

*Policy and Procedure for NPDES Permitting of  
Discharges of Total Dissolved Solids (TDS)*  
25 Pa. Code §95.10  
DEP-ID: 385-2100-002

**Comment and Response Document**

This document presents comments submitted in regard to the proposed draft implementation guidance document, *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS)* -- 25 Pa. Code §95.10, DEP-ID: 385-2100-002. The new proposed guidance was published in the *Pa. Bulletin* on January 22, 2011 (41 Pa. Bull. 560). Public comments were accepted until the comment period closed on February 22, 2011.

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The applicable commentators are listed in parentheses following each comment.

Acronyms:

AML: Average Monthly Limit (permit limitation).

CWT: Centralized Waste Treatment (industrial treatment facility).

DMR: Discharge Monitoring Report.

IW: Industrial Waste (industrial treatment facility).

MDL: Maximum Daily Limit (permit limitation).

NORM: Naturally Occurring Radiological Materials

POTW: Publicly-owned Treatment Works (sewage treatment plant).

RPAP: Radiation Protection Action plan.

TDS: Total Dissolved Solids.

TENORM: Technologically-Enhanced Naturally Occurring Radiological Materials

WET: Whole Effluent Toxicity.

WQBEL: Water Quality-Based Effluent Limit.

WWTP: Wastewater Treatment Plant.

ZLD: Zero liquid discharge.

## **RADIATION PROTECTION ACTION PLAN (RPAP)**

### **1. Comment**

In Section IV (a) the Draft Guidance Document calls for a facility to have a radiation protection Action Plan (RPAP) if less than the full volume of natural gas wastewater received has been pretreated to the pollution concentrations specified in §95.10 (b)(3)(iii). The reference for the Action Plan within the Guidance Document refers to the Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing Disposal Facilities (250-3100-001) which is written around landfill operations. The level of monitoring and recordkeeping is not justified as indicated by the radiation surveys previously completed by the state at CWTs as well as the independent studies provided to the state by CWTs. The cost associated with the level of monitoring and recordkeeping required for the implementation of an Action Plan would be overly burdensome to smaller CWTs and POTWs. Additionally there is not sufficient direction contained within the Guidance Document as to how the Action Plan will be implemented; this will lead to inconsistencies across implementations and greater expenses to CWTs and POTWs that already effectively handle and monitor fluids generated by the oil and gas industry. (2) (13)

### **2. Comment**

The referenced RPAP guidance was developed by Radiation Protection specifically for monitoring radiation and radioactive materials being delivered to municipal waste and construction/demolition landfills; residual waste transfer and composting facilities; and incinerators and resource recovery processing facilities. The plans that have been developed at these sites include monitoring, detection, and characterization of many different types and unknown sources of radiation. In addition to detection, the facilities are also required to employ certified professionals to train their personnel; keep detailed records of DEP/DOT notification and exemption forms; and determine final disposition and/or storage of the radioactive wastes. In order to develop this type of plan, a facility may have to commit hundreds of thousands of dollars for purchase of equipment, training of personnel, and recordkeeping.

The radiation that is contained in oil and gas wastes is considered NORM (naturally occurring radioactive material) and has been studied by DEP for many years at the existing oil and gas wastewater treatment facilities. Whereas the radiation detected at landfills may come from unknown sources, most fluids that are delivered to treatment facilities contain radiation originating from gas bearing formations that are naturally occurring, not man-made, and consist of the same isotopes. Incoming tank trucks containing production fluids from shallow gas formations, Marcellus formations, and Oriskany formations have recently been field surveyed for radiation at two of our treatment facilities. None of the loads have been measured over 10 uR/hr above background radiation, confirming the fact that the low level of radiation that is contained in the fluids is shielded by the metal of the tank truck. This would indicate that any type of gate monitor as used at landfill sites to detect radiation over 10 uR/hr, would be of little value.

Each gas well operator is required to submit laboratory analyses with their DEP Residual Waste 26R reporting for known radioactive isotopes. These analyses are also submitted to the treatment facilities, so incoming radiation is being documented. Our facilities have also followed the movement and deposition of RA-226 and RA-228 through the treatment process

and in the discharge. In-stream analysis and calculation have shown that radiation levels are either non-detectable or well below drinking water standards. The new Chapter 95 strategy for repermitting of facilities that accept oil and gas fluids also includes monitoring for RA-226, RA-228, gross alpha, and uranium which will increase the available database for the isotopes contained in these wastewaters.

Since 85%-99% of the incoming radiation is precipitated by chemical treatment, the final deposition is in the sludge. Currently treatment facilities measure the TENORM of each load of sludge that is shipped to a landfill, with the measurement documentation accompanying each load. In addition, HRT & PBT have completed assessments for radiation exposure of our treatment plant operators and found that the radiation dose potential is well-within the range of normal background radiation exposure and is too low to result in any sort of radiation-related health effect.

Since it is evident that the radiation associated with oil and gas fluids can be adequately managed without the type of increased monitoring as required in the referenced Solid Waste Facility Radioactivity Monitoring Plan, we suggest that DEP delete the specific reference to the Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing and Disposal Facilities and instead develop a Radiation Protection Action Plan with the assistance of those companies that have experience dealing with NORM, based on current practices at those facilities. There is no need to add another layer of monitoring, documentation, and reporting for these NORM materials. (3)

### **3. Comment**

1. Radiation Protection Action Plan. RPAP is required to be developed by any facility that receives natural gas waste water (Section IV-a). Under Definitions it states that the RPAP is to be “developed and implemented as per Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing and Disposal Facilities (DEP-ID 250-3100-001). This Solid Waste Guidance was designed for land fills and other solid waste processing facilities that take in wastes from a variety of sources. It is not appropriate for natural gas waste water processing facilities. The cost to implement is over \$120,000 in the first year and requires annual operation costs of over \$20,000, with no benefit to anyone. We recognize that DEP Bureau of Water Quality needs to know the radiation levels of wastes. This information is already provided to DEP.
2. Producers/generators of natural gas waste water currently supply to DEP Bureau of Waste Management, annual Residual Waste 26R reports that include laboratory analysis of radiation including radioactive isotopes.
3. Existing disposal facilities that treat the water dispose of the solids in landfills, and are required to document the radiation levels of every load of solid waste. These documents are provided to the landfills, as well as, analysis at the time of the landfills repermitting. DEP has a copy of or access to all of this information.
4. Existing disposal facilities that have a discharge currently have to submit to DEP representative characterization analysis of radiation in the influent and effluent when their NPDES permit is renewed.
5. Hundreds of tests have been done on natural gas waste water and have concluded that the exposure levels are below public safety limits, and often times are not significantly above background levels. Two disposal facilities measured every truck load of incoming water and found no load that measured over 10 uR/hr above background.

6. We recommend the reference to Final Guidance Document on Radioactive Monitoring at Solid Waste Processing Facilities be omitted, and replaced with the Following.
7. Facilities that process natural gas waste waters must maintain a record of, and provide to DEP upon request, copies of producer/generator representative characterization analysis of the waste, identifying toxicity, isotopes, and quantity. The following are acceptable documentation. Residual Waste 26R.  
(6) (8) (10) (12) (16) (17) (21)

#### 4. Comment

The Guidance contains a series of statements beyond the requirements of §95.10, including a declaration that WWTPs that receive natural gas wastewater should have a “radiation protection Action Plan” – with a definition in Section I that references the guidance for landfills and solid waste units. This language is later repeated (with even more mandatory phrasing) in Appendix B, Natural Gas Wastewater Examples 1.1 and 1.2. During the TDS Task Force meeting on December 13, 2010, DEP personnel in attendance were asked to clarify the requirements for the Radiation Protection Action Plan as cited in the Guidance Document. Department personnel answered that the Radiation Protection Bureau should be consulted for their definition of the Plan. During a NORM seminar in Williamsport, PA on January 27, 2011, Mr. Dave Allard, Director of DEP’s Bureau of Radiation Protection, was asked to explain how the Department was going to interpret the Action Plan for wastewater treatment facilities that deal with NORM. He recommended that this question be presented to Water Management. When informed that Water Management had recommended that Radiation Protection be consulted with, Mr. Allard responded that he would consult with Water Management and clarify what the Plan would entail. The Guidance Document definition for Action Plan which cites the *Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing Disposal Facilities* (250-3100-001). This current Plan for landfills consists of:

- Monitoring and detection of gamma radiation for incoming trucks with different Action Levels based on the amount of radiation present;
- Personnel Training by a certified health physicist;
- Characterization of the radiation and a determination of its source;
- Notification and Exemption Forms from DEP and DOT;
- Disposition and/or Storage; and
- Recordkeeping, including daily and yearly operational records.

