fair way of summarizing your position?

MR. MOSHER: Yes.

MR. FORT: Thank you.

CHAIRMAN GIRARD: Then I guess we're ready from the Coal Association and Mr. Gonet. Could you introduce your --

MR. GONET: Yes. I have with me Jim Boswell who is a manager of a hydrology at Peabody Energy.

MS. TIPSORD: Mr. Boswell, could we have you both sworn in, please.

(Witness sworn.)

MR. GONET: Thank you. My name is Phi Gonet. I'm the president of the Illinois Coal Association. The following comments are directed toward the Illinois Environmental Protection Agency's IEPA proposed sulfate standard and the corresponding documentation: Preliminary Technical Justification For Changing Water Quality Standards For Sulfate, Total Dissolved Solids and Mixing Zones, and Concept Document Regarding Proposed

Regulatory Amendments For Sulfate, TDS, and Mixing Standards. While the proposed changes provide for a much more reasonable and scientific approach than currently exists as will be noted, there are still some areas that should be addressed.

Illinois EPA has stated publically that no harmful environmental effects are occurring as a result of modern mines in the State of Illinois. Studies that specifically targeted the effects of coal mines on aquatic life have shown healthy macroinvertebrate communities existing downstream of mine discharges. (Soucec 2004 and Illinois EPA 2004). Sulfate is not a conventional toxic chemical as compared to heavy metals, pesticides, or volatile organic compounds. Conversely, sulfate is a necessary nutrient for the normal functioning of cells and both plants and animals benefit from its availability. For vegetation, sulfate salts are essential to cation delivery and sulfur increases the protein content of the plant which are reasons that

sulfate is commonly found in fertilizers. In animals, chondroitin, sulfate, and glucosamine sulfate are beneficial to the longevity and functioning of joints. Overall, the beneficial characteristics of sulfate and the fact that the U.S. Environmental Protection Agency, U.S. EPA, has no parallel standard, question the reasoning for imposing a sulfate standard altogether. Nonetheless, the following comments are directed towards the sulfate standard as it is proposed.

The proposed standard is based on the hardness and chloride concentrations downstream of the effluent. The equations used to derive a sulfate standard result in daily maximum concentrations between 500 milligrams per liter and 2600 milligrams per liter. There are many coal mine effluent concentrations that regularly exceed these concentrations of sulfate. As identified in the State of Illinois 2005 economic impact analysis, a system designed to achieve a 2,000 milligram per liter effluent limit

using excess lime and hydrochloric acid would have annualized operating cost of $542,000 and an annualized capital cast of $471,500 for every 100 acres of drainage resulting in a total cost of $10,953,000 projected over a 10-year period. (ICC I2005). This will discourage potential and existing mine operators from mining or remining in Illinois due to the high cost that is associated with this and alternative methods of treatment, e.g. pipelines.

The consequences of implementing the proposed sulfate standard will directly affect the coal mining industry. The development of the proposed sulfate standard was contrary to the U.S. EPA guidelines which state, "The development of such standards and limitations, however, might have to take into account such additional factors as social, legal, economic, and hydrological considerations. The environmental and analytical chemistry of the material, the extrapolation from laboratory data to field situations, and

relationships between species for which data are variable and species in the body of water of concern (U.S. EPA 1985).

The Illinois EPA does not account for the social and economic impacts that would result from the loss of jobs and state income that the coal mining industry provides to Illinois. With regard to the proposed monthly average sulfate limit of 2,000 milligrams per liter, a review of literature regarding the effects and tolerance of livestock from drinking water containing sulfate indicate that while short-term laxative responses may occur, a suggested safe tolerance limit can be up to 2,500 milligrams per liter sulfate without long-term effects (Digesti and Weeth, 1976; Louper and Waldner, 2002; Embry, et al, 1959; Anderson and Stothers, 1978; Patterson, et al, 1979; Gomez, et al., 1995).

A specific tolerance level higher than 2,500 milligrams per liter is dependent upon individual metabolic rates and total water intake factors. These studies

that indicate long-term effects may occur. Excuse me. Let me restate that.

There are studies that indicate long-term effects may occur. These studies are inconclusive to the appropriate sulfate concentration that causes long-term effects and conflict with a study that showed no adverse effect at a sulfate concentration of 7,000 milligrams per liter. However, none of these studies cited lasting impacts at sulfate concentrations below 3,000 milligrams per liter (Patterson, et al, 2005; Zimmerman, et al, 2002; Weeth and Hunter, 1971; Embry, et al, 1959).

