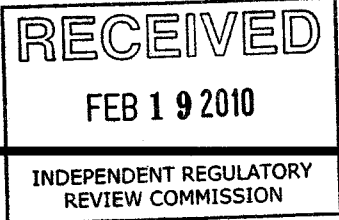


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From: Buzzell, David W. [David.Buzzell@dbr.com]
Sent: Friday, February 12, 2010 2:11 PM
To: EP, RegComments
Subject: FW: 25 PA Code Chapter 95, Wastewater Treatment Requirements - PWIA Comments
Attachments: PWIA Comments to EQB re Chapter 95 Proposed Rulemaking.pdf

From: Buzzell, David W.
Sent: Friday, February 12, 2010 12:45 PM
To: 'RegComments@dep.state.pa.us'
Cc: 'Tim.O'Donnell@republicservices.com'; 'Mary Webber Weston'
Subject: 25 PA Code Chapter 95, Wastewater Treatment Requirements - PWIA Comments

Please find attached comments submitted on behalf of the Pennsylvania Waste Industries Association to the Proposed Rulemaking, 25 PA. Code Chapter 95, Wastewater Treatment Requirements. Kindly confirm receipt by reply email. Thank you for your assistance in this regard.

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Thank you very much.

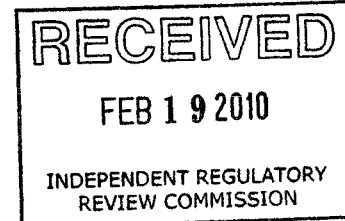
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PWIA

Pennsylvania Waste Industries Association
A Chapter of the National Solid Wastes Management Association

February 12, 2010

By FedEx and e-mail to RegComments@dep.state.pa.us



Environmental Quality Board
Rachel Carson Building
16th Floor
400 Market Street
Harrisburg, PA 17105-2301

Re: Proposed Rulemaking
25 PA Code Chapter 95, Wastewater Treatment Requirements

Dear Board Members:

The Pennsylvania Waste Industries Association (PWIA¹) recognizes and fully supports the protection of all surface water and groundwater within the Commonwealth of Pennsylvania. PWIA appreciates that the Chapter 95 proposed rulemaking was prompted by concerns with levels of total dissolved solids (TDS) detected in several streams which could potentially be magnified by significant new high TDS discharges from the expanding Marcellus Shale gas extraction activities. PWIA is an advocate of rational environmental policies and sound technology based rules while regulating our members' ability to safely and economically manage the Commonwealth's solid waste. However, PWIA is concerned that the proposed rulemaking was presented prior to developing sufficient factual context and without appropriately evaluating the expansive ramifications of the proposed effluent limitations and schedule for implementation. PWIA appreciates the opportunity to provide these comments to the Environmental Quality Board, and in so doing supplements the testimony PWIA provided at the December 17, 2009 hearing in Allentown.

By way of background, the solid waste industry contributes \$3 billion dollars per year to Pennsylvania's economy, and accounts for 31, 500 jobs, \$904 million in annual employee earnings and in excess of \$131 million in state refuse taxes and approximately \$49 million

¹ PWIA is the Pennsylvania chapter of the National Solid Wastes Management Association, a non-profit organization that represents the interests of the North American waste service industry. PWIA members include both privately-held and publically-traded companies that own and operate numerous commercial solid waste facilities throughout the commonwealth. In addition to solid waste landfills, our members operate resource recovery facilities recycling facilities, transfer stations and collection operations. Two of PWIA's primary missions are to advance the safe, efficient and environmentally responsible management of solid waste, and to promote sound public policy affecting the management of solid waste.

in municipal host payments.² There are 47 permitted and operating landfills in the Commonwealth, each of which is a highly engineered and heavily regulated system designed to protect the environment. Each has significant capital investments in land, equipment and improvements, including air, water and leachate monitoring, handling and treatment features and facilities.³ The quantity and quality of wastewater effluent from these operations is well documented, well managed and appropriately treated to ensure protection of the environment, all in accordance with existing state and federal regulatory best available technology requirements and effluent limit guidelines applicable to the sector.