The estimated costs for implementing this type of plan at the current wastewater treatment plants and POTWs that receive relatively high TDS levels from the oil and gas industry are listed below:

- Monitoring equipment: \$96,000
- Plan preparation: \$7,000
- Personnel training: \$12,000
- Recordkeeping: Additional

The levels of NORM that are observed in oil and gas fluids do not justify this type of expense, especially for smaller facilities and POTW’s. The established CWT facilities have already taken a proactive approach to the radiation issue. A number of facilities currently monitor and report the radiation levels of every load of sludge that leaves their facilities. A number of studies analyzing levels of radiation of incoming fluids, discharged fluids, and the sludge generated during the treatment process have been performed by a number of facilities. Facility dose assessments for the protection of employees have been performed. In addition,

these same facilities have provided radiation training for supervisory staff by a certified health physicist.

We would respectfully suggest that an offhand statement in this guidance is not the appropriate way to establish requirements for WWTPs on the subject of radiation monitoring or NORM. If the Department wishes to address this question, it should do so in a clearly articulated and separate manner. Cross-reference to a document that was designed for solid waste landfills seems quite inappropriate. (15)

#### **Department Response (RPAPs)**

The Department has significant concerns regarding the incidence and implications of NORM and TENORM in natural gas wastewaters, especially those that have been exposed to the Marcellus Shale formation or other deep well formations. These concerns are based on previously collected data, including those data submitted by permittees and the industry. Our concerns are not necessarily limited to direct contact exposure surveys measuring gamma radiation that the commentators may be referring to – a number of other exposure pathways may need to be evaluated, and include possible effects from beta and alpha radiation. The measures that the commentators maintain are adequately protective are not designed to address immediate problems or alternate exposure pathways. Qualified radiological personnel must be involved to determine the need for radiological monitoring and controls.

The fact that the RPAP guidance (*Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing and Disposal Facilities*, DEP-ID: 250-3100-001) has been primarily intended to apply to landfill operations is not a deficiency, since treatment facilities, like landfill operations and incinerators, receive and process residual waste that may contain NORM or TENORM. The requirement for a RPAP is an existing requirement, as regulations at 25 Pa. Code §297.113 require that any noncaptive wastewater treatment facility that treats residual waste develop and implement an RPAP. If those facilities operate under the Permit-by-Rule provisions of 25 Pa. Code §287.102, the Department requires the submission of an RPAP under the provisions of §287.102 (a)(6).

The permittee should secure qualified radiological personnel to evaluate radiological concerns and submit an RPAP that the permittee feels will adequately address all radiological concerns. To the extent that the commentator already has evaluated the potential for radiological exposure and health effects, these efforts should be incorporated into a RPAP and submitted for approval to the Department.

#### **OTHER COMMENTS**

##### **5. Comment**

Many POTWs cannot meet the limit of 500 mg/L for TDS (and possibly other limits) even if they don't accept natural gas wastewater, and won't be able to meet the limit if they begin to accept natural gas wastewater. (The commentator presents data to illustrate the point.) In §95.10 (a)(1)(ii), mass balance-based effluent limits should have been allowed for all POTWs, not just those already accepting natural gas wastewater. This issue appears not to have been considered when drafting the guidance and the underlying regulation. (1)

##### **Department Response**



The treatment requirements of §95.10 do not apply to existing POTWs, whether they accept natural gas wastewater or not, unless and until they propose to expand. For any POTW that does not accept natural gas wastewater, the most stringent possible effluent limit under §95.10 for TDS is 2,000 mg/L. For any POTW that proposes to begin accepting natural gas wastewater, the existing load from the POTW is previously authorized and not subject to the treatment requirements (even if it results in a discharge concentration in excess of 500 mg/L TDS), and the natural gas wastewater will have been pretreated to 500 mg/L TDS as required by the regulation. The same rationale applies for other possible pollutants of concern such as chloride. Mass balance-based effluent limits of previously authorized loads and new or expanding loads are applicable for all facilities, including POTWs that have not previously accepted natural gas wastewater.

#### **6. Comment**

The 500 mg/L TDS limit should not apply to the effluent for POTWs that begin accepting natural gas wastewater after August 21, 2010, because the regulation does not require it, among other reasons. (1) (15)

##### **Department Response**

Agreed. Section VII of the draft guidance appears to indicate that the limits would apply directly to the POTW discharge, which is incorrect. (Conversely, Scenario 5 in Appendix B indicates the correct permit actions in this situation.) Section VII has been revised to make it clear that the limits apply to the incoming or indirect natural gas wastewater, and not to the final effluent of the POTW.

#### **7. Comment**

In Sections VII and VIII, it is incorrectly stated that “*A discharge is not classified as conditionally Non-Exempt ... until the additional wastewater received is at least 5,000 lb/d on an average annual basis....*” The regulatory criterion for the exemption is the loading in the discharge, not the loading in the influent. These provisions should be changed to refer to the loading in the discharge in order to conform with the regulation. (1)

##### **Department Response**

Agreed. There may be no practical way for the permit writer to distinguish between the influent TDS loading and the effluent TDS loading, but the comment is appropriate, and under some conditions it may be possible to distinguish between the loadings. These sections have been modified to address the concern.

#### **8. Comment**

The Draft Guidance Document as written grants a permit reviewer with discretion to subjectively determine that certain prior discharge data may be disregarded in the calculation of the renewal permit discharge limitations. There is no authority stated in the regulations that would justify such discretion for the permit reviewer to disregard such data. The PADEP intends to hold facilities accountable for exceeding previously understood TDS loadings. An example of this is the language in Scenario 2.1, which provides guidance relating to the determination of the amount of discharge at which a grandfathered facility is able to renew its permit under the new regulations. The approach that the PADEP has used in this scenario appears to be fairly arbitrary and would only serve to result in uncertainty and delay, contrary to the purposes of a guidance document. Facilities will need to establish a case for determining this baseline to ensure that it adequately protects the facility. (2)

##### **Department Response**

The regulation at §95.10 (a)(1) describes certain mass loadings of TDS that are exempt from the treatment requirements and one of those categories is mass loads of TDS that were authorized by the Department prior to August 21, 2010. It is a direct and logical consequence of the regulation that the permit writer must make a quantitative determination of the previously authorized mass load. This type of determination is well within the normal duty, responsibility, and authority of NPDES permit writers. One purpose of the guidance document is to support permit writers in making this necessary determination, considering the different scenarios and data sources that may be available. The specific example that the commentator refers to is one in which a permittee had initiated treatment of fundamentally different (based on the type and quantity of existing and new pollutants of concern) natural gas wastewaters, not described in any permit application and without notifying or obtaining approval from the Department as described in regulation involving changes in wastestreams (25 Pa. Code §92a.24). In such case, the permit writer necessarily must restrict the determination of the previously authorized load to that which was previously authorized, and any additional load is subject to the treatment requirements. No facilities are “grandfathered” – instead, previously authorized loads are exempt from the §95.10 treatment requirements. It is unclear what the commentator means by “previously understood TDS loadings.”

