

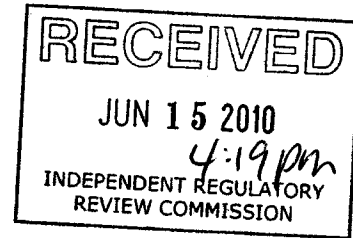
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2841

June 14, 2010

VIA ELECTRONIC MAIL

Environmental Quality Board
PO Box 8477
Harrisburg, PA 17105-8477



RE: Ambient Water Quality Criterion-Chloride, 25 PA Code, Chapter 93, Section 93.7

Dear Members of the Board,

Hart Resource Technologies (HRT) and Pennsylvania Brine Treatment (PBT) operate three facilities in Western Pennsylvania that have processed oil and gas wastewaters for 25 years. We ask that the Board Members consider the following comments on 25 PA Code Chapter 93: Ambient Water Quality Criterion-Chloride.

1. Statement of Need for Proposed Regulation:

In the Notice of Proposed Rulemaking, Ambient Water Quality Criterion-Chloride, DEP states that "the Department recommends adopting these national chloride criteria for protection of aquatic life due to increasing concerns about the statewide impact of natural gas extraction from the Marcellus Shale formation"¹. However by establishing end of pipe chloride restrictions of 250 mg/l in the proposed 25 PA Code Chapter 95.1(b)(3)(IV), all new discharges of high TDS fluids from the oil and gas industry are already being regulated to a more restrictive level than this proposed chloride regulation. The proposed 25 PA Code Chapter 93 sets a 1-hour average (CMC) criterion for chloride of 860 mg/l and a 4-day average (CCC) criterion of 230 mg/l, which are in-stream criteria. These two proposed regulations, in their inconsistency, establish two different sets of criteria for discharges from oil and gas wastewater treatment facilities. Since Chapter 95 specifically addresses the high TDS of the oil and gas wastewaters (mainly chloride), what is the compelling need to add an additional layer of regulation?

When describing who and how many will be adversely affected by the proposed chloride regulation in the Statement of Need, DEP states that "persons proposing new or expanded activities"² will be affected. In the Preamble, it is also stated that "persons expanding a discharge or adding a new discharge to a stream could be adversely affected"³. In reality, the regulation is written such that all NPDES permit holders will be subject to the regulation, not just those expanding their loading or

¹ PADEP. April 2010. Notice of Proposed Rulemaking-Preamble. Page 3.

² PADEP. April 2010. Regulatory Analysis Form, Section II: Statement of Need, Page 4.

³ PADEP. April 2010. Notice of Proposed Rulemaking-Preamble. Page 4.

adding new facilities as is proposed in the 25 PA Code Chapter 95 revision. Thus, DEP has also unintentionally included many other industries in the chloride restrictions, in addition to the oil and gas industry. Chemical processing, food processing, POTW's, drinking water facilities, and electric power generation facilities are just some of industries that may be affected. We suggest that DEP compile a list of affected industries and discharges to determine the extent of this proposed regulation and determine to what degree it will impact the regulated community and their ability to compete with surrounding states.

2. Scientific Justification is Based on Outdated EPA Scientific Studies:

a. 1988 EPA Chloride Criteria:

DEP has used the 1988 EPA *Ambient Water Quality Criteria for Chloride* as a basis for their scientific data, studies, and references in justifying this regulation. This study was derived from EPA national criteria published in 1988 utilizing toxicity data analyzed before 1987 using only 12 freshwater species in eight studies for acute toxicity and three species in two chronic toxicity studies.

Current work from 2007-2009 by the Iowa DNR technical staff in conjunction with EPA, has resulted in a revision of the 1988 EPA national guideline criteria which updates the toxicity data for the acute and chronic chloride criteria. Iowa's proposed standard uses the most current chloride data available rather than the data collected from 1965 to 1987 which was used for the 1988 EPA study. The IDNR, working with the EPA, conducted a literature search that revealed data for several new species of freshwater life thought to be the most sensitive to chloride. However, some of this data was deemed unacceptable, and the EPA contracted with the Great Lakes Environmental Center and the Illinois Natural History Survey to perform additional toxicity testing in 2008. Those results are contained in the report "Acute Toxicity of Chloride to Select Freshwater Invertebrates, September 26, 2008". Unlike the 1988 EPA study, the new studies revealed a correlation between chloride toxicity and water hardness and sulfate concentrations.

During this extensive study the "EPA staff acknowledged that the 1988 EPA national guideline criteria for chloride were too stringent and they presented alternative, less stringent standards based on a much larger data base than used in the 1988 national guideline development."⁴ The 1988 EPA Guideline does "not fully reflect the effects of water chemistry factors on chloride toxicity. Chloride toxicity is influenced by constituents such as calcium and magnesium (hardness), and sulfate and overall ion balance".⁵

During their revision of the chloride standards, Iowa performed extensive literature searches, performed additional toxicity testing on four freshwater invertebrate

⁴ Sindt, Gregory, January 2008. "Chlorides and TDS Water Quality Standards Update".

⁵ Satin, Martin. April 2010. "New Developments in Understanding Chloride Toxicity-The Iowa Success Story".

species, and determined that the chloride standard should be based on statewide hardness and sulfate concentrations in-stream. PADEP has presented no such research or analyses. We request that DEP review the work done by other states that have recently updated their chloride standards (Wisconsin, Illinois, Iowa) and, if necessary, conduct additional studies based on site-specific water chemistry and aquatic life-specific waters of Pennsylvania.

b. Osmotic Pressure Criterion:

In the Notice of Proposed Rulemaking Preamble: Background of the Proposed Amendments, the Department discusses the difficulties associated with the current osmotic pressure criterion which is used to protect aquatic life in-stream. They list the difficulties as being that the osmotic pressure method is not well suited to the mass-balance approach; that the criteria can only be evaluated at a single discharge point; and that there are a limited number of analytical laboratories that analyze for osmotic pressure.