The data on effects of drinking water sulfate concentration on livestock support a level of 2500 milligrams per liter sulfate with no long-term effects or loss of performance. Therefore, the existing monthly average sulfate limit for livestock watering of 2,000 milligrams per liter should be changed to a recommended upper sulfate limit of 2500 milligrams per liter. The monthly maximum sulfate standard

is being applied to all discharges into waters of the state. There are numerous cases where the discharge will be episodic and result only as a consequence of precipitation events. The sulfate derivation method used by the Illinois EPA was based on a 96-hour toxicity test whereas episodic flow as a result of a precipitation event is often of shorter duration than 96 hours. The conclusions drawn from the 96-hour toxicity test will not be applicable to flows that result in shorter exposure periods to the aquatic organisms. Similarly, many smaller order-receiving streams only flow as a result of storm water run-off and in these cases aquatic life is probably not present in the receiving stream. Imposing a standard for a designated use that does not exist in the receiving stream is erroneous in itself. Alternatively. The sulfate standard and/or mixing calculation should be imposed only on receiving streams which warrant an aquatic life designated use.

The sulfate aquatic life water

quality standard proposed by Illinois EPA is based on data from recent studies that found associations between the chloride concentrations and hardness of water and the osmotic imbalance toxic effect on aquatic organisms from sulfate. The data used to establish the Illinois proposed sulfate water quality standard were based on two test species that are commonly used for laboratory toxicity testing. The two species, Ceriodaphnia, (water flea), and Hyalella, (scud) were also selected because these organisms were known to be less tolerant, more sensitive to sulfate exposure than other tested aquatic biota including fish, clams, mussels, and other benthic macroinvertebrates. These two species do not necessarily inhabit every type of Illinois surface water, but are historically used by U.S. EPA to derive water quality criteria. However, the U.S. EPA protocols used to derive water quality criteria recommend a toxicity data for aquatic biota from eight different taxonomic families be generated

from which toxicity data for the most sensitive four to five organisms are most often used to derive the water quality criteria. Use of the two organisms most sensitive to sulfate in the derivation of an Illinois water quality standard for sulfate while a policy decision at the time of consideration provides a higher margin of safety to accommodate resident aquatic biota in lakes an streams than would otherwise be provided using EPA methods. While the inclusion of additional species will not likely alter the slope of the equation, the intercept point of the regression would increase and result in less stringent numerical standards for the same hardness and chloride characteristics than the current equation provides.

In certain cases, H. Azteca has been found by the Illinois EPA monitoring network in waters with sulfate concentrations above 2,000 milligrams per liter and in waters with low chloride concentrations, both of which were identified

as waters that H. azteca would be intolerant of. The fact that H azteca is found in natural waters with sulfate and chloride levels that contradict those determined to be toxic through the development process questions the application of the standards as proposed at these sites.

Another issue with the proposed standard involves the range of values over which it has -- over which it is valid. The proposed standard provides equations based on hardness and chloride when hardness is between 100 and 500 milligrams per liter and chloride is between 5 and 500 milligrams per liter. If these ranges are exceeded, the sulfate standard is limited to 2,000 milligrams per liter. However, if hardness were set to 500 milligrams per liter and chloride varied between 5 and 500 milligrams per liter, the range of return values for the sulfate standard is between 2,020 and 2,720 milligrams per liter. Once the range is exceeded, however, the standard is reduced to 2,000 milligrams per liter.

This arbitrary reduction in the sulfate limit when the range of values is exceeded is unsupported. Instead, the sulfate levels should be set equal to the limit obtained directly prior to exceeding the range.

In addition to the proposed sulfate standard, there are proposed changes to the mixing zone methodology. The changes will directly affect the dilution ratio that is used in mixing zone calculations. The dilution ratio that a mixing zone is allotted is based on the 7Q1.1 flow of the receiving stream, which is the low flow statistic that is being used to describe "small headwater streams." There are several methods of calculating the 7Q1.1 value on receiving streams at a point of discharge. It is suggested that the regulation allow for use of the method that best fits the particular watershed situation.

Lastly, if this standard is adopted as proposed, it will be applied retroactively, meaning it will be applied to all NPDES permit holders disregarding when

the permit was originally obtained. This policy presents a barrier to all active and future holders of NPDES permits in the State of Illinois. When an operation is in its initial planning stage, there is no reasonable way to account for the costs associated with future regulations. On the contrary, the success of the business must be based on the cost of complying with present rules and regulations. Expecting a business to achieve standards retroactively that were not and could not be accounted for in the original operational plan is unjustified. That concludes our comments.