## **9. Comment**

Section IV of the Draft Guidance Document describes how the rules are established to single out the natural gas industry despite the fact that the majority of TDS in assimilative capacity results from existing and former coal mining operations and no demonstration that the oil and gas industry has been a significant contributor to the existing conditions that the Department asserts was the basis for the rule. Then, the Draft Guidance Document attempts to require monitor and report requirements for radium 226/228 (combined) without any basis for such a requirement. The Draft Guidance Document then goes further to suggest WET testing for CWT’s or other IW’s for natural gas wastewater. Inclusion of these provisions in the Draft Technical Guidance adds license to permit writers to include these elements in permitting decisions whether appropriate or not. The costs and burdens associated with these elements should not be overlooked. We suggest that these elements not be included in the guidance document and that further discussions occur in order to address these concerns. (2)

### **Department Response**

The guidance document is intended to assist permit writers to implement the 25 Pa. Code §95.10 regulation, and any distinction between prevalent sources of TDS in the Commonwealth was addressed during development and promulgation of the regulation. The guidance must proceed consistent with the requirements of the regulation. The provisions related to radium 226/228 (combined) and WET testing are not related to the regulation. Based on previously submitted data, radium 226/228 (combined) has been identified as a potential pollutant of concern in natural gas wastewater, especially natural gas wastewater that has been exposed to the Marcellus Shale formation. The Department needs more data to determine to what extent radium 226/228 (combined) may or may not require effluent limits, and exercises its authority under 25 Pa. Code §92a.61 (b) to obtain these data. Monitoring for radium 226/228 (combined) is neither excessively costly nor burdensome. There is nothing new or unusual regarding the application of WET testing requirements to NPDES permits. Larger POTW facilities already routinely perform WET tests.

## **10. Comment**

For Non-exempt and Conditionally Non-exempt facilities, the guidance states that the TDS permit limits must be 500 mg/L TDS as AML and 1,000 mg/L as MDL, or the WQBEL or

applicable technology-based limit, whichever is most stringent. If a valid WQBEL model shows that the TDS discharge can exceed 500/1,000 mg/L without degrading water quality, that alternate limit should be allowed even if it is higher than these maxima. A TDS limit derived by a valid WQBEL mass-loading model that reflects all ambient conditions in the receiving stream should take precedence over arbitrarily-set maxima. (2)

**Department Response**

It is a fundamental requirement in NPDES permitting that the effluent limit must be set to the most stringent of all applicable requirements. This requirement is established in regulation (40 CFR 122, and 25 Pa. Code Chapters 92a and 95).

**11. Comment**

Appendix A should be expanded to incorporate the logic contained in Scenario 9.1 (formerly 8.1 in the draft guidance document). The decision tree would incorporate the 2,000 mg/l discharge limit for non-natural gas receiving dischargers (2)

**Department Response**

The decision tree is intended to assist the permit writer in determining the classification of a facility. For Scenario 9.1, the decision tree would lead the permit writer to classify the facility as “Conditionally Non-Exempt (Other),” necessitating the calculation of an existing mass loading and imposition of an effluent limit. Although that determination normally would be correct, Scenario 9.1 illustrates a special case whereas the permit writer uses his or her discretion to avoid or defer imposing a meaningless effluent limit.

**12. Comment**

The policy does not address the variability in CWF, WWF and HQ/EV bodies of water. If POTWs are held to the proposed standards, the policy should address Zone A, B, and C water supply standards. These zones are the Water Supply Standard's protection zones for surface water intakes for community drinking water sources. The biological differences in these drainage areas should be evaluated prior to determining the applicability of the 500 ppm standard to POTWs. Additionally, if a company can document an existing impairment prior to their proposed discharge point, the policy should provide guidance as to having the TDS standard waived for economical beneficial reuse.

An additional concern of the Marcellus Shale Coalition is that the policy ventures into rule-making. (2)

**Department Response**

The guidance document implements wastewater treatment requirements contained in 25 Pa. Code §95.10. These requirements are unrelated to any consideration of the nature of the receiving water, which would properly be addressed during the determination of any applicable WQBELs, an entirely separate process. The guidance addresses certain other considerations, but these considerations are related primarily to the facility operations and effluent, not the size or quality of the receiving river or stream. The commentator has not provided any basis for the assertion that the guidance ventures into rulemaking.

**13. Comment**

Scenario 4.1, of the Guidance Document cites a 4,000 mg/L TDS limitation that PA DEP may choose to impose upon POTWs with biological reactors in sewage treatment facilities. PA DEP has not cited any authority or technical justification for this specific limitation. This limitation is not stated in the revised Ch. 95 regulations. (2)

**Department Response**

This limitation is not stated in the 25 Pa. Code Chapter 95 regulations. Excessive TDS levels (for natural gas wastewaters, chloride is the primary concern) unquestionably will interfere with biological activity in a biological reactor, so some threshold level must be established. Based on the best available information, the threshold level of 4,000 mg/L TDS in biological reactors has been developed based on data that indicates that, for inputs of natural gas wastewater to POTWs, 4,000 mg/L is the threshold concentration below which interference to the biological treatment process is unlikely to occur. Higher concentrations of TDS may be tolerated in acclimated systems, but there may be problems with the biological treatment process even in acclimated reactors. Interference is explicitly prohibited in 40 CFR Part 403.5. The Department also bases this Best Management Practice on 25 Pa. Code 92a.46 (as it relates to site-specific permit conditions).

#### **14. Comment**

Section V. d of the Draft Guidance Document inappropriately restricts data that may be used in determining existing mass loading of TDS. Specifically, and for example, the guidance should not preclude use of sampling data as, for example, it proposes to prevent use of sampling performed after August 21, 2010 to determine average and maximum existing mass loading. Depending upon circumstance, available data should be able to be used for development of background and discharge values. (2)

##### **Department Response**

The Department agrees that, depending upon the circumstances, all available data should be used for development of the authorized existing mass loading. Normally, however, data collected after August 21, 2010, should not be used because such data may not be indicative of mass loadings approved prior to August 21, 2010. Sufficient data collected prior to August 21, 2010, should be available for all facilities, as permittees are required to report these data on data applications and, in many cases, on DMRs. The subsection that the commentator refers to addresses a specific case for a class of discharges (very small sewage facilities) for which TDS data is not normally submitted in the application process.

#### **15. Comment**

The Draft Guidance Document also inappropriately singles out Marcellus Shale wastewater as a “change of waste stream” requiring written Department approval pursuant to 25 Pa. Code §92.24 (a). This overstates the regulatory requirement. (2)

##### **Department Response**

The Department disagrees for the reasons stated in the guidance. Marcellus Shale and other deep well wastewater exhibits a characteristic pollutant profile, including increased influent and effluent TDS concentration and loading, that should be specifically considered by the permit writer in order to support the establishment of appropriate permit conditions. The guidance clarifies that submissions to the Department must fully characterize the wastewater to be treated, and that only previously authorized TDS loadings are eligible for calculation of the existing mass loading.

#### **16. Comment**

Include definitions for “net mass loading” and the acronym WWTP (wastewater treatment plant). (4) (15)

##### **Department Response**

The phrase “net mass loading” is used in the guidance, but only in the policy section. It is not used in any procedural aspect, so a definition for the term will not aid the permit writer in the permitting process. Additionally, the phrase is used only in the section of the guidance quoted verbatim from the preamble to the regulation, and the regulation did not advance any

definition for the phrase. Under some circumstances, it may be appropriate to define a term or phrase in the implementing guidance that was not defined in the controlling regulation, but it should be avoided since it may be interpreted as an attempt to alter the intent of the regulation. Lastly, according to the *Pennsylvania Code and Bulletin Style Manual* §1.7, words used in their dictionary meanings should not be defined, and we feel that the phrase is used according to its dictionary meaning in both the regulation and the guidance. The acronym WWTP is not used in the guidance.

