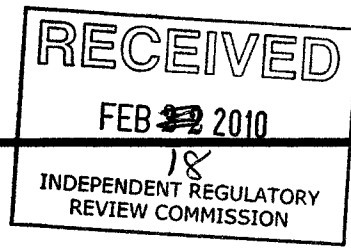


2806



From: Geary, Stan [StanGeary@consolenergy.com]
Sent: Friday, February 12, 2010 12:06 PM
To: EP, RegComments
Subject: 25 PA CODE Chapter 95 - Wastewater Treatment Requirements - 39 Pa.B. 6467
Attachments: TDS_CCC_Comments_CH95.pdf

EQB Board Members:

Attached are the comments of Consolidation Coal Company on the above referenced proposed amendments to 25 Pa. Code Chapter 95.

Please contact me if you have any questions.

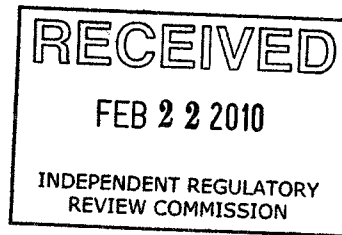
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The message is ready to be sent with the following file or link attachments:

TDS_CCC_Comments_CH95.pdf

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STANLEY R. GEARY
Senior Counsel

February 12, 2010

Via E-Mail

Environmental Quality Board
Rachel Carson State Office Building
16th Floor, 400 Market Street
P.O. Box 8477
Harrisburg, PA 17105-2301

RE: 25 PA. CODE CH. 95
Wastewater Treatment Requirements
[39 Pa.B. 6467]

Dear Members of the Board:

Consolidation Coal Company (CCC) submits these comments in response to the above referenced amendments to 25 Pa. Code Chapter 95 proposed by the Department of Environmental Protection (DEP).

CCC is the permittee and operator of the Blacksville No. 2 Mine which is located in Greene County, Pennsylvania. CCC is also the operator of the Loveridge Mine and the Robinson Run Mine which are located in northern West Virginia in the Monongahela River watershed. In addition, CCC operates a number of mine water treatment plants in Pennsylvania and West Virginia in the Monongahela River watershed for the purpose of maintaining mine pools at levels low enough to prevent uncontrolled discharges of mine water to streams and the rivers. In the fall of 2008, when TDS levels were high in the Monongahela River, at DEP's request CCC stopped discharging from some of its closed mines and reduced the volume of water discharged at other mines until the flow in the River increased and TDS concentrations lowered.

Drainage from active and closed coal mines are currently subject to technology based effluent limits that were promulgated by the U.S. Environmental Protection Agency and are codified at 40 CFR Part 434. Generally, these parameters regulated under the EPA coal mine drainage effluent limits are iron, manganese, total suspended solids and pH. These effluent limits can be economically met using conventional mine water treatment technologies. These conventional treatment technologies will not significantly reduce total dissolved solids (TDS), chlorides or sulfates, the constituents of mine water for which DEP proposes effluent limits in its proposed amendments to Chapter 95. These constituents can only be removed from mine water by what DEP refers to as “advanced treatment.”

DEP's Proposal

The primary scope of the proposed amendments is to establish effluent limit standards (end-of-pipe limits) for “new sources” of wastewaters containing high TDS. Dissolved solids are inorganic salts, organic matter and other materials less than 2 microns in diameter. A new source of High-TDS wastewater is proposed to be defined as “a discharge that did not exist on April 1, 2009, and includes a TDS concentration that exceeds 2,000 mg/l or a TDS loading that exceeds 100,000 pounds per day. The term ‘new discharge’ includes an additional discharge, an expanded discharge or an increased discharge from a facility in existence prior to April 1, 2009.” The following end-of-pipe effluent limits are proposed for all new high TDS discharges:

- The discharge may not contain more than 500 mg/l of TDS as a monthly average;
- The discharge may not contain more than 250 mg/l of total chlorides as a monthly average
- The discharge may not contain more than 250 mg/l of total sulfates as a monthly average.

Discharges of wastewater resulting from oil and gas well operations must meet the above limits and the following limits:

- The discharge may not contain more than 10 mg/l of total barium as a monthly average; and
- The discharge may not contain more than 10 mg/l of total strontium as a monthly average.