I. Landfills are Not a Significant Source of High TDS in Pennsylvania Waterways

On April 15, 2009, when PADEP announced its high TDS strategy, PADEP's accompanying powerpoint identified four sources of high TDS: Mining, Oil and Gas Extraction, Landfills and Food Processing. The Pennsylvania waste industry was taken by surprise, having received no prior notice or stakeholder outreach from the Department regarding this announcement or the basis for the agency's assertion that landfill discharges are or could be considered a relevant source of high TDS in Pennsylvania waterways. Instead, a review of discharge data on file with the Department clearly demonstrates that landfills are an insignificant source of TDS in Pennsylvania waterways and (a) have not contributed to the problem in the Monongahela River⁴ or elsewhere, (b) have insufficient mass loadings to justify end-of-pipe TDS regulation based on a regulatory threshold of 100,000 pounds/day for new or increased discharges.

Total Dissolved Solids, Chloride and Sulfate in Discharges from Pennsylvania Landfills

	Concentration (mg/L)			Loading (lbs/day)	
	Low	High	Average	Average	Total all 47
TDS	437	13,900	4,947	1,800	84,600
Chloride	11	5,250	1,400	554	26,000
Sulfate	0	995	125	37	1,739

NOTE: Monitoring data from each of the 47 landfills was reviewed and average loading calculations have been flow weighted. One sulfate value was an outlier and disregarded.

² See, *The Economic Impacts of the Municipal Waste Collection Transportation, and Disposal Industry in Pennsylvania* Report, dated December 2007, prepared by Econsult, Inc. for PWIA, available at http://www.pawasteindustries.org/economic_impact.asp.

³ See, Typical Sanitary Landfill Design at http://www.pawasteindustries.org/landfill_design.asp.

⁴ According to a study prepared by Tetra Tech NUS, Inc. prepared for the Marcellus Shale Committee, entitled "Evaluation of High TDS Concentrations in the Monongahela River," dated January 2009, the cause of the elevated TDS levels in that waterway was not the introduction of the hundreds of thousands of pounds per day of TDS from well drilling waste water, as that source amounted to a high of only 6.7% of the TDS in the stream. Rather, the report concludes that the temporary elevated TDS conditions were due to a combination of Q7-10 low flows in the stream as a result of a regional drought and high TDS concentrations in the river flow coming from West Virginia, reducing the assimilative capacity of the stream. AMD discharges are the apparent cause of the high TDS levels in the stream flow from West Virginia.

Under PADEP's proposal,⁵ virtually all landfill discharges would trigger the end of pipe TDS limits (as well as those for chloride and sulfate) solely by virtue of TDS concentrations at the point of discharge or POTW intake. However, as indicated in the table above, the mass loadings of TDS per landfill are relatively small (averaging 1,800 pounds per landfill), due to the relatively small flow volumes associated with these discharges (averaging less than 0.04 million gallons per day (MGD) per facility). Accordingly, no new landfill or increased discharge from an existing landfill would be affected by the proposed rule if the applicability trigger for end of pipe discharge was written, more appropriately, as only the TDS mass loading limit.

It is also noteworthy that the cumulative TDS loading from the 47 permitted and operating landfills in the Commonwealth are spread across the Commonwealth, with no discharge dominating any particular watershed. However, even if all 47 discharges were combined into a single discharge at a discrete point, the combined discharge would not trigger the Department's recommended high TDS loading threshold of 100,000 pounds/day.

In short, the TDS loadings from landfills are small on an individual and a cumulative mass loading basis and it is not necessary or helpful to regulate these discharges in the manner proposed by the Department.