#### **17. Comment**

In Section III (Policy), Merck recommends adding the following to the end of the third paragraph:

*In addition, upgrades to existing WWTPs or changes to chemical additives that do not require a net increase beyond the previously authorized TDS loading are not subject to the §95.10 TDS discharge standard for new or increased loadings. The addition of emission control devices or chemical additives used to enhance the removal of flue gas constituents upstream of existing WWTPs that do not require a net increase beyond authorized TDS loadings are not subject to the rule.*

This language is necessary because some facilities already have had problems whereas some regional permit writers have already proposed to add TDS limits as a result of the specific scenarios listed above. (4) (15)

#### **Department Response**

We agree that changes to facilities operations that are within the previously authorized existing mass loading, or that do not result in increases in an increase in TDS loading of greater than 5,000 lb/d beyond that load, are not subject to the treatment requirements. However, Section III is not the appropriate area to illustrate this specific point. Instead, an example (Scenario 12) has been added to Appendix B to clarify the general point (i.e., that any change to an operation must result in a net increase of TDS of greater than 5,000 lb/d before it triggers §95.10-based effluent limits.).

#### **18. Comment**

In Section IV, second paragraph, it is unclear why the word “existing” is used in the first sentence when referring to “new or existing discharges.” The regulation and supporting record refers only to “new or expanding discharges.” The second sentence then goes on to say that the rule applies to these existing discharges, when it does not. It applies only to new or expanding discharges, so this paragraph should be changed to use only the word “expanding” instead of “existing.”(4) (15)

#### **Department Response**

The purpose of this paragraph is to address facilities (new or existing, where existing may include expanding and nonexpanding facilities) that are captured by the rulemaking, but are essentially unaffected by the rulemaking at this time (i.e., those that do not accept natural gas wastewater and those that do not discharge effluent at any level approaching 2,000 mg/L). There is therefore no need to consider their exemption status or to determine their existing mass loading. Later on in the guidance, these facilities will be classified as Unaffected. Using the commentator’s logic, these facilities would be classified as Exempt. However, the Exempt category is designed to be permanent and irrevocable, meaning that it need not be reevaluated in subsequent permit cycles. The Unaffected category is designed to be contingent, meaning that it should be reevaluated in each permit cycle. The Department understands the commentator’s issue, but this is a implementation procedure that must

consider subsequent permit cycles from the perspective of the permit writer and resource efficiency. This distinction is important and needs to be preserved.

From an implementation standpoint, therefore, there really needs to be three types of “exempt” discharges:

1. Unaffected: No treatment requirements have been triggered, but they could be triggered in subsequent permit cycles, depending on any proposed increase in load. Facility has not necessarily been evaluated for its existing mass loading.
2. Conditionally Exempt (NG or Other): Treatment requirements have been partially triggered and must be tracked. Facility requires or already has a defined existing mass loading.
3. Exempt: Discharge is fully and unconditionally exempt, and no further evaluations are required.

### **19. Comment**

In Section V, change the third sentence of the first paragraph to clarify that the net increase of 5,000 lb/d applies on an average annual basis. (4) (15)

#### **Department Response**

Agreed, although the second sentence of the same paragraph already makes this point clear.

### **20. Comment**

In Section V, third paragraph, it says that “Existing mass loadings should be expressed on both an average daily and maximum daily basis in order to conform with the requirements of §95.10 (a)(1) and (7).” This statement actually conflicts with those subsections. Specifically, §95.10 (a)(7) provides for a separate exemption for expanding discharge loadings of 5,000 lb/d, measured as an average daily discharge over the course of a calendar year....” This is an additional exemption, not an additional trigger of regulation. For example, if an industry had an established MDL of 10,000 lb/d, and the maximum daily discharge remained under that value, the loading is exempt under §95.10(a)(1). If the AML was 4,000 lb/d, but the actual discharge expands to 9,100 lb/d, the loading should still be exempt under §95.10 (a)(1) and the 10,000 lb/d. The guidance may not alter the requirements of §95.10. (4) (15)

#### **Department Response**

The Department disagrees. Subsection (a)(1) states that previously authorized maximum daily discharge loads of TDS are exempted. It is reasonable to interpret this as meaning that any previously authorized load, including the average daily load, up to and including the maximum daily load, is exempted. Subsection (a)(7) states that average daily increases of 5,000 lb/d or less of TDS are exempted. If an average daily increase of more than 5,000 lb/d is proposed, then that excess loading is not exempted. If no increase in the maximum daily load has occurred, then the treatment requirements will be limited to the excess loading in relation to the AML, and the MDL limit will remain the same and continue to retain the exemption. If an increase in the maximum daily loading is proposed such that the 10,000 lb/d MDL will be exceeded, then that excess loading is not exempted. The commentator asserts that the previously authorized maximum daily load may be substituted for the average daily load, and the Department does not believe that this is a reasonable interpretation of the regulation.

### **21. Comment**

Section V, third paragraph, suggest existing sentence revision as follows: “For the case where there is a discrepancy between the existing mass loading that was authorized (as determined from *the design, process, operations, and data submitted with the discharger’s application for their current or existing NPDES permit, or effluent limits*) and the existing mass loading.... (4) (15)

**Department Response**

The Department agrees with the commentator’s point, and partially accepts the comment. This issue is most appropriately addressed in Section V subsection c, and that language has been modified to address the concern.

**22. Comment**

Section V, bullet “a” is not comprehensive enough, especially in regard to production-based BPJ limits for TDS. If the discharger being evaluated has had a recent decline in production they may be penalized their flow, and therefore mass loading would be down. Suggest instead:

*If there are existing mass-based TDS limits that are not WQBELs, adjust the loads to account for design flow using the equation in bullet b and use as the basis for existing TDS mass loading . If the mass-based effluent limits are WQBELs, use these for the basis of the loading. (4) (15)*

**Department Response**

Regardless of the basis or expression of the TDS limits in the existing permit, they should be used as the basis for the existing mass loading. In the case that the commentator describes, the TDS limits could remain as production-based. Subsection (a) has been updated to reflect this.

**23. Comment**

Section V: As described in Comment 20, there is no basis for the use of average mass loadings to determine existing mass loadings, so all reference to average mass loadings in bullet “b” should be deleted. (4) (15)

**Department Response**

See response to Comment 20.

**24. Comment**

In Section V, revise bullet “c” as shown below. This recommended language is to ensure consistency with DEP's intent to consider the greatest or worst-case TDS loading in determining existing mass loading. It will assist in ensuring Regional consistency by mentioning all available resources in the guidance that should be used for determining existing mass loading of TDS.

*c. If no effluent limits for TDS are applicable:*

- i. Utilize information from current and/or prior permit applications. Evaluate NPDES application information for the discharger's projected TDS mass and/or concentration loadings based on the discharger's planned and projected operations. If the NPDES applications do not contain information on planned and projected TDS loadings, evaluate TDS sampling and analysis data that was submitted as part of prior applications and authorizations as the basis for the average and maximum existing mass loading. Perform concentration/flow calculations using the facility annual average design flow as described above in bullet b.*

- ii. *If no effluent limits for TDS are applicable, but monitoring and reporting through the DMR process has been performed, TDS analysis data from the DMRs also may be used as a basis for establishing the average and maximum existing mass loading (but do not consider data collected after a change in process or wastestream which required a notice under §92a.24, where such notice was not provided or the change was not otherwise authorized by the Department).*
- iii. *As an option to the use of permit application data, the permittee may choose to collect TDS data to characterize a range of existing discharge conditions. The permit writer should work with the permittee to determine the appropriate sampling frequency to capture and evaluate the variability of the discharge.*

*In general, the highest representative data may be selected from the average data values and the maximum data values that are available, including planned and projected TDS loadings from discharger operations under the current permit, provided that the representative data are consistent with Department authorizations issued prior to August 21, 2010." (4) (15)*

**Department Response**

The suggested language does not clarify or otherwise improve upon the existing language, and it refers to some options that generally are not applicable.

**25. Comment**

Regarding Section VI (Existing Discharges with TDS Loadings Authorized Prior to August 21, 2010), it is unclear what the purpose of this section is, or what DEP's intent was with including it since the applicability of §95.10 is only for new or expanding discharges. The opening paragraph directs the permit writer to evaluate an application to determine if the discharge is new or expanding to be evaluated under later sections, or if existing and therefore the TDS loading of that application be evaluated under Section VI. The subsequent evaluation instructs the permit writer to classify the existing discharge as "Unaffected," "Authorized Load/No Increase," or "Exempt." This evaluation seems to exceed the defined applicability of the regulation which is for new or expanding discharges of TDS. According to §95.10(a)(1), TDS loadings or specific conductivity levels authorized by the Department prior to August 21, 2010 are considered existing mass loadings and according to §95.10(a) are already exempt. Therefore, based on the language in the regulation, it is unnecessary and excessive to classify an already exempt discharge into other categories. This will also result in confusion and inconsistency among the Regional offices. As previously stated, achievement of Regional consistency is the primary goal of these collective comments.