Finally, it is DEP's intent to make the new effluent limit effective January 1, 2011.

General Comment

The proposed effluent limits for TDS, chlorides and sulfates are premature because it is unclear that there is a TDS problem, because DEP has failed to provide a scientific basis for the limits that it has proposed, because DEP has failed to fully consider the immediate and long range economic impact of the proposed limits on the Commonwealth and its citizens, including the industries that will be required to comply, and because DEP failed to consider less burdensome alternatives.

For these reasons and the additional reasons set forth below, CCC requests the EQB to disapprove DEP's proposed amendments to Chapter 95.

Specific Comments

I. DEP has Insufficient Data to Support the Proposed Regulation

A. DEP has Failed to Consider the State of the Scientific and Technical Knowledge Relative to the Proposed Effluent Limits for TDS, Chlorides and Sulfates

Pursuant to Section 5(a)(4) of the Clean Streams Law, 35 P.S. §691.5(a)(4), in adopting regulations, DEP is supposed to consider, *inter alia*, the state of scientific and technical knowledge. Section 14 of the Regulatory Analysis Form that DEP submitted to the Independent Regulatory Review Commission (IRRC) with the proposed amendments provides:

If scientific data, studies, references are used to justify this regulation, please submit material with the regulatory package. Please provide full citation and/or links to internet sources.

DEP referenced one study dealing with brominated Disinfection By-Products being formed in drinking water, a study that does not appear to be relevant to the proposed effluent limits for TDS, chlorides and sulfates. In addition, DEP indicated that more information is available at the DEP Marcellus Shale Wastewater Partnership web site. That site has copies of three studies on Tenmile Creek and one study on Lower Dunkard Creek. Two of the Tenmile

Creek studies were fish surveys to document the fishery that exists in the stream. The third Tenmile Creek study (*A comprehensive Cause and Effect Stream Survey of the South Fork of Tenmile Creek*) reports that aquatic life in the creek was impaired as the result of high TDS and chloride concentrations from discharges from sewage treatment plants that accepted gas well wastewaters. It does not address directly what in stream concentrations would be necessary to cause impairment. The Lower Dunkard Creek study briefly discusses in stream impairment threshold concentrations of TDS, as follows:

“A recent study of the impact of treated AMD on fish in nearby Ten Mile Creek has determined that a TDS level in the range of 2,000 - 2,300 mg/l is the threshold for impairment of fish (Kimmel 2009). Other studies have shown no significant effects on salmonid species up to 2,000 mg/l (Weber-Scannell et al, 2007). TDS that is primarily CaSO₄ has been reported to have significant effects on chironomid (midge) larvae above 1,100 mg/l (Weber-Scannell et al, 2007). TDS has been shown to produce a lethal effect on 50% of the exposed population (LD 50) of flathead minnows (*Pimephales promelas*) at 5,600 mg/l based upon a 96 hour exposure (Wikipedia).”

Based on these limited studies, it is obvious that DEP has not fully considered the state of scientific knowledge. Additionally, given that the in stream concentration impairment thresholds mentioned in the Lower Dunkard Creek study are much higher than the DEP proposed end-of-pipe effluent limit for TDS and given that discharges are usually diluted by the receiving streams, it appears that the TDS effluent limit is much more stringent than necessary to protect aquatic life. Because chlorides and sulfates are constituents of TDS a similar conclusion follows for the proposed effluent limits for chlorides and sulfates.

B. The Field Data Do Not Indicate Surface Waters are at Risk

DEP's data and information do not support this proposed rulemaking. EPA has developed comprehensive water quality monitoring and assessment information for states to use in order to set water quality standards and to support water quality management decisions. As such, EPA has identified the elements of a state water monitoring and assessment program and requires the monitoring program include appropriate precision levels and confidence "to control decision errors and balance the possibility of making incorrect decisions."¹ Both the supporting information and sampling data used by DEP in proposing these changes to Chapter 95 do not

¹ US EPA. 2003. *Elements of a State Water Monitoring and Assessment Program*. US Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. Washington, DC. EPA-841-B-03-003.

fulfill EPA's requirements, they lack scientific integrity and statistical appropriateness, and they are insufficient and indefensible to support DEP's decision to propose this rulemaking.