However, in the DEP's Summary of Comments and Responses on the Proposed Rulemaking for 25 PA Code Chapter 95, in response to a question on lowering the TDS limit to 400 mg/l, DEP states that "the Department has reviewed the relevant data and determined that the current osmotic pressure criterion in water quality standards regulations provide protection for aquatic life at the point of discharge"⁶. In fact, in the preamble included in the Notice of Proposed Rulemaking for the Ambient Water Quality Criterion-Chloride, DEP discusses at length and quotes several studies that investigate the osmoregulation⁷ of aquatic organisms. This appears to be a contradiction in the argument that chloride standards must be applied at the point of discharge in order to protect aquatic life. Osmotic pressure in-stream standards provide protection for the effects from both anions (chloride, sulfate, nitrogen compounds, bicarbonates) and their associated cations (calcium, sodium, magnesium, potassium, metals), whereas a chloride criteria looks at one anion for potential aquatic toxicity. DEP has also stated that the osmotic pressure criteria will still be applied in NPDES permits, in addition to the proposed chloride standards. If there are so many difficulties associated with the osmotic pressure criterion, why is it being kept as a monitoring parameter?

In response to the statement that there are a limited number of laboratories able to analyze for osmotic pressure, our companies have utilized several labs in the Western PA area to regularly analyze for osmotic pressure for many years.

3. Lack of Economic Justification:

When Iowa completed their chloride revision, they conducted a detailed, statewide monitoring study of 103 municipal wastewater treatment plants for TDS,

⁶ PADEP. April 2010. Notice of Final Rulemaking: Wastewater Treatment Requirements. Page 35.

⁷ Osmoregulation: the active regulation of the osmotic pressure of an organism's fluids to maintain the homeostasis of the organism's water content.

chloride, and sulfate. Also included in this study were an additional 96 NPDES dischargers that would be affected by regulation changes. From these surveys, IDNR extrapolated the data to estimate how many facilities would be affected statewide. To establish the overall cost to the regulated community, they included a lower end/ higher end scenario with the approximate costs for mechanical treatment, source reduction, site-specific monitoring, and general monitoring costs that would be anticipated by the chloride regulation change.

DEP, in their Regulatory Analysis Form, Cost and Impact Analysis indicates that the costs to the Regulated Community and Local and State Government are “not measurable”⁸. Several studies conducted by the Pennsylvania Chamber of Business & Industry, the Pennsylvania Coal Association, and the Electric Power Generation Association have all presented very specific financial impacts resulting from the removal of chlorides from water. These studies show that due to the limited technologies available for chloride removal, the processes require high capital construction costs and high operating costs. For specific costs broken down by technology and industry, please refer to the PA Chamber’s “Statement Regarding TDS Strategy and Proposed Chapter 95 Regulations”, as presented to the Water Resources Advisory Committee on June 19, 2009.

The other major concern with the technology to reduce chlorides is the production of residuals, whether they be a concentrated liquid brine or a solid salt. It is estimated by numerous industrial representatives that hundreds of thousands of tons of salt may be generated per year⁹. Depending on pre-treatment of the fluids, some residuals may be able to be sold as a product, however the quantity of salt that will be produced far outweighs the demand. Landfills may be able to handle the salts in the future, but have to be concerned that the salts will dissolve and concentrate in the facility’s leachate, creating yet another problem.

HRT and PBT have also evaluated the technology required for removal of chloride from the oil and gas wastewater treatment specific to our facilities. From 1989-1993 we were the only company in Pennsylvania to successfully produce a saleable crystallized salt product from oil and gas production fluids, so we are well versed in the technologies available to reduce chlorides.

Our research has found that capital costs per system will range from \$12 million for a process that will produce a concentrated brine product to \$63 million for an evaporation and crystallization process to produce a solid salt product. These capital costs are excessive for a small business in this economic environment. Our companies have also determined that this regulation, if enacted, will equate to a 30% loss of treatment capacity for the oil and gas industry, just from our three facilities. Multiply that by the number of treatment facilities across the State and

⁸ PADEP. April 2010. Regulatory Analysis Form, Section III: Cost and Impact Analysis. Page 6.

⁹ Pennsylvania Chamber of Business & Industry. June 2009. Statement Regarding TDS Strategy and Proposed Chapter 95 Regulations. Presented to the Water Resources Advisory Committee. Pages 13 and 14.

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this will be particularly injurious to the conventional gas industry in the Appalachian Basin.

The DEP lists the Revenue Losses in their Regulatory Analysis Form as “not measurable”¹⁰, but our estimate for our three facilities alone indicates a 50% loss of revenue and a 31% loss of jobs. This is devastating to our small business and may affect other industries in a similar fashion.

We respectfully petition DEP and the EQB to revisit this proposed regulation change and address not only the science behind the regulation, but also consider the economic implications to the regulated community in Pennsylvania. Thank you for accepting our comments.

Sincerely,

Becky Snyder

Becky Snyder
Hart Resource Technologies
Pennsylvania Brine Treatment

¹⁰ PADEP. April 2010. Regulatory Analysis Form, Section III: Cost and Impact Analysis. Page 6.

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From: Becky Snyder-Hart Resource Technologies, Inc [hart8600@comcast.net]
Sent: Monday, June 14, 2010 2:51 PM
To: EP, RegComments
Subject: Ambient Water Quality Criterion-Chloride Comments
Attachments: EQB Chapter 93 Comment Ltr 06142010.doc

Please accept the attached comments on 25 *PA Code* Chapter 93: Ambient Water Quality Criterion-Chloride. Thank you.

Becky Snyder