The third paragraph of Section VI seems intent on rewriting the clear language of §95.10(a). It appears to declare as "Exempt" only those discharges falling within "§95.10(a)(2) through (6) or (8)" – ignoring §95.10(a)(1) and (a)(7). The EQB did not delegate to DEP staff the power to pick and choose among the eight listed categories of discharges that "are not considered new or expanding mass loadings of TDS." All eight categories are exempt. The regulated community perceives that the Department is attempting to adjudicate or include regulation of existing TDS discharges that were not included in the final rulemaking. (4) (15)

**Department Response**

See response to Comment 18. It may not be immediately evident on casual inspection, but implementing the exemption provisions of §95.10 requires the subdivision of discharges into those that may require ongoing evaluation and those that will not require ongoing evaluation. For example, the permit writer, at each permit cycle, must determine if discharges that rely



on the §95.10 (a)(7) exemption in relation to the 5,000 lb/d TDS increase limit are still below that limit. Similarly, he or she must evaluate the status of discharges that rely on the §95.10 (a)(1) exemption in relation to their previously authorized existing mass loading. Only discharges that rely on the provisions of §95.10(a)(2) through (6) or (8) can be dismissed from further evaluation. Failure to draw clear distinctions in the guidance will result in confusion and inconsistency at the regional offices. For example, under the commentators suggested revision, discharges could be switching back and forth between “Exempt” and some other category at each permit cycle. This is impractical and highly undesirable from an implementation standpoint. There is no inconsistency with the provisions or requirements of §95.10.

## **26. Comment**

In Section IV, one of the classifications, "Conditionally Non-exempt," conflicts with the exemptions listed in §95.10(a)(1) through (8). This classification breaks out the 5,000 lbs/day *de minimis* exemption into its own special exemption category requiring specific actions. As noted above, this conflicts with the cited regulatory section where the 5,000 lbs/day exemption is listed without proviso with the other six exemptions. (4) (15)

### **Department Response**

See the response to the previous comment.

## **27. Comment**

in Section VIII, the "Unaffected" category creates a 1,000 mg/l trigger concentration. This trigger concentration is not cited in the regulations. The Department explained in TDS Task Force meetings that this trigger concentration is incorporated as an efficiency and financial resource saving measure. DEP stated that as a matter of guidance, if a new or expanding discharge is less than 1,000 mg/l, permit writers are not to spend anymore time evaluating or developing criteria for that discharge. But as presented in the "Unaffected" category of this section, this intent is unclear and confusing. Therefore wording clarifications are suggested. In addition, changes to other parts of this section are recommended for clarity, specificity, and better ensure Regional consistency. (An extensive revision of Section VIII is suggested by the commentator.) (4) (15)

### **Department Response**

The commentator may be referring to previous versions of the guidance, as 1,000 mg/L is not used as a trigger concentration, but to illustrate an example of a discharge that does not require an effluent limit for TDS (may be classified as “Unaffected”). The suggested revision of Section VIII does not make the necessary distinctions between discharges as explained in the responses to comments 18 and 25.

## **28. Comment**

Merck recommends that the following example be added to the Appendix B permitting examples:

*A POTW discharges 3 million gallons per day on average. The POTW currently does not have any significant industrial contributors, and current daily maximum TDS discharge load is 6,600 pounds from prior NPDES application data. The POTW does not have a limit for TDS or a sampling requirement for TDS. Prior to the start of the POTW's NPDES renewal cycle, a new industry is started in the community and the POTW receives the waste water from the new industry in accordance with U.S. EPA pretreatment regulations. The POTW notifies the DEP Regional office per §92a.24. The industry contributes 300,000 gallons per day additional flow (within POTW's rated flow capacity) with a TDS concentration of 2,200*

*mg/l. During renewal of the POTW's NPDES application, which is occurring after start up of the new industry, effluent TDS concentration from the NPDES renewal application sampling was 410 mg/l with a discharge flow of 3.5 million gallons per day.*

Please finish this example with the Department's evaluation for the POTW's NPDES permit renewal. (4)

**Department Response**

Scenarios are added to the guidance to illustrate a different scenario or principle than has been illustrated with the existing examples. It is unclear what new principle that the commentator wishes to be illustrated. The net increase in TDS load would exceed 5,000 lb/d, but the facility would still be "Unaffected" because of its low TDS discharge concentration. This scenario is already addressed in the existing example set, but one scenario (the new Scenario 7.3) has been revised as a result of this comment to make it clear that it is the final discharge concentration that controls the determination, and the status of indirect discharges is important only to the extent that they affect the final discharge.

**29. Comment**

Near the end of Section III, feedwater treatment discharges should be added to the list of discharges to which the requirements of §95.10 generally do not apply because they represent no new mass loading of TDS. For example, the TDS in a membrane-based treatment system where the treatment system treats intake water. (5) (15)

**Department Response**

The Department agrees with the commentator's specific example -- since the TDS load originates in the natural intake water, the requirements of §95.10 generally would not apply. However, this principle has already been fully established in the guidance, and the broad suggested exemption for feedwater discharges is not necessarily appropriate. The determination depends on where the TDS loading originated more than the treatment process employed.

**30. Comment**

Make it clear that reasonable potential determinations and possible treatment requirements apply only to the final discharge, not to intermediate or internal monitoring points. (Revised language is suggested.) (5) (15)

**Department Response**

Agree in general. Section IV has been revised to make this clear.

**31. Comment**

In Section V, make it clear that administratively extended permits cannot be considered as expired permits, and that previously authorized existing mass loadings would be carried forward with the reissued permit. (Revised language is suggested.) (5) (15)

**Department Response**

An administratively extended permit cannot reasonably be mistaken for an expired permit. If the permit has made proper application for a permit to be reissued and it has not been reissued through no fault of the permittee, the existing mass loading is unaffected.

**32. Comment**

In Section V.d, the reference to composite samples should be deleted since composite sampling is not always necessary or required. (5)

**Department Response**

The Department agrees that composite sampling would not always be necessary or required, but the reference that the commentator refers to is quoted verbatim from the Final Notice of Rulemaking for Chapter 95. It may not be modified. But in this section of the guidance, the Department clarifies the intent of the language as an example that was not intended to be prescriptive, so the commentator's general concern has been addressed.

### **33. Comment**

It should be clear that the total composite authorized load from a discharge should include previously authorized loads from industrial stormwater discharges. (Revised language is suggested.) (5)

#### **Department Response**

The Department does not believe that industrial stormwater was intended to be included in the scope of §95.10, except to the extent that it may exceed 2,000 mg/L. Therefore, the guidance states that discharges of stormwater should not be included in any determination of existing mass load, or counted as part of the facilities TDS discharge loading, except to the extent that it may exceed 2,000 mg/L TDS.

### **34. Comment**

The regulation and this guidance document impose different TDS standards on wastewaters from natural gas activities than wastewaters from all other activities in the Commonwealth. If there is any valid reason to impose a 500 mg/l TDS standard on any wastewater discharges via NPDES limits, then there would be reason to apply them universally, versus setting a lesser standard of 2,000 mg/l for any wastewaters not generated by natural gas activities. Conversely, if 2,000 mg/l is protective of the streams, aquatic organisms, and drinking water supplies, it should be applied universally. This dual standard, depending upon the source of the wastewater, makes absolutely no sense in the regulation, nor in this guidance document. Please revisit which of the two TDS standards makes sense, then apply the relevant standard to all regulated discharges. (7)

#### **Department Response**

This issue has been resolved during development of the regulation, and the guidance must implement the provisions of the regulation (25 Pa. Code §95.10).