The Background and Purpose sections of the Preamble to the proposed amendments repeatedly reference water quality surveys, analyses and studies conducted or reviewed by the DEP as their motivation for this proposed rulemaking. On August 4, 2009, the Pennsylvania Coal Association (PCA) – of which CCC's parent, CONSOL Energy Inc., is a member - sent a letter to the DEP requesting all supporting data and information used in the development of the proposed rulemaking. Upon close examination of DEP's response, PCA found the proposed rulemaking was based on an extremely limited set of data collected from the Monongahela River during a 2 ½-month period in the fall of 2008 during an exceptionally low-flow period. This data collection apparently ceased at the end of December 2008 when tests indicated TDS and sulfates levels were no longer elevated, then the sampling resumed again in September 2009. Nevertheless, DEP released its *Permitting Strategy for High Total Dissolved Solids (TDS) Wastewater Discharges*, which included proposed changes to Chapter 95, on April 11, 2009, despite having ended its sampling on the Monongahela River in December 2008.

In its letter, PCA questioned which streams and waterways were "at risk" for sustained elevated concentrations of TDS, sulfates and chlorides. DEP's response indicated there were 36 active water quality networks during the above time period— 28 were considered "at risk" and eight² were not. The eight reference sites' Chapter 93 classifications identify these waters as Exceptional Value—the best water quality streams in Pennsylvania. DEP indicated the at-risk sites were chosen because one or more of the chlorides, sulfates or TDS concentrations were magnitudes higher than the concentrations at the eight reference sites. The concentrations at the eight reference sites were as follows:

- specific conductivity is less than 132 µmho/cm,
- chlorides are less than 9 mg/L,

² These 8 reference sites included the following: Kettle Creek, Clinton County; Killbuck Run, Cambria County; Mill Run, Fayette County; Tionesta Creek, Forest County; Mill Creek, Westmoreland County; Havens Run, McKean County; Youghiogheny River, Somerset County; and First Fork Sinnemahoning Creek, Potter County. See Letter from Secretary John Hanger, Pennsylvania Department of Environmental Protection, to Mr. George L. Ellis, Pennsylvania Coal Association (PCA) (September 3, 2009) submitted with the PCA's comments.

- sulfates are less than 20 mg/L and
- TDS are less than 96 mg/L.³

PCA also evaluated the mean chloride, sulfates and TDS concentrations data provided by DEP for the 28 at-risk sites. Of the 28, only 6 of those had in stream TDS and/or sulfate concentrations that exceeded the proposed end-of-pipe effluent limits of 500 mg/L and 250 mg/L, respectively. In addition, sampling for the 36 sites was not conducted on a regular basis and none of the water quality sampling data provided by DEP showed a chloride concentration greater than 250 mg/L.

In the fall of 2009, DEP began publishing the small amount of TDS sampling information and results for the Monongahela River on the Southwest Regional Office webpage and updating with additional information approximately on a monthly basis. As the update appeared, the previous version was no longer available on DEP's website. PCA downloaded the revisions as they were published and was able to compare the original data posted in the fall of 2009 with the revised data appearing on DEP's website on January 14, 2010. PCA found the January 14th version reflected major changes to 20 sample results previously reported in the fall of 2009, many of which related to samples collected in the critical time period of fall of 2008. The following example shows the original results and the January 14 revised results for a sample collected on October 22, 2008 at mile marker 85.5 (upstream of Georges Creek)⁴:

	<u>Original (10/09)</u>	<u>Revised (Jan. 2010)</u>
• Specific conductance	942	NA
• TDS	666	147
• Chloride	18.4	32
• Sulfate	374	230

Aside from the January 2010 revised values indicating in stream constituent levels below the proposed end-of-pipe limits, CCC and PCA question how there can be such a disparity in the data. DEP's website gave no explanation for the changes. We do not know whether the original reports are valid, whether the new concentrations are valid or whether either set is valid. This is but one illustration of DEP's poor data quality management, the risks of relying upon a relatively

³ See *id.*

⁴ See PA DEP Southwest Regional Office's Community Information website, *Monongahela River TDS Chloride and Sulfate Sampling Results*, updated 1/14/2010.

small set of samples to launch a new set of regulations and the difficulty of assessing data that appears to be a moving target.