MS. TIPSORD: Did you get a copy of that to the court reporter?

MR. GONET: I can get one.

MS. TIPSORD: She'll need it for the spellings and stuff. Are there any questions or did you have something additional, Mr. Boswell?

MR. BOSWELL: No.

CHAIRMAN GIRARD: Any questions?

MR. ETTINGER: Yes, I have a question.

First, I've just got, what was on the electronic filing of the board? I was wondering, was there anything else filed by the --

MR. GONET: No.

MR. ETTINGER: In your third paragraph of your first page, you refer to a study of the State of Illinois 2005 economic impact analysis. Who did that study?

MR. GONET: It was a study that was done for the Illinois Clean Coal Institute, and I believe it was done by -- Was that Advent? The Advent Group, yes.

MR. ETTINGER: Is that in the record anywhere?

MR. BOSWELL: No. And that's probably my fault. We could have -- We can submit it for the record now or after this meeting. I believe Illinois EPA is also aware of this study, but we hadn't submitted it for testimony.

MS. TIPSORD: If you have a copy of it now, we'll go ahead and submit it to the record now as an exhibit.

MR. ETTINGER: A number of my questions are just going to be where did this come from and things like that, so that -- then in next paragraph --

MS. TIPSORD: Wait. If we're going to -- I need to do the mechanics. I've been handed "Determination of Economic Impact of Changing Water Quality Standards For Sulfate on Coal Mines; Final Technical Report May 1, 2004 through April 30, 2005." I'll mark this as Exhibit 2, if there is no objection. Seeing none, it's Exhibit 2. Okay. Go ahead.

MR. ETTINGER: Is that Robin Garabi (ph.) who prepared that report?

MS. TIPSORD: Clinical investigators are John S. Meede. Other investigators are M-E-IN-T-O-L-T-H-A-F, and project manager with Joseph C. Hershey.

MR. GONET: I don't believe that she was a principal investigator in that.

MR. ETTINGER: Okay. Were you involved in the discussions at Region 5 that led to the development of this standard?

MR. GONET: I had started the Illinois Coal Association October 2003, and the process had already started. So I kind of picked up from there. But I was involved with discussions with Region 5, yes.

MR. ETTINGER: Are you aware of Mr. Fry, Eric Fry's participation in those discussions?

MR. GONET: Yes, I was.

MR. ETTINGER: Did Mr. Fry tell you that the rule that was adopted was in violation of the U.S. EPA protocols?

MR. GONET: Well, that's an issue in this whole rulemaking. I'm not sure whether he told me or it became part of the information that I obtained since I came on board the association.

MR. ETTINGER: Okay. Are you aware of who participated in the development of this standard at Region 5?

MR. GONET: Some of the people, yes. I mean I was not involved in the meetings as closely as Mr. Fry and others were. And Mr. Boswell here works with Mr. Fry.

MR. ETTINGER: Do you know whether the Coal Association ever voiced a position during those meetings that the standards -- that the criteria being proposed violated the U.S. EPA protocols.

MR. GONET: I think -- Well, I'm not going to speak for Mr. Fry. I don't know if, Mr. Boswell, if you participated, if you want to --

MR. BOSWELL: Yeah. I believe what's being said here is that it's not a direct violation of the protocols, but the protocol does state that additional factors may need to be taken into account, and those factors are social, legal, economic considerations extrapolation from laboratory data to field situations. And we're not sure that those were adequately addressed in the development and implementation of this standard if it goes as proposed.

MR. ETTINGER: Now, again, it raises another question. You cite U.S. EPA 1985. Is that the second edition of the water quality standards handbook you're talking

about?

MR. BOSWELL: Yes. I believe that's deriving -- I have a copy of that with me, too. Derivation of Water Quality Criteria --

MR. ETTINGER: I guess we better -- Could you please state for the record exactly what document it is? Unfortunately or fortunately EPA put out a lot of documents in 1985.

MR. BOSWELL: The Guidelines For Deriving Numerical National Water Quality Criteria For the Protection of Aquatic Organisms and Their Uses. And there's a document No. PB85-227049.

MR. ETTINGER: Can I just see that?