The landfill discharges are also, but a small fraction of that attributable to a number of high TDS discharges that already exist in Pennsylvania. In particular, one source of TDS loading to our waterways comes from abandoned mine drainage discharge sites scattered throughout the Commonwealth. According to PADEP's website⁶, there are over 323 documented Orphan Mine Discharge sites in Pennsylvania. While the concentration of TDS in those flows (based on the 96 locations at which measurements were recorded) averaged 1,087 mg/L, at 756 million gallons per day (MGD) discharging from these locations, the listed Orphan Mine Discharge sites account for approximately 6.9 million pounds per day of TDS entering the Commonwealth's surface waters.

By comparison, taking all 47 permitted and operating landfill operations together, the amount of TDS attributable to discharges from these Pennsylvania landfill facilities is roughly 1% of that attributable to the reported Orphan Mine Discharge sites.

Similar evidence can be developed on the role of road salt in surface water contamination. Pennsylvania applies approximately one billion, five hundred thousand pounds of road salt

⁵ The proposed rulemaking defines a High-TDS wastewater as a discharge with a TDS concentration that exceeds 2,000 mg/L or a TDS loading that exceeds 100,000 pounds per day. For new High-TDS wastewater discharges, the rulemaking imposes end of pipe discharge limits of 500 mg/L for TDS, and 250 mg/L for both total chlorides and total sulfates.

⁶http://www.depweb.state.pa.us/abandonedminerec/lib/abandonedminerec/Orphan_Mine_Discharges/Orphan_Mine_Discharge.xls/

every year. This is in addition to quantities used by counties, local municipalities and homeowners. Road salt is obviously a significant source of TDS in waters of the Commonwealth (and evidence exists that the impacts may not be limited to the winter season). Agricultural and residential runoff are also significant contributors, as is weathering and dissolution of rocks and soils.

While TDS loadings associated with landfill discharges are individually and collectively extremely small contributors to the TDS equation, it is worth noting that leachate generation volumes at Pennsylvania landfills are directly related to rainfall – i.e., the amount generated goes up when the amount of rainfall goes up, and the amount generated goes down when the amount of rainfall goes down. As such, periods of high landfill discharges correlate to periods of high stream flows, and the correspondingly greater assimilative capacity in those streams to handle TDS loadings. Conversely, low stream flow conditions (as was the case in the Monongahela River during the period of concern) occur during periods of less rainfall, which correlate to less landfill discharge volumes.

Simply put, landfills are neither the source of nor the fix to TDS issues that may exist in select surface waters.

II. PADEP's Proposal to Use a Water Quality Based Drinking Water Standard As An End of Pipe Technology Based Requirement In All Watersheds For All TDS, Chloride and Sulfate Point Sources Will Have Profound Technical and Economic Feasibility Issues, and Will Likely Result in Significant Energy and Air Impacts.

PWIA understands that, when addressed, TDS, chlorides and sulfates in wastewater discharges have been managed traditionally by utilizing the assimilative capacity of the receiving stream. This scientifically sound approach recognizes that thresholds exist in nature below which adverse impacts do not exist, and that such thresholds vary dramatically depend on the conditions of each receiving stream.⁷ By contrast, fixed discharge limitations fail to distinguish between the varied conditions and impose unnecessarily stringent requirements in many circumstances, offering no environmental or public protection or benefit.⁸

⁷ The TDS 500 mg/L standard is a secondary MCL, designed as a guideline to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. TDS, a nonspecific parameter, is not considered to present a risk to human health, particularly at the secondary MCL level.

⁸ Much of the proposed rulemaking appears driven by TDS concentrations above the secondary drinking water standard detected in certain streams during low flow conditions, with chlorides and sulfates coming along in the rule as two of the primary components that make up the TDS levels. However, PWIA understands that the proposed chloride limit was chosen based on the maximum contaminant level for chloride under the safe drinking water standards, which does not seem appropriate or technically justified as a wastewater treatment discharge limitation. Similarly, but seemingly even less appropriate is the proposed use of the secondary drinking water limit for sulfate. PWIA questions whether the proposed rulemaking should be limited to TDS, with chloride and sulfate more appropriately regulated within the context of the Chapter 93 water quality criteria.

