BOROUGH OF TARENTUM

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MEMORANDUM

TO: Borough Council, Mayor, Acting Water Plant Manager
FROM: Dwight Boddorf, Borough Manager
DATE: November 10, 2026
RE: Water System Fluoridation: Operational Considerations, Employee Safety, Financial Impacts, and Recommendation

This memorandum provides an evaluation of the Borough's continued use of fluoride in its drinking water treatment process, outlines the operational and financial implications of maintaining or discontinuing fluoridation, and recommends a course of action based on infrastructure conditions, employee safety, regulatory considerations, and responsible water system management.

Background

The Borough of Tarentum has historically added fluoride to its drinking water as a public health measure intended to reduce tooth decay. Community water fluoridation has been widely used throughout Pennsylvania and the United States for decades, and public health organizations continue to recognize its dental health benefits. However, continued fluoridation requires specialized equipment, chemical purchases, ongoing maintenance, employee handling of hazardous substances, and compliance with chemical storage and treatment requirements.

Tarentum's existing fluoride feed equipment is approximately **50 years old** and requires replacement. This presents Council with an opportunity to evaluate whether continued investment in the fluoridation process remains appropriate given the Borough's existing infrastructure priorities and operational responsibilities.

On October 28, 2026, Gibson-Thomas Engineering provided a written recommendation supporting discontinuation of fluoridation, citing the significant hazards associated with handling concentrated fluoride chemicals. The question before Council is not whether fluoride has recognized dental benefits. Rather, it is whether the Borough should continue operating, maintaining, and investing in this particular treatment process given its costs, risks, and infrastructure requirements.

Current Operational Considerations

1. Aging Infrastructure and Equipment Replacement

The Borough's fluoride feed equipment is approximately five decades old and has reached the point where replacement is necessary. Continuing fluoridation would require a capital investment in new equipment and potentially associated chemical storage, containment, and safety improvements.

While replacement costs have not yet been finalized, the Borough would be committing additional resources to a treatment process that requires continued expenditure well beyond the initial purchase.

2. Employee Safety and Chemical Handling

Employee safety is among the most significant considerations. Fluoride is introduced into the treatment process through concentrated chemicals that are substantially more hazardous in their undiluted form than the concentrations ultimately present in drinking water.

In its October 28 letter, Gibson-Thomas Engineering identified the concentrated acid used in the fluoridation process as one of the most dangerous chemicals Borough operators handle. The engineer noted that even small spills or skin contact can cause severe chemical burns.

Continuing the process requires employees to receive, handle, store, monitor, and maintain equipment containing these chemicals. Although appropriate training, protective equipment, and engineering controls can reduce exposure risks, they cannot eliminate them.

3. DEP Chemical Storage Concerns
The Pennsylvania Department of Environmental Protection has identified concerns regarding the Borough's fluoride chemical storage arrangement, including the need to isolate fluoride from other treatment chemicals because of potentially hazardous chemical interactions.

This is particularly important in a water treatment facility where multiple substances are used for disinfection and other treatment processes. Failure to properly segregate incompatible chemicals can create risks involving accidental mixing, chemical reactions, harmful fumes, and employee exposure.

Maintaining fluoridation would therefore require the Borough to address DEP's concerns through acceptable chemical separation, storage arrangements, and any necessary facility modifications. These concerns exist independently of the age of the fluoride feed equipment.

4. Chemical Availability and Supply Reliability
Availability of fluoridation chemicals has become an additional operational concern.

Pennsylvania water utilities have experienced supply disruptions involving fluoride treatment chemicals, creating uncertainty regarding availability, procurement, and continuity of operations. For a smaller municipal water system, maintaining a specialized chemical treatment process during periods of limited supply creates additional administrative and operational challenges.

5. Ongoing Financial and Maintenance Obligations

Beyond equipment replacement, continued fluoridation requires recurring expenditures for:

- Fluoride chemical purchases and deliveries
- Routine maintenance and equipment repairs
- Chemical feed equipment calibration and monitoring
- Employee training and protective equipment
- Chemical storage, containment, and safety compliance
- Future replacement of equipment and related components

These expenditures must be considered alongside the Borough's broader water infrastructure obligations, including aging distribution mains, storage improvements, treatment reliability, and other capital needs. Each additional treatment process consumes resources that could otherwise support the Borough's core water system infrastructure.

Public Health Considerations

Community water fluoridation provides recognized dental health benefits, particularly in preventing tooth decay and providing broad access to preventive treatment. These benefits deserve acknowledgment in Council's decision.

At the same time, fluoride is now available through other sources, including fluoridated toothpaste, professional dental treatments, and other dental care products.

These alternatives do not necessarily provide the same universal access as fluoridated drinking water, particularly for residents with limited access to dental services.

Discontinuing fluoridation therefore involves a legitimate public health tradeoff, even though it would not eliminate the Borough's ability to provide drinking water that meets applicable primary drinking water standards.

The Borough's recommendation is based on the practical operation of its water treatment facility and is not a determination that properly fluoridated drinking water is unsafe.

Options and Impacts

Option A – Continue Fluoridation

Under this option, the Borough would maintain fluoride addition as part of its drinking water treatment process.