MS. TIPSORD: Given the shortness of that, would it be possible to get a copy of that for the record as well?

MR. BOSWELL: Yes. I can give you --

MR. MOSHER: It's already in the record.

MS. TIPSORD: It is? I'm sorry. And what exhibit is it to the proposal? Let's identify it.

MEMBER RAO: L.

MS. TIPSORD: It's Exhibit L to the proposal. Thank you.

MR. ETTINGER: Are you aware of whether Mr. Stevens, who is one of the authors of that document, participated in the setting of the criteria that's being proposed here?

MR. GONET: I believe his name is Stefan, and I think he did.

MR. ETTINGER: On the second page of your testimony, you refer to studies, quote, "Studies by Patterson, Zimmerman, Weeth and Hunter and Embry." Is there a complete cite of those or do you have copies of those documents you can put in the record so we can find them?

MR. BOSWELL: I do not currently have -- I don't have copies with me. I have their full cites, and I can get those out of his testimony.

MS. TIPSORD: How voluminous are those? I mean we would ideally like to have them for the record, if that's possible.

MR. BOSWELL: I can do that, too. They are -- They're short, ten pages or less most of them.

MS. TIPSORD: Great. If you can submit those for the record.

MR. ETTINGER: Now, looking through the third page of your testimony, it says at the top here, it says, "Use of the two organisms most sensitive to sulfate in the derivation of the Illinois water quality standard for sulfate while a policy decision at the time of consideration provides a higher margin of safety to accommodate resident aquatic biota in lakes and streams than would otherwise be provided by U.S." -- I'm sorry -- "provided using EPA methods."

Is it the position of the Coal Association that the proposed criteria violates U.S. EPA methods?

MR. GONET: I don't think I'm saying that, no. We're saying that the organisms that are used are the most sensitive which would probably give more protection to aquatic life. I think what we're saying is

that other organisms that are -- that would produce a less-sensitive or higher sulfate level could be used. I think we're just making a general statement.

MR. ETTINGER: Do you understand how the U.S. EPA criteria document uses the relative sensitivity of the test organisms to shape the criteria?

MR. BOSWELL: To a degree, but most -- we had an aquatic biologist look at the method that was used, and that was with Advent. He was not able to be here today. I can get any questions directed at the biology to him and we can get those answered.

MR. ETTINGER: Okay. Now, looking at the third paragraph of this, I guess it's -- The second paragraph starting, and it's the last sentence, it talks about the hardness values and what happens when the hardness is over 500. I want to make sure I understand your proposal. The paragraph includes this arbitrary reduction in the sulfate limit when the range of values is exceeded is unsupported. Instead, the sulfate limit

should be set equal to the limit obtained directly prior to exceeding the range. Could you explain that a little better as to what your proposal is?

MR. BOSWELL: Yes. When you have -- When you set hardness equal to 500 and you vary chlorides, you end up with sulfate concentrations between 2720 and 2,020. The minute that hardness is above 500, the standard -- the language states that your standard will be 2,000. So we're saying that reduction was made arbitrarily. There is no evidence to suggest that it should be 2,000. We don't have toxicity data greater than hardness of 500. So we were saying that if you're at a hardness of 500, your standard is 2720. If hardness is greater than 500, it should also be 2720 for varying chloride concentration.

MR. ETTINGER: So if hardness is 500 or more, then the standard should be 2720?

MR. BOSWELL: Whatever the standard is calculated at a hardness of 500. It depends on your chloride value. So if at a hardness

of 500 your chloride value tells you that it's supposed to be 2,020, we're saying that the standard, that hardness is greater than 500 should also be 2,020.

MR. ETTINGER: What's the number then? 2020 or 27 something?

MR. BOSWELL: It depends on the chloride concentration.

MR. ETTINGER: So depending on chloride, according to the chart I'm looking at, which is from part of the package, I believe. It's a chart that was used on chloride versus hardness. Do you know what document this is, Sanjay? Is this -- this is part of our package.

MR. SOFAT: It's attachment 1. It's part of the record so that document is part of the record.

MR. ETTINGER: And I think it's referred to in the first paragraph of their testimony, Preliminary Technical Justification. As I understand it looking it I chart --

MS. TIPSORD: We need to clarify what

that chart is.

MR. KOCH: The chart is Exhibit V.

MS. TIPSORD: B as in boy?

MR. KOCH: V.

MS. TIPSORD: V as in victory.