Situations involving small loadings or streams with large assimilative capacities can and should be accommodated. For the more substantial discharges, any fixed effluent limitations should be tempered by an understanding of the costs and impacts of the available treatment options.

The technologies available to address TDS in wastewaters are limited and pose a host of significant technical and economic feasibility issues.⁹ PWIA understands that available treatment methods include only reverse osmosis and crystallization/evaporation, both of which pose challenges for the Pennsylvania waste industry. Based on estimates provided by vendors, the capital costs for reverse osmosis (RO) treatment of landfill discharges of 0.025 MGD to 0.10 MGD range from \$1.4 to \$3.1 million, with annual operation and maintenance costs ranging from \$259,000 to \$665,000.

As conventional treatment processes in place would need to remain, an RO treatment system would represent significant new costs incurred to handle the relatively small loadings associated with the landfill wastewater discharge.

When the Environmental Protection Agency (EPA) issued its final rulemaking for Effluent Limitations Guidelines, Pretreatment Standards and New Source Performance Standards for the Landfills Point Source Category on January 19, 2000, 65 Fed Reg. 3008 – 3051, the agency rejected reverse osmosis as a potential treatment technology for landfills due to the high associated potential increase in the cost of operating such systems and small incremental removal benefits (as well as concerns with secondary energy and air impacts, discussed below).¹⁰ Worth noting, the US EPA made that determination without even considering the additional costs to treat the liquid concentrate (reject) that results from the reverse osmosis process, which by volume is in the range of 40% of the initial flow.

In summary, the EPA Rulemaking for effluent limits for landfills concluded that MSW landfill TDS concentrations “do not justify regulation”.¹¹

⁹ The proposed rulemaking purports to be applicable only to new discharges of wastewater that did not exist on April 1, 2009, but defines the term “new discharge” to include “additional discharge, an expanded discharge or an increased discharge from a facility in existence prior to April 1, 2009. PWIA is unclear whether the term applies relative to a number of regularly occurring landfill activities – e.g., a landfill expansion, or even opening a new, previously permitted disposal cell - and whether the new discharge limits might be imposed at the time of NPDES discharge permit renewal. Any proposal to regulate “new” or “increased” discharges should have clear quantitative mass loading based criteria - e.g., the increase would need to exceed 100,000 pounds/day.

¹⁰ See, *Economic Analysis of Final Effluent Limitations Guidelines and Standards for the Landfills Point Source Category*, EPA-821-B-99-005 (November 1999), at page 1-15, available at: (<http://yosemite.epa.gov/ee/epa/ria.nsf/vwRef/W.99.11?OpenDocument>).

¹¹ See, *USEPA, Development Document for Final Effluent Limitations Guidelines and Standards for the Landfills Point Source Category*, EPA-821-R-99-019 (January 2000), at page 7-11, available at: (<http://www.epa.gov/waterscience/guide/landfills/final/index.html>).

Following RO processing, the residuals need to be properly stored, managed, treated and disposed. Treatment of RO residuals involves evaporation. Evaporation systems also have high capital costs, in the range of \$2 million for a small 0.02 MGD system (and approximately five times higher for a 0.10 MDG discharge). However, evaporation systems are even more problematic for the Pennsylvania municipal waste industry in that outdoor evaporation basins are not viable in this part of the country, and the obvious fuel capable of being utilized for an evaporation system, landfill gas, is often unavailable for that use due to existing contracts that dedicate this resource for renewable energy projects. As such, to operate the evaporators, a Pennsylvania landfill operator would likely be required to obtain an alternative fuel source – e.g., natural gas.

The cost of operating an evaporation system is projected in the range of \$1 million annually to evaporate a 0.02 MGD discharge volume (and approximately five times higher for landfills with a 0.10 MDG discharge volume).