In public meetings and forums, DEP has repeatedly indicated that the Beaver River and West Branch of the Susquehanna River are severely limited in their capacity to assimilate new loads of TDS and sulfates. However, data supplied in response to PCA's August 4, 2009 request reveals TDS and sulfate levels for these waterways significantly below the proposed TDS and sulfates limits. DEP provided us with no data for the Neshannock or Moshannon rivers. A review of DEP's website and its Regional Offices' websites shows no data published publicly for any waterway except the Monongahela River.

Approximately a month after the proposed Chapter 95 revisions were published by the DEP in the Pennsylvania Bulletin (December 2009), the River Alert Information Network ("RAIN", available at <http://www.3rain.org>) began to provide continuous Monongahela River monitoring system data regarding the specific conductivity at a number of specific locations. However, while often updated on an hourly basis, the public is unable to access any historic specific conductivity data collected by RAIN. As such, the RAIN specific conductivity data collected is largely useless to the public for determining changing trends in water quality or impacts related to new or developing industries.

The Preamble makes reference to the Monongahela River Watershed being adversely impacted by discharges of TDS, sulfates and chlorides. However, the West Virginia University Water Research Institute (WVWRI) monitored and analyzed the Monongahela River at Point Marion, Pennsylvania mile point 90.8 near the PA-WV border from 1999 to 2006⁵. During this time frame, the Pt. Marion monitoring location showed declining trends in chlorides, sulfates and TDS concentrations. No sulfate concentration was found to be over the proposed 250 mg/l limit and only one TDS sample was greater than the 500 mg/l proposed limit, and this occurred at the lowest flow. In addition, EPA's STORET data for the south Pittsburgh mile point 4.5 monitoring station on the Monongahela River shows sulfates and chlorides levels were never above 180 mg/l for the past 10 years.

CCC also brings to your attention that pursuant to 25 PA. CODE § 109.416, every community water system in Pennsylvania is required to mail or deliver to each customer a water

quality report on a yearly basis. This report is officially called the Consumer Confidence Report. Examination of the 2008 reports for the community water systems utilizing the Monongahela River indicated no mention of TDS, sulfates or chlorides violation or problems. CCC believes if a TDS, sulfates or chlorides problem existed of the magnitude outlined by DEP, there would have been at least a mention of the issue in these reports.

These data do are not sufficient to demonstrate that there is a need for the arbitrary proposed effluent limits for TDS, chlorides and sulfates.

C. DEP's Data is Based on an Incorrect Test Method

DEP used the wrong analytical test method to analyze its data for TDS. Pursuant to 40 CFR § 136.3(a) and 40 CFR § 143.4(b), the EPA-approved sample methodologies for determining TDS concentrations are Standard Method 2540 C and USGS Method I-1750-85, both of which require samples to be dried at 180°C. CCC understands that DEP used USGS Method I-1749, which requires a sample to be dried at a temperature of 105° C, to analyze its samples.⁶ The temperature at which the sample is dried is important to the sampling results because sample weight losses due to water crystallization, volatilization of organic matter, mechanically occluded water, and gases from heat-induced chemical decomposition, as well as weight gains due to oxidation, depend on temperature and time of heating. Samples dried at 103° to 105°C may retain a significant portion of water, especially if sulfates are present. If the TDS sample being analyzed has a high mineral concentration, it can absorb moisture and require a longer drying time to get an accurate result. DEP's data indicates quite clearly the TDS sampling was dried at 105°C. However, DEP requires all NDPEs permit holders to use the approved Standard Methods 2540C (180°C) when analyzing for TDS. CCC questions why DEP did not use the approved method, particularly if the data was to be used to justify proposed rulemaking.

⁵ P. Ziemkiewicz and M. O'Neal, *TDS from Mines and Wells, WYVRI Project 119: Mon River Water Quality Monitoring and Presentation* and *Background: TDS in the Monongahela River*, Morgantown, West Virginia University, West Virginia Water Research Institute, 2009.

⁶ See DEP's Southwest Regional Office's "Community Information" website, which designates TDS samples as "TDS @ 105° C." See also, Letter from Secretary John Hanger, Pennsylvania Department of Environmental Protection, to Mr. George L. Ellis, Pennsylvania Coal Association (September 3, 2009), which was submitted with PCA's comments.