MR. ETTINGER: So your proposal then is that if hardness is over 500, the numbers should be basically the 500 column in that Exhibit V?

MR. BOSWELL: Yes.

MR. ETTINGER: Based on whatever the chloride is?

MR. BOSWELL: Yes. And currently it's reduced to 2,000. We're saying they should be equal to that.

MR. ETTINGER: Wherever the chloride number leads you.

MR. BOSWELL: Yes.

MR. ETTINGER: Thank you. And the second to last paragraph of the testimony, it says, "There are several methods of calculating the 7Q1.1 value on receiving streams at a point of discharge." What other methods are there, or could you tell us what

methods there are for calculating.

MR. BOSWELL: Most of the methods will need to use daily flow data on your receiving stream or representative stream. One of the problems that you'll have in Illinois is that USGS sites that have daily data are not on that restraint. So a lot of times you have to use representative watersheds, you can use watershed models which there are studies that the Illinois Water Survey has done using statistical models for watersheds to identify what your 7Q1.1 is at the point of discharge. There's different flow distributions for your receiving stream, and depending on where you're at in the state, you're going to have different flow characteristics. There's variations in hydrology and precipitation and the geology that may lend to one method being better than another method.

MR. ETTINGER: Just tell me about who else has methods other than USGS that we can refer to or that we would have the Agency look to.

MR. BOSWELL: Even the USGS I think

has done -- has calculated 7Q10s using various methods. 7Q1.1s aren't really looked at very often, if ever. I'm not aware of any studies that specifically did a 7Q1.1, but that's how we're -- or EPA is proposing to address small head water streams. So there aren't very many current methods of 7Q1.1 determination. It would essentially follow what they use for 7Q10s.

MEMBER RAO: May I ask a follow-up?

MS. TIPSORD: Sure.

MEMBER RAO: The rules as proposed, do you think they limit you in terms of how you calculate 7Q1.1 by specifying, you know, a specific method.

MR. BOSWELL: No. There is no method specified, and we were kind of looking for clarification as to what methods could be used or will be used in the permitting process.

MEMBER RAO: So you want some methods described in the rules as to how you go about --

MR. BOSWELL: Not necessarily in the

rule, no. But we would like to know if valid -- if there's a valid method that you can propose during a permitting process, will that be accepted or what will be acceptable?

MR. GONET: The last line of that paragraph says, "It is suggested that the regulation allow for use of the method that best fits the particular watershed situation," and I think we're looking for some flexibility or allowing Illinois EPA to find that method that best fits.

MEMBER RAO: So you're not looking for any specific rule language in here to allow the --

MR. GONET: No.

MR. BOSWELL: No.

MR. ETTINGER: I have a couple of general questions about coal mining. Do coal mines have dry weather discharges typically in Illinois?

MR. BOSWELL: Not typically, no. But there may be cases where you would have a dry weather discharge, especially remining operations or something where you're at an

AML site or previously-mined site that has high spoils, it may have continuous discharge, and that's one of the issues that we raise in these situations. Remining would most likely benefit that site; however, if you have a continuous discharge and you can't meet the standard, the operation will not be remining that land and there won't be additional reclamation to it. It will remain as it is.

MR. ETTINGER: You have situations in which we have mines that get ground water in them that has to be pumped out on a continual basis.

MR. BOSWELL: Traditionally I think most discharges occur as a result of precipitation alone. There may be situations where water is pumped. And depending on the site-specific conditions, it may or may not discharge during dry weather. I can't say specifically.

MR. ETTINGER: Is it your understanding that the way that the -- I'm sorry. Is it your understanding that the way

that IEPA is now handling coal mining permits is to generally limit discharges to periods in which -- during precipitation?

MR. BOSWELL: During precipitation events, I believe the proposed standard will allow mixing; during dry weather events, if you have a discharge, the way I understand it, you meet the standard at the end pipe.

MR. ETTINGER: Unless there's dilution based on the --

MR. BOSWELL: Precipitation.

MR. ETTINGER: I'm sorry. Unless there's dilution based on the 7Q10 flow of the stream.

MR. BOSWELL: Or a 7Q1.1, yeah.

MR. ETTINGER: Okay.

MS. TIPSORD: Go ahead, Mr. Rao.

MEMBER RAO: I have one question regarding a statement you made on Page 1 of your pre-filed testimony. It's in the third paragraph where you say, "There are many coal mine effluent concentrations that regularly exceed the concentrations for sulfate." Do you believe that these coal mine discharges

that exceed these sulfate, proposed sulfate standards, whether they would be required to install systems designed to achieve 2,000 milligrams per liter, especially considering the amendments the Agency has proposed for the mixing rules?