Combustion of an alternative fuel, even natural gas, results in air emissions that should be considered. PWIA estimates that the air emissions associated with evaporation of 0.02 MGD of concentrate from an RO process would be in the range of 6 tons per year (tpy) of NO_x emissions, 5 tpy of CO, 0.33 tpy of VOCs, 0.036 tpy of SO₂, 0.139 tpy of Methane (3.46 tpy as CO₂ equivalent) and 7, 227 tpy of Carbon Dioxide.¹²

Such potential energy and air impacts were considered by the US EPA when it issued the Effluent Limitations Guidelines. Those guidelines properly do not impose categorical discharge limitations for TDS, Chloride or Sulfate on the municipal waste landfill sector.

The proposed rulemaking proposes to require permitting of high TDS wastewaters by January 1, 2011. PWIA believes that this timeline is not possible. Once subject to the new standards, a facility must commence with design and testing of the treatment technologies, to determine appropriate options and sizing. Plans for the selected treatment system, and for treatment and disposal for treatment residues, must then be developed, followed by permitting, construction and implementation.

PWIA projects that at least 24 months is required for development and permitting of an RO treatment system, and 36 months for a crystallization/evaporation plant.¹³

¹² Based on boiler emission estimates of Conventional Pollutants and Green House Gases, per AP-42 5th Edition, Section 1.4, Tables 1.4-1 and 1.4-2.

¹³ The permitting process would involve solid waste, water management and air quality permitting. In light of the recently proposed PSD Tailoring Rule, the GHG emissions for an evaporation project for flows associated with a medium to large landfill could trigger federal air permitting requirements and BACT analysis.

The Department has also not evaluated the existence or capability of facilities to handle the TDS waste treatment residuals. The Department has discussed the concept of permitting new Centralized Waste Treatment Facilities (and/or POTWs) to accept this material. The Department should also consider residual waste landfills (which could employ closed loop water recycling concepts) as another alternative. Based on decades of experience with the Department's programs, however, PWIA contends that the development and permitting of a new waste disposal or processing facility (for concentrated treatment residues) could require at least 3 to 5 years lead time.

PWIA offers the following conclusions:

- The principal sources of TDS in Pennsylvania streams (Acid Mine Drainage sites, road salt, and agricultural and residential runoff) are not being addressed by the proposed rulemaking.
- Pennsylvania municipal solid waste landfills, individually and collectively, contribute relatively small loadings of TDS, chloride and sulfate.
- Pennsylvania municipal solid waste landfills should be exempt from the proposed limitations due to the limited potential impact presented by these facilities.
- Pennsylvania municipal solid waste landfills should be exempt from the proposed limitations due to the excessive cost and significant ancillary air impacts of the required treatment technology.
- The Department's proposed timeline for compliance with the proposed standards is inadequate to design, permit and develop the requisite treatment and residuals disposal systems.

Based on the foregoing, PWIA recommends that the EQB suspend review of this rulemaking, and that the Department continue to work with the Water Resources Advisory Committee to gather the necessary background information to properly identify the scope of the TDS problem and conduct a more thorough evaluation of the options for addressing issues in a common sense and cost effective manner - and within the context of technical and economic feasibility and effectiveness.

Alternatively, if this rulemaking is to proceed, then PWIA recommends that the Department exempt the municipal waste landfill industry and limit the definition of High-TDS discharge to only the 100,000 pounds per day threshold, and then to separately address affected watersheds and develop water quality criteria for intended uses, rather than impose an end of pipe technology standard uniformly on all discharges.

Environmental Quality Board
February 12, 2010
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Thank you for the opportunity to comment on the Proposed 25 PA Code Chapter 95 Rulemaking. Please feel free to contact me directly should you wish to discuss our comments in more detail.

Tim O'Donnell
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Pennsylvania Waste Industries Association
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York, PA 17402