### **35. Comment**

Trout Unlimited is concerned that the implementation guidance weakens the intent of the regulation by requiring inadequate mechanisms and timeframes by which to measure TDS levels. Specifically, TU is concerned that setting standards based upon a monthly average (500 mg/L) and maximum daily limit (1,000 mg/L) will allow for excessive TDS loading in some cases, thereby potentially impacting water quality for both aquatic life and human consumption. The current draft implementation guidance document directs NPDES permit writers to establish permit conditions for TDS of 500 mg/L as the average monthly limit, and 1,000 mg/L as a maximum daily limit. Allowing a permit holder to meet TDS standards based upon a monthly average may encourage an operator to discharge effluent with TDS levels in excess of 500 mg/L one day, if the next day, the effluent's TDS level is well below the 500 mg/L standard. (9)

#### **Department Response**

The guidance is designed to implement the requirements of the regulation (25 Pa. Code §95.10), and the regulation clearly specifies that limits will be established as monthly averages. Even if this were not the case, the water quality criterion is TDS not to exceed 500

mg/L as an average monthly value, and therefore an Average Monthly Limit (AML) would be most appropriate. Furthermore, based on experience and the nature of the industrial and sewage facilities involved, it is not practical for discharges to ramp their loading up and down, keeping track of the loading on a mass basis from day-to-day to assure that they will not exceed a monthly limit. The establishment of Maximum Daily Limits (MDLs) severely limits the possible day-to-day variation in any case.

### **36. Comment**

In the current draft implementation guidance, the descriptive phrase “a pollutant” was removed from the definition of “TDS”. As you likely know, the U.S. Environmental Protection Agency (EPA) defines TDS as a pollutant and has approved a TMDL for TDS in several of Pennsylvania’s watersheds. The TMDL (total maximum daily load) represents the maximum amount of a pollutant allowed to enter a water body by law so that the water body will meet and continue to meet the water quality standards for that particular pollutant. TDS is listed on Pennsylvania’s 2009 Clean Water Act 303(d) list as a pollutant with an approved TMDL. Furthermore, in the introduction section of this guidance document, the DEP states that “TDS has become a statewide pollutant of concern and a threat to DEP’s mission to prevent violations of water quality standards.” Removing the phrase “a pollutant” defies the very reason for adopting the new wastewater standards. For the sake of consistency, TU recommends re-inserting the descriptive phrase “a pollutant” to the definition of TDS. (9)

#### **Department Response**

The guidance lists TDS as an acronym (acronyms typically appear in the “Definitions” section of a regulation or implementation guidance). TDS is a composite parameter that represents mostly naturally occurring substances. These substances are natural and present in any surface water in certain quantities. It is not until they are present, or have the potential to be present, in excessive quantities in surface waters that TDS should necessarily be represented as a pollutant. The Department’s authority, processes and procedures to control TDS, or any other substance, are not affected by any such distinction.

### **37. Comment**

In Section IV(d) of the guidance, the DEP has suggested that “WET testing for CWTs or other IWs that discharge treated natural gas wastewater, where less than the full volume of natural gas wastewater in effluent has been treated to the pollutant concentrations contained in §95.10 (b)(3)(iii), generally is recommended.” Natural gas wastewater is defined as wastewater resulting from fracturing, production, field exploration, drilling, or well completion of natural gas wells. WET testing is generally used to measure the potential toxicity of effluents to the rivers, lakes, bays, and ocean waters of the state. Because development of Marcellus Shale gas requires the use of multiple chemicals ranging in various levels of toxicity, Trout Unlimited strongly recommends that WET testing be required for any discharge where the entire volume of natural gas wastewater has not been treated to the pollutant concentrations required under §95.10(b)(3)(iii). To do otherwise, would potentially expose rivers, streams, lake and other water supplies, as well as aquatic life, to untreated natural gas wastewater and therefore unnecessary risk. (9)

#### **Department Response**

A guidance document may not require anything on its own. It may cite or document requirements or policies, new or existing, that have been established elsewhere. The Department agrees that WET testing normally will be appropriate for natural gas wastewaters that have not been fully treated to the pollutant concentrations required under §95.10(b)(3)(iii), primarily because there may be unknown sources of toxicity in natural gas

wastewaters that have not been fully treated to the pollutant concentrations required under §95.10(b)(3)(iii), and this is one of the best reasons for WET testing. The permit writer retains the flexibility to decide on the need for WET testing based on site-specific factors.

### **38. Comment**

Add a reference to Chapter 77 (NonCoal) as part of the exemption enjoyed by the coal mining industry (referenced by Chapter 86) on page 8 of the Draft Document:

It is either a post-mining pollutional discharge from an abandoned mine site; a surface mining activity with one or more existing discharges subject to Chapter 87 Subchapter F, Chapter 88 Subchapter G, or Chapter 90 Subchapter F; a discharge from an active coal mining operation with an open pit dimension of less than 450,000 sq. ft. exposed at any time; a discharge from an erosion and sediment control facility at a surface mining activity as defined in §86.1 **or 77.1**; existing mine drainage directed to a mine pool that is treated in accordance with applicable requirements of Chapters 91 through 96; or a discharge with applicable ELGs for TDS, sulfate, or chloride. A discharge with no applicable ELGs for TDS, sulfate, or chloride may qualify as Exempt if EPA determined during the ELG development process that a technology-based limitation for TDS, chloride, or sulfate is not necessary. Such a discharge will be evaluated upon formal request on a case-by-case basis, and the determination based on EPA's reasoning for not establishing a technology-based limitation. (emphasis added). (11) (14)

#### **Department Response**

The commentators propose to add a new exemption (i.e., a discharge from an erosion and sediment control facility at a surface mining activity as defined in §77.1) not provided for in the §95.10 regulation. An implementing guidance may not modify or supplement the requirements of the underlying regulation.

### **39. Comment**

Overall, the categories "Non-Exempt (Other)" and "Conditionally Non-Exempt" are very confusing in that no distinction or difference between the two categories is evident nor is DEP's intent understood. A new or expanding discharger should be either Unaffected (using DEP's *de minimis* 1,000 mg/l threshold), Exempt (covered by one of the exemptions listed in §95.10(a)(1) to (8)), or Non-Exempt (e.g., subject to the regulation). (Extensive revisions are suggested). In Appendix A, change "Conditionally Exempt" to "Exempt." (4) (15)

#### **Department Response**

See the responses to comments 18 and 25.

### **40. Comment**

Appendix B, Scenario 7.1 and 7.2: We concur with the expression in these two scenarios that a situation involving a reactivation of a production line to return a plant to its previously authorized flow should not constitute an expansion of a mass loading. (15)

#### **Department Response**

None required, except that these scenarios have been renumbered under Scenario 8.

### **41. Comment**

Appendix B, Scenario 7.3 (8.3 in the final guidance): Consistent with our comments provided above, we believe the analysis of Scenario 7.3 is missing some important elements. If the

new, fourth production line is proposed, but the maximum daily TDS loading will not change, §95.10(a)(1) declares that the facility does not constitute a new or increased loading. The Scenario improperly focuses solely on the change in average daily loading (which is a different exemption). If the maximum daily TDS loading does not increase, the facility is exempt, and there is no basis for imposing a TDS loading limit. If the maximum TDS loading will increase, and the average daily loading will increase by more than 5000 lb/day (that is, if neither exemption 95.10(a)(1) or (a)(7) applies), then TDS limits are applicable. (15)

**Department Response**

See response to Comment 20.

**42. Comment**

Appendix B, Scenario 7.4 (8.4 in the final guidance): We agree that if the average daily loading in Scenario 7.4 does not increase by more than 5000 lb/day due to the increased efficiency of the new line (or increased efficiency on the old lines), there is no triggering of the §95.10 TDS limits. However, the same can be said if the increase efficiency were to result in no increase in maximum daily TDS loading. If, as a result of increased treatment or production efficiency, the facility increases its flow rate with the fourth production line, but manages its total TDS such that the maximum daily TDS load does not increase, the §95.10(a)(1) exemption applies, and the facility should be classified as Authorized Load/No Increase. (15)

**Department Response**

See response to Comment 20.