Operational impact:

- Requires replacement of the approximately 50-year-old fluoride feed equipment.
- Requires addressing DEP's chemical segregation and storage concerns.
- Preserves the existing treatment process and associated monitoring requirements.
- Continues employee responsibilities involving concentrated hazardous chemicals.
- Maintains dependence on fluoride chemical availability.

Financial impact:
Requires initial capital expenditures for equipment replacement and any necessary storage or safety improvements, followed by continuing chemical, maintenance, and operational expenses.

Community impact:
Preserves the dental health benefits associated with community water fluoridation, including benefits for residents who may have limited access to other preventive dental care.

Option B – Discontinue Fluoridation (Recommended)

Under this option, Council would authorize the Borough to pursue permanent discontinuation of fluoride addition, subject to DEP approval and applicable public notification requirements.

Operational impact:

- Eliminates the need to replace the aging fluoride feed equipment.
- Removes an ongoing source of hazardous chemical handling for water plant employees.
- Eliminates the fluoride-specific chemical storage issue identified by DEP once the chemical is properly removed from the facility.
- Reduces the number of chemical processes requiring routine maintenance and monitoring.
- Eliminates reliance on fluoride chemical deliveries.
- Simplifies aspects of plant operation and chemical management.

Financial impact:
Avoids the capital expense of replacing the fluoride feed system and associated long-term chemical and equipment costs. Some initial costs would remain for permitting, equipment decommissioning, and proper disposal of existing chemicals.

Community impact:
Residents would no longer receive the additional dental health benefits provided by fluoride added to the municipal water supply. Residents could continue obtaining fluoride through toothpaste, professional dental treatments, and other preventive dental care.The Borough would continue to operate its drinking water treatment system in accordance with applicable state and federal standards.

What Discontinuing Fluoridation Does, and Does Not, Do

Discontinuing fluoride addition:

- Does not eliminate the Borough's obligation to provide safe, compliant drinking water.
- Does not eliminate existing water treatment or disinfection requirements.
- Does not mean that properly fluoridated drinking water is inherently unsafe.
- Does not eliminate the dental health benefits associated with fluoride exposure.

However, it does:

- Avoid a significant upcoming equipment replacement.
- Remove an identified chemical-handling hazard from routine plant operations.
- Provide a practical resolution to fluoride-specific chemical storage concerns.
- Reduce recurring operating and maintenance obligations.
- Reduce dependence on a specialized chemical supply chain.
- Allow limited water utility resources to be concentrated on essential treatment, distribution, and infrastructure improvements.

Recommendation

Option B – Discontinue Fluoridation is recommended.

This recommendation is based primarily on operational practicality, employee safety, infrastructure condition, and the responsible allocation of municipal resources.

The Borough is facing a decision about whether to replace a 50-year-old chemical feed system, invest in related storage and safety improvements, and continue purchasing and handling a hazardous treatment chemical indefinitely. The Pennsylvania DEP's identified chemical storage concerns make this decision particularly timely. Gibson-Thomas Engineering has also provided its professional opinion that the hazards associated with concentrated fluoride handling do not justify continued addition and has recommended discontinuation.

While the dental health benefits of fluoride are acknowledged, the Borough must also evaluate whether maintaining this particular process is a prudent use of limited municipal resources. Our responsibility is to operate a safe, reliable, and financially sustainable water system while protecting the employees who operate it.

Continuing an existing practice solely because it has been done for decades is not, by itself, sufficient justification for substantial new capital investment and continued operational risk.

For these reasons, I recommend that Council authorize the Borough to pursue discontinuation of fluoride addition.

Regulatory Requirements and Next Steps

Discontinuation cannot occur solely through a Council decision. DEP considers complete removal of fluoridation a substantial modification requiring a major permit amendment before fluoridation ceases.

If Council concurs, staff recommends:

1. **Council Authorization:** Approve a motion directing the Borough Manager and Water Plant Director to begin the process of discontinuing fluoridation, subject to DEP approval.
2. **Public Hearings:** Public Hearings on the proposed removal are required. Hearings will notify water customers and medical professionals, explain the change and its reasons, and confirm the continued operation of the Borough's drinking water treatment system.
3. **DEP Coordination:** Work with Gibson-Thomas Engineering and DEP to prepare and submit the required permit amendment and address any additional regulatory conditions.

4. **Employee Safety:** Continue appropriate chemical handling and storage precautions while fluoridation remains in operation and until remaining chemicals are safely removed.
5. **Equipment Decommissioning:** Develop a plan to safely remove existing chemicals and decommission the fluoride feed equipment after regulatory authorization.
6. **Consumer Confidence Reporting:** Document the discontinuation in the Borough's next applicable annual Consumer Confidence Report.

Until DEP authorization is obtained and all required conditions have been satisfied, the Borough must continue operating in accordance with its existing permit.

Conclusion

This is an infrastructure and operational management decision with an acknowledged public health tradeoff.

The Borough can either invest additional capital into an aging fluoridation system and continue assuming its associated maintenance, chemical supply, and employee safety responsibilities, or pursue a permitted discontinuation that simplifies operations and reduces long-term obligations.

Given the equipment's age, the DEP's chemical storage concerns, the hazards of handling concentrated fluoride chemicals, and the Borough's broader infrastructure needs, **discontinuation is the more practical and sustainable long-term option.**

Thank you,

Dwight Boddorf,
Borough Manager