MR. GONET: We think that the proposed rule would discharge during precipitation events would allow for the operation of those mines.

MEMBER RAO: So the economic impact numbers that are included in your comments or your testimony, are they relevant?

MR. BOSWELL: I believe they are. There may be situations where mixing is not granted, in which case active treatment may be an option. That's an option with these costs that is not viable for a coal mine.

MR. GONET: And this rule is not final.

MEMBER RAO: No. We are talking about what's being proposed. Under the proposed rule is what I'm asking.

MR. GONET: I think we've presented

that report as an alternative; that if more stringent sulfate limits are proposed, the impact it would have on the coal mining industry. But we believe that the proposal before the Board, we believe that that proposal allows us the proper mixing and provides adequate protection to the streams.

MEMBER RAO: Okay.

MS. TIPSORD: Anything else? Thank you very much. And if you can get us that additional information, we'd appreciate it. Thank you.

This moves us on to -- There were a few questions prefiled by the environmental groups to the Agency, and let's go to those answers which the Agency filed on Friday.

MR. ETTINGER: If the Agency wishes to elaborate on its answers, it's fine; or if you want to have them read, it's fine, too, but we're happy with them just being filed as answers.

MS. TIPSORD: For purposes of the record, let's go ahead and have them read in.

MR. MOSHER: Are you going to read the question?

MS. TIPSORD: I was going to say, why don't you go ahead, Mr. Mosher. You have them already laid out?

MR. MOSHER: I'll have to borrow someone's copy of the questions.

MR. ETTINGER: Actually, I'm the only one with a copy here.

The Agency staff has referred to the concept of, quote, effluent treatment ditches, end quote, with regard to discharges from mining areas. Are these considered treatment works under 35 IAC 301.415?

MR. MOSHER: Yes. These "effluent treatment ditches" are considered treatment works under Section 301.415 of the Board regulations.

MR. ETTINGER: Please describe the criteria used to determine whether a channel receiving discharge from a mining area is considered an effluent treatment ditch rather than receiving water for the purposes of NPDES permitting.

MR. MOSHER: Pursuant to 35 Illinois Administrative Code 301.415, channels dug to convey effluents are considered treatment works. However, natural water courses are waters of the state pursuant to Section 301.440 of the Board's regulations. Thus, a natural water course receiving a discharge is the receiving water for that discharge.

MR. ETTINGER: Do these criteria for waterways receiving a discharge from a mining area differ from those used in permitting other types of facilities?

MR. MOSHER: No. The criteria for waterways receiving a discharge from a mining area do not differ from those used in permitting other types of facilities.

MR. ETTINGER: Are these criteria for waterways receiving a discharge from a mining area expected to change at all as a result of this rulemaking?

MR. MOSHER: No. The criteria for waterways receiving a discharge from a mining area is not expected to change as a result of this rulemaking.

MS. TIPSORD: Thank you. Are there any other questions for the Agency or other people who testified today? Okay. Let's go off the record for just a moment.

(Off the record.)

MS. TIPSORD: Back on the record. Having gone off the record to discuss a comment, end comment date a post-hearing comment date. That date is June 7. I will issue a hearing officer order clarifying that as well. This transcript is due in in about 10 working days, because it's not an expedited transcript. So that's about 30 days after when this would be due in. I want to thank everyone today. I got some good comments, and we look forward to taking all of this under advisement.

Dr. Girard, do you have anything?

CHAIRMAN GIRARD: No. Thank you for the comments and testimony, and we look forward to getting all your final paperwork in and hopefully we can move forward with a decision. Thank you.

MS. TIPSORD: And thank you all for your courtesy and your helpfulness. It's been appreciated, and we'll keep working on this. Thank you very much. We're adjourned.

(Which were all the proceedings had.)

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STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

I, LAURA BERNAR, being a Certified Shorthand Reporter doing business in the City of Des Plaines, Illinois, County of Cook, certify that I reported in shorthand the proceedings had at the foregoing hearing of the above-entitled cause. And I certify that the foregoing is a true and correct transcript of all my shorthand notes so taken as aforesaid and contains all the proceedings had at the said meeting of the above-entitled cause.

_____
LAURA BERNAR, CSR
CSR NO. 084-003592