In summary, DEP has not conducted the appropriate sampling nor completed the appropriate historical analyses to determine whether there is a real sustained threat and not just a seasonal flow event from TDS concentrations, the extent of any threat, the correct parameters and concentrations to control TDS. Based on the above, CCC strongly believes there is inadequate scientific evidence indicating a statewide TDS problem, or justifying a need for the proposed Chapter 95 regulation changes.

II. DEP has Provided no Scientific or Technical Basis for the Proposed Effluent Limits for TDS, Chlorides and Sulfates

DEP has proposed end-of-pipe effluent limits to apply state wide to all new high TDS discharges from all industrial sectors. DEP has provided no scientific or technical basis for the proposed effluent limits. DEP has not determined what in-stream concentrations are necessary to protect aquatic life and it has not demonstrated any relationship between the proposed effluent limits and the stated goal of protecting aquatic life. Additionally, DEP has not considered treatment technologies on an industrial sector by sector basis. Accordingly, the proposed amendments to Chapter 95 are premature and there currently is no demonstrated need for them.

III. DEP's Economic Analysis is Insufficient, does not Satisfy the Clean Streams Law or the Regulatory Review Act, and Ignores the Unintended Impacts of the Proposed Regulation

A. Legal Requirements of the Clean Streams Law and the Regulatory Review Act

Section 5(a)(5) of the Pennsylvania Clean Streams Law, 35P.S. § 691.5(a)(5), requires DEP to consider the "immediate and long-range economic impact upon the Commonwealth and its citizens" when it adopts regulations. It also requires DEP to exercise "sound judgment and discretion" in doing so. DEP has not met this standard or performed a complete socio-economic analysis. In fact, the Preamble does not provide any statewide or industry specific immediate or long-range economic impact analysis (other than an estimated treatment cost of 25 cents/gallon, addressed below).

Pursuant to the Regulatory Review Act, DEP is required to provide IRRC with a Regulatory Analysis Form that must include, in addition to other sections, the following:

“(a)(4) Estimates of the direct and indirect costs to the Commonwealth, to its political subdivisions and to the private sector...

(a)(12) A description of any alternative regulatory provisions which have been considered and rejected and a statement that the least burdensome acceptable alternative has been selected.”

71 PA. STAT. ANN § 745.5. DEP’s Regulatory Analysis Form does not satisfy either of the requirements of the Regulatory Review Act.

B. Treatment Technology and Costs

The Preamble states, "The existing practice for high TDS wastewaters is the removal of heavy metals, but currently no treatment exists for TDS, sulfates and chlorides, other than dilution." The DEP Water Resources Advisory Committee (WRAC) formed the Chapter 95 Taskforce to evaluate the perceived TDS issue. On September 22, 2009, at a Taskforce meeting, PCA presented to DEP an impact analysis of the proposed rulemaking on the bituminous mining sector.⁷ Several sectors impacted by this proposed rulemaking also made similar presentations with impact figures of the same magnitude as PCA’s. PCA’s presentation was based on a September 2009 study performed by CME Engineering at PCA’s request to assess the impact of the proposed TDS rulemaking on the Pennsylvania bituminous coal mining industry. CME surveyed PCA membership, and data received for this analysis accounts for 85 percent of the 68 million tons of coal produced annually in Pennsylvania and a potential volume of high TDS water to be treated of 26,725 gallons per minute.

The study showed that technologies available to treat high TDS wastewaters are limited, depend upon the individual chemical constituents of the water to be treated, and have unique and significant technical and economic feasibility issues. These regulations are particularly problematic to mining operations because of the following distinguishing reasons:

- Volume – the average volume of wastewater from coal operations is much larger than the volume of produced water from oil and gas operations.
- Stoppage of Discharge - Oil and Gas operations can stop a discharge. Coal mining operations generally do not have the ability to shut down a discharge.
- Mining Discharges Cannot be Transported – Oil and gas operations have the ability to transport its produced fluids to disposal locations of their choice.
- Unique TDS, Chloride and Sulfate Concentrations – The treatment options for each industry will have to be specifically designed to meet the specific flows, concentrations and mass loadings of that industry's discharges.