**43. Comment**

Appendix B, Scenario 8.1 (9.1 in the final guidance): Once again, attention should be given to the §95.10(a)(1) exemption. The permit writer must ask whether the expansion results in an increase in the maximum daily TDS load from that previously authorized. If not, then this is still an Authorized Load/No Increase situation. (15)

**Department Response**

See response to Comment 20.

**44. Comment**

Section, V, Bullet "d", second paragraph (starting at sentence reading, "Supplemental sampling of a discharge may be most appropriate ..."): In cases where process water and industrial storm water are commingled, the total previously authorized TDS load determined solely from data submitted with an application may not account for industrial storm water contributions, especially if permit renewal data were used and renewal sampling took place on days where qualifying storm events did not occur. In a situation involving such commingled flows, the total authorized load (prior to August 21, 2010) should account for industrial storm water loading, since these discharges were authorized by the Department. Therefore, the following changes are recommended:

Supplemental sampling of a discharge may be most appropriate to characterize the variability of a discharge of TDS, thereby supplementing existing data from a previous application, or if no TDS data were available at all for some reason. *Supplemental sampling may include industrial storm water loading characterization where process water and industrial storm water is commingled in final outfalls. Such supplemental sampling should include characterization of qualifying storm events as described in the effective National Pollutant Discharge Elimination System General Permit for Discharges of Storm water Associated*

*with Industrial Activities (PAG-03). In these cases, the daily maximum loading should include industrial storm water contributions to determine the total previously authorized load. (15)*

**Department Response**

The Department does not believe that industrial stormwater was intended to be included in the scope of §95.10, except to the extent that it may exceed 2,000 mg/L. Therefore, the guidance states that discharges of stormwater should not be included in any determination of existing mass load, or counted as part of the facilities TDS discharge loading, except to the extent that it may exceed 2,000 mg/L TDS. For the case of comingled stormwater and process water, the permit writer would most appropriately provide for sampling of the process wastestream before it is comingled with the stormwater.

**45. Comment**

Compliance by POTWs with Chapter 95 is critical to protecting Philadelphia’s drinking water supply. Guidelines separate from the Chapter 95 guidance should be developed for treatment plant operators, and POTW personnel should be required to attend training on the procedures for accepting natural gas wastewater. (18)

**Department Response**

The comment refers to measures that are outside the scope of this guidance document.

**46. Comment**

There are several scenarios under which the 5,000 lb/d *de minimus* threshold, expressed as an annual average value, may not be adequately protective. For example, a POTW may receive large amounts of natural gas wastewater for some weeks, and then none for the rest of the year. The Department should:

- Require all facilities receiving natural gas wastewater, regardless of whether they trigger the threshold, to notify the Department of their actions and the quality of the wastewater.
- Emphasize in the guidance the consequences to POTWs of accepting natural gas wastewater below the threshold. For instance, biosolids may not be land applied.
- Provide permit reviewers and treatment plants with a table of concentration and flow rates that will trigger the *de minimus* threshold. (18)

**Department Response**

The 5,000 lb/d threshold has been established in regulation, and the guidance document may not revise provisions established in regulation. The issues regarding notification and biosolids are addressed in the guidance and in NPDES permits. The permit writers do not require a table of flow and concentration since they work with these concepts every day.

**47. Comment**

Drinking water suppliers depend on up-to-date and timely information about their water supply to react to emergencies and effectively respond to public inquiries. Any facility planning to dispose of natural gas wastewater in surface waters should be required to notify affected drinking water supplies. In the Delaware River Basin, they should be encouraged to join the Delaware Valley Early Warning System. All notification procedures should be outlined in the Chapter 95 guidance. (18)

**Department Response**

The guidance is intended primarily to implement the requirements of §95.10 as they relate to NPDES permits. NPDES permits are developed and issued to protect drinking water supplies as part of the normal process. Spill notification procedures are addressed elsewhere.

**48. Comment**

Require any facility accepting natural gas wastewater to conduct sampling of each delivery prior to treatment. This is appropriate because the quality of natural gas wastewater is highly variable. This sampling is especially important for POTWs operating under the *de minimus* threshold. (18)

**Department Response**

While sampling of incoming loads is appropriate and required, the guidance is intended primarily to implement the requirements of §95.10 as they relate to NPDES permits, and generally should not address unrelated issues.

**49. Comment**

All facilities that accept natural gas wastewater, even those that accept wastewater fully pretreated to Chapter 95 standards, should be required to monitor for gross alpha, radium 226/228, uranium, and implement an RPAP. The guidance reflects an assumption that these activities are not necessary for natural gas wastewater that has been pretreated in accordance with Chapter 95. The pretreatment prescribed by Chapter 95, however, does not directly address radioactivity. (18)

**Department Response**

Facilities that discharge only wastewater fully treated to the standards in §95.10 do not present any reasonable potential to discharge significant radiological activity. All potential sources of radioactivity manifest via dissolved solids, and dissolved solids (TDS) are stringently controlled under §95.10. Spot checks may be performed, but ongoing monitoring of effluent is unnecessary and burdensome to permittees. A RPAP (Radiation Protection Action Plan), however, is fully appropriate for any facility that receives natural gas wastewater not fully treated to §95.10 standards, since the radiological materials will be present at the facility (even if not in the effluent). A RPAP is not appropriate for any facility that receives only natural gas wastewater fully treated to §95.10 standards, since the radiological materials have been removed and are not present at the facility.

**50. Comment**

More information is needed to determine the effect of pretreatment prescribed in Chapter 95 regarding radionuclides and other pollutants of concern that impact public health. Additionally, more studies are required to determine the impacts of disposal of pretreated natural gas wastewater on source water and drinking water quality. Further changes to Chapter 95 may be needed to address the results of these evaluations. (18)

**Department Response**

See response to the previous comment.

**51. Comment**

(Page 4): “These discharges exhibit the following characteristics: 1) TDS effluent concentrations are low compared to the 2,000 mg/L TDS concentration contained in the treatment requirements of §95.10 (c) (as a guideline, the TDS concentration should be less than 1,000 mg/L on a routine basis); and 2) there is no reasonable potential for the loading or concentration of TDS to increase to levels of concern under the provisions of §95.10.”



Comment No. 1: The Department's proposed guideline that the TDS concentrations for these effluent discharges "should be less than 1,000 mg/L on a routine basis" is vague since the phrase "routine basis" is not defined or clarified in the Guidance. As such, APIP respectfully requests that the Department revise the phrase "on a routine basis" to read "over a reasonably representative sampling period." In addition, we are unclear of the basis for choosing 1,000 mg/L over say 1,500 mg/L. We suggest that 1,500 mg/L would be more appropriate. (19) (20)

**Department Response**

The phrase "routine basis" is not vague, but is used according to its dictionary definition. The phrase "over a reasonably representative sampling period" is too prescriptive, because the permit writer may not have data collected over a reasonably representative sampling period available, but may instead be relying on his or her knowledge of the treatment system to make this very basic determination. One thousand mg/L of TDS is 50% of the 2,000 mg/L treatment standard specified in the regulation, and 50% is the threshold applicable as per the *Water Quality Toxics Management Strategy*, DEP-ID 361-0100-003, when performing certain reasonable potential determinations. The commentators have not provided any basis for their assertion that 1,500 mg/L may be more appropriate as a threshold concentration.

**52. Comment**

(Page 5): "If there is a net increase in TDS loading of more than 5,000 lb/d above the previously authorized loading, treatment requirements may be required for certain discharges, but the treatment requirements are only applicable for the expanding mass loading (the wastewater associated with the portion of the loading in excess of the existing mass loading, as per §95.10 (a)(1)(ii))."