For the bituminous coal mining industry, the only technology capable to reduce TDS to the levels DEP is proposing, is reverse osmosis combined with evaporation and crystallization and pretreatment (zero liquid discharge reverse osmosis systems). It should be noted that this technology is extraordinarily expensive and has not been operationally tested at any bituminous coal mining facility. Based on projected annual volumes of high TDS waters of 26,725 gallons per minute and the reverse osmosis zero liquid discharge treatment technology, the cost of this proposed regulation to the bituminous coal mining industry is:

- \$1.325 billion in capital costs,
- \$133 million every year for operation and maintenance costs, and
- \$134 million for bonding for each 500 gpm zero liquid discharge treatment system, as calculated with the AMD treat and bond/trust fund calculation spreadsheets.
- These costs do not include money for land acquisition, site development, utility extensions, etc., necessary to construct a treatment plant.

In other words, this treatment technology will cost approximately \$46,000 per gallon per minute of wastewater to construct treatment facilities, and it will require \$3,600 per gallon per minute of wastewater annually for operation and maintenance costs. Thus, it will cost billions of dollars per year. DEP has not reviewed the impact of this regulation on all the major industrial sectors and, in particular, has not thought through all the implications of this proposed

⁷ J. Owsiany on behalf of the Pennsylvania Coal Association. "Mining Sector: Impact Analysis of the High TDS Strategy on the Mining Industry." Presentation, PA DEP Water Resources Advisory Committee, Ch. 95 Taskforce, Harrisburg, PA, September 22, 2009 (copy attached).

rulemaking including the adverse effects on the competitiveness of the coal industry and other industries.

An example is a coal company with six mines, each having a 500 gallon per minute discharge and an annual total coal production of one million tons for all six mines. To meet DEP's proposed limits, the coal company would need six 500 gallon per minute treatment systems costing \$138 million to construct and \$10.8 million per year to operate. This proposed regulation would add approximately \$17.70 to the price of a ton of coal produced, not including interest or inflation, which would put Pennsylvania coal at a competitive disadvantage versus the cost of coal mined in other states. This would force coal customers to look to neighboring states or the western U.S. for their coal supply, because those states do not have effluent limits as those proposed by DEP.

In the proposed rulemaking, DEP estimates a 25 cent per gallon increase for treatment costs. DEP has not provided any information as to how it obtained this figure, and it is not clear if this estimate is based solely on operational cost or if it includes capital costs for construction and bonding. Even if this number were correct, it is not uncommon for a mining facility to have a discharge or combined discharges greater than 1,000 gallons per minute. DEP's quarter per gallon cost estimate would equate to \$131,400,000 per year in this example.

Further, DEP apparently did not consider other less-expensive methods to deal with TDS discharges. For example, operators of some underground mines have the ability to store mine water in underground mine pools during periods of low flow in surface waters, and then release the mine water when the river flow returns to normal. This can be a very effective way to manage mine water and it could be used on the Monongahela River to reduce high concentrations of TDS during low flow periods of the year. The Preamble and the Regulatory Analysis Form do not indicate whether DEP gave any consideration to this management technique at all. As mentioned above, in the fall of 2008, when TDS levels were high in the Monongahela River, at DEP's request CCC stopped discharging from some of its closed mines and reduced the volume of water discharged at other mines until the flow in the River increased and TDS concentrations lowered. CCC believes that TDS concentrations the Monongahela River can be maintained at acceptable levels by a concerted effort by dischargers to manage their discharges to avoid or substantially reduce them during periods of low flow in the River.

Additionally, in the Regulatory Analysis Form, DEP failed to provide useful cost analysis information because in Section 16 DEP did not identify the persons, groups or entities that will be required to comply with the regulations and in Section 17 DEP only provided an estimate of what the anticipated increase in treatment costs would be ("from \$0.10 to \$0.25") per gallon. This information is not useful in determining the impact of the proposed effluent limits because DEP has failed to identify the entities that will be have to comply, failed to estimate the anticipated amounts of water that will need to be treated by each industrial category and failed to estimate the total annual construction and operation costs to all regulated entities.