Comment No. 2: The final regulation (25 PA. CODE § 95.10(a)(7)) states directly that "new and expanding discharge loadings of TDS equal to or less than 5,000 pounds per day, measured as an average daily discharge over the course of a calendar year would be exempt from the treatment requirements of Section §95.10" (emphasis added). This regulation does not state that if an existing discharge loading exceeds the *de minimis* threshold value of 5,000 lb/d on an average annual basis, the initial 5,000 lb/d of expanded mass loading must be treated to the treatment requirements included in 25 PA. CODE § 95.10. The Department should revise the statement above to reflect the plain language of 25 PA. CODE § 95.10 by adding the following phrase to the end of the sentence: "beyond the *de minimis* threshold value of 5,000 lb/d."

The Department should correspondingly correct those hypothetical examples in Exhibit B that calculate an expanding discharge to include the 5,000 lb/d *de minimis* TDS amount. The *de minimis* amount should not be included as part of a facility's expanding mass loading. (19) (20)

**Department Response**

It is not a reasonable interpretation of the regulation to say that, because increases in net mass loading of 5,000 lb/d or less are exempted from the treatment requirements of §95.10, then the first 5,000 lb/d of any increase in net mass loading is exempted. Once the treatment requirements are triggered, the full increase in net mass loading is subject to the treatment requirements of §95.10, and both the regulation and the guidance are clear on this point.

**53. Comment**

(Page 7): "If supplemental sampling is determined to be appropriate, the sampling plan should be designed to achieve representative results that characterize the average and maximum TDS mass loading, considering the frequency, duration, and seasonal and

operational variation of the discharge. The suggested sampling plan in the preamble to the final rulemaking for Chapter 95, *Wastewater Treatment Requirements* (40 Pa.B. 4835, August 21, 2010), involving a minimum of 10 daily composite samples, representative of the discharge during normal operations and taken at least one week apart, had been intended as an example. It may be most appropriate for a continuous discharge exhibiting minimal seasonal variation.”

Comment No. 3: APIP supports the Department’s recent revision to include this language because it allows a permit applicant and the Department’s staff sufficient flexibility to develop a sampling plan to obtain average and maximum TDS mass loading data that is reasonably representative of the applicant’s discharge, thereby providing the best available information as evaluated on a case-by-case basis (rather than limiting the sampling plan to a minimum of 10 daily composite samples). We trust the Department’s staff will follow this guidance for permit applicants having seasonal or other variable discharges. (19) (20)

**Department Response**

None required.

**54. Comment**

(Page 8) “Authorizations for TDS discharge loadings that were previously in effect but have been reduced due to changes in water quality standards, implementation procedures, or similar programmatic factors generally should not be considered valid.”

APIP Comment No. 4: This sentence as written conflicts with 25 PA. CODE § 95.10(a), because nothing in the final regulation gives the Department the authority to reduce or qualify “authorized discharges” for the listed reasons or any other reason. This statement should be deleted from the Guidance. (19) (20)

**Department Response**

These qualifications are appropriate, because they refer to authorizations that may be obsolete or inappropriate due to other programmatic requirements or standards. Chapter 95 may not “re-authorize” loadings that have been determined to be inappropriate for other good reasons, and under other authorizations.

**55. Comment**

(Page 8) “If there is some doubt, for instance if the effluent TDS concentration may exceed 1,000 mg/L often, or approach 2,000 mg/L on some occasions, establish monitor and report requirements for TDS as a permit condition.”

Comment: The Department’s proposed guideline that the TDS concentrations for these effluent discharges “should be less than 1,000 mg/L on a routine basis” is unclear. The phrase “routine basis” is not defined or clarified in the Guidance. As such, we respectfully request that the Department revise the phrase “on a routine basis” to read “over a reasonably representative sampling period.” (19) (20)

**Department Response**

See response to Comment 51.

**56. Comment**

(Page 10): “A discharge is not classified as Conditionally Non-Exempt (Natural Gas) until the additional wastewater received is at least 5,000 lb/d on an average annual basis, but once that threshold is exceeded, the full increase in excess of the existing mass loading is subject to the treatment requirements of §95.10 (b)(3) for the listed pollutants.”

APIP Comment No. 6: Please refer to APIP Comment No. 2. The Department should revise the phrase “the full increase in excess of the existing mass loading” to read “the full increase

in excess of the existing mass loading beyond the *de minimis* threshold value of 5,000 lb/d” for the reasons set forth in our Comment No. 2 above.

**Department Response**

See response to Comment 52.

**57. Comment**

(Page 10) “A discharge may only increase its discharge loading of TDS with an accompanying flow increase; otherwise, the discharge must conform to the existing mass loading to retain the exemption.”

Comment: This sentence, as written, is vague and confusing. The Department should clarify the intent of this statement and clarify the statement itself. (19) (20)

**Department Response**

Agreed. This sentence has been deleted, and the issue has been illustrated in Scenario 6.

**58. Comment**

(Pages 24 and 25) “TDS concentration in biological reactors in sewage treatment facilities should be limited to 4,000 mg/L or less to avoid inhibition of the biological treatment process. That does not seem to be an issue here, but the permit writer could consider limiting the maximum TDS concentration in the POTW effluent to 4,000 mg/L.”

APIP Comment No. 9: The Guidance implies that the TDS concentration limit should be limited to 4,000 mg/L in biological reactors for all POTWs statewide, regardless of the size of the POTW, its through-flow volume, the type of biological treatment employed, and other relevant factors. As discussed above, APIP is concerned that a one-size-fits-all approach in the Guidance will reduce the wastewater industry’s flexibility to treat wastewater from natural gas operations, which in turn restricts the natural gas industry’s access to adequate and reliable treatment capacity. The Department should allow each POTW to determine, on a case by case basis, the maximum TDS concentration it can handle without impairing treatment.

**Department Response**

See response to Comment 13. The treatment processes in POTWs are well understood and involve similar mechanisms; that is, biologically-induced oxidation of organic material by heterotrophic bacteria, and nitrification of ammonia by nitrifying bacteria. The effect of the pollutants in natural gas wastewater on these treatment processes also is well understood. Requiring a customized solution for each POTW is unnecessary and would potentially be burdensome to the permittee. Smaller POTWs may not have the budget or the staff to perform the studies required. The Department already has considerable experience in this area and permittees should benefit from that experience, rather than having to reinvent the wheel.

**59. Comment**

(Page 4): “Examples of TDS loadings where the requirements of §95.10 generally do not apply are noncontact cooling water, or stormwater that does not come into contact with industrial materials and activities as described in §92a.32(b).” PCA supports the Department’s revision to include this clarification. (20)

**Department Response**

None required.

**60. Comment**

(page 13) “If the discharge has an existing mass loading, the existing mass loading will no longer be applicable if the variance is approved.”

PCA supports the opportunity for a permittee to obtain a variance from the Department. However, PCA does not support the Department’s proposed language that if a variance is approved and later qualified or revoked, the existing mass loading would be newly subject to the requirements of 25 PA CODE § 95.10. These existing mass loadings should not be at risk if a variance is determined to be no longer applicable by the Department. As such, we request the Department delete this statement from the Guidance. (20)

**Department Response**

Once the permittee has successfully obtained a variance, there is no longer any need for the existing mass loading determination and it would be burdensome to require the Department to continue to track loadings against it. The scenario that the commentator postulates, involving a lessening or a revocation of a variance, would only be performed as a result of a water quality-based restriction or determination. A water quality-based restriction or determination would apply even if the existing mass loading was still in effect.

**61. Comment**

(Page 14): “Osmotic pressure (mOsm/kg) \* 34 = TDS (mg/L)”

All species of fish and other aquatic life must tolerate a range of dissolved solids concentrations in order to survive under natural conditions and fish adapt to high TDS concentrations by adjusting their internal osmotic potential. PCA requests that the Department explain the scientific basis for the conversion factor of 34 and include the literary cites for the documents used in developing this conversion factor.

**Department Response**

This conversion factor is a “rule of thumb” surrogate relationship based on previous experience and laboratory testing. The Department considers it reasonable for the purpose advanced in the guidance, but the guidance provides that the permittee may choose to collect ambient osmotic pressure data if the permittee so desires.