C. Treatment Cannot be Accomplished within DEP's Proposed Timeframe

Even if treatment was cost-effective (which it is not), based on our industry's experience, the January 1, 2011 compliance deadline is unreasonable, unachievable and artificial. Even if there were a TDS problem (which DEP has yet to show), these treatment systems are not off-the-shelf items. Mining facilities have several discharge points with varying water chemistry. Prior to designing a facility, a feasibility study must be completed to determine the most cost effective method for handling the wastewater. Based on the feasibility study, each system must then be custom designed and permitted (multiple permits) prior to equipment ordering and construction. In addition, some of these systems require expensive specialty steels. This coupled with an influx of orders and permitting delays will increase the lead times for compliance. PCA's study projects a minimum of 3 years lead time, assuming the treatment technology works and there are contractors to build and implement the technology. DEP's timetable for compliance is unreasonable and represents a gross misunderstanding of the technology required to comply with the proposed rulemaking.

D. Unintended Environmental and Economic Impacts

Aside from the huge financial burden to the coal and other regulated industries, the proposed effluent limits would cause severe unintended environmental and economic impacts which DEP has not adequately considered.

First, the proposed revisions to Chapter 95 will force the Commonwealth to assume responsibility for treating many more acid mine discharge sites, for these reasons:

- Mining companies which operate under DEP's "Subchapter F" re-mining programs (*See 25 Pa Code § 87 Subchapter F: Surface Coal Mines Minimum Requirements for Re-mining Areas with Pollutational Discharges*) will not obtain new permits to re-mine abandoned mine sites and then reclaim them because the cost of treating high-TDS wastewater is simply too high.
- Citizens and watershed protection groups that would otherwise construct treatment systems for abandoned mine discharges will not be able to do so because the new treatment systems will be subject to the new high TDS effluent limits and will be too expensive to treat. Therefore, these valuable environmental protection projects will very likely stop.

Second, CCC has concerns over the additional unresolved management and disposal challenges for the huge volumes of residuals. Reverse osmosis treatment involves water being forced through a membrane at high pressure, which results in clean water that passes through the membrane and a more concentrated (with chlorides, sulfates and other TDS constituents) wastewater that does not pass through the membrane. The percentage of concentrated wastewater can vary from 30% to 70 % of the feed water. Evaporation alone can be used to reduce the volume of the wastewater and make it more concentrated. Evaporation and crystallization combined are used to convert the wastewater to solid to reduce the volume of waste to be handled. PCA's study and presentation to the WRAC Chapter 95 Taskforce outlines the following environmental concerns with the residual concentrated wastewater of solid wastes not addressed by DEP in the proposed rulemaking:

- The energy needed to reduce billions of gallons of wastewater to a solid is huge. Energy usage is approximately 429,000 megawatts per year and a conservative cost estimate is \$42.9 million.
- Residual solid waste will be generated at a rate of 237,000 tons per year.
- If not evaporated to a solid form, residuals will be in the form of concentrated brine amounting to nearly 1 billion gallons every year.
- It is not known if Pennsylvania landfills will accept this waste for disposal because these facilities may also be subject to the proposed regulations and because this waste may not

be compatible with landfill liners and leachate collection systems. Therefore, the brine or solids would most likely be trucked out of state. This would require a vast infrastructure of trucks, trains and storage facilities to accommodate the volume of residual waste created by the mining industry. CCC is uncertain if DEP's Bureau of Waste Management is aware of the implications of the proposed rulemaking.

- CO₂ emissions Cap and Trade at \$20/ton carbon credit is projected to cost \$136,000 per year per plant.

IV. Conclusion

In summary, DEP has not conducted the appropriate sampling nor completed the appropriate historical analyses and scientific research and studies to determine whether there is a real sustained TDS threat, the extent of any such threat, the appropriate in stream standards for chlorides and sulfates, the correct discharge parameters and concentrations to control TDS, the impacts of the proposed rulemaking, or the available technology or potential alternative approaches to address perceived TDS issues. CCC believes this proposed rulemaking:

- is unclear and lacks sufficient support as to the need for the regulation,
- is unreasonable with respect to proven technology, cost effectiveness, and timeframes, and
- represents adverse direct and indirect effects on the cost of coal, including lack of competitiveness and loss of jobs.

Therefore, CCC respectfully requests the EQB to disapprove this regulation.

Sincerely,


Stanley R. Geary
Senior Counsel