2021 DRINKING WATER QUALITY REPORT



FREEDOM TOWNSHIP WATER AND SEWER AUTHORITY



We are pleased to present to you our **Annual Drinking Water Quality Report** for the 2021 operating year. This report provides you with information about the quality of water and the services we deliver to you every day. Our constant goal is to provide you with a dependable supply of drinking water that meets or exceeds state and federal water quality drinking water health standards.

WATER SOURCE:

The Freedom Township Water and Sewer Authority's water system (Public Water Supply ID Number 4070034) is a consecutive system of the Altoona Water Authority (AWA) water system, which means we purchase our treated water from the AWA for distribution to our customers in the Freedom Township Water and Sewer Authority (FTWSA) system. The primary source of supply for the water provided to the Authority's water system originates from two surface water reservoirs: the Muleshoe Reservoir, which is owned by the Hollidaysburg Borough Authority; and the Plane Nine Reservoir, which is owned and operated by the Altoona Water Authority. Both reservoirs are located on Cresson Mountain in Juniata Township, Blair County. The Plane Nine Reservoir is situated along the south side of Old Rt. 22, approximately 3 miles west of Duncansville. The Muleshoe Reservoir is located upstream from the Plane Nine Reservoir, in a forest area approximately 1/4 mile south of Old Rt. 22, just past the Muleshoe overpass of Old Rt. 22. Raw (untreated) water is drawn from both reservoirs and is blended, filtered and treated at the AWA Plane Nine Filtration Plant. The Plane Nine Plant is located immediately below the Plane Nine Reservoir. The treated water is then pumped into the transmission system for distribution to, and consumption by, both the customers of the AWA system and the FTWSA system.

Water entering the Plane Nine Treatment plant is first treated with ozone to destroy bacteria and other organisms, such as *Giardia* and *Cryptosporidia*, and to reduce other organic materials that naturally occur in the water. The water is then passed through sand filters to remove sediment and other particles. The filtered water is then treated with a corrosion inhibitor to reduce its ability to react with the water distribution pipes and customers' plumbing systems. Finally, chlorine is applied to the water to provide disinfection of the water during its travels through the distribution system and into our customer's plumbing systems. Because the FTWSA water system is inter-connected to the AWA water distribution system, water is also available, during times of emergency and drought, from the many other sources of the AWA, including several surface water reservoirs within the AWA system. Since there is a potential for water to be provided to the FTWSA system from these alternative sources and since water may potentially pass through the interconnection, results of analysis conducted on these other sources of supply, have also been provided in this report.

SOURCE WATER ASSESSMENT:

A source water assessment of the Plane Nine and Muleshoe Reservoir intakes, which supply water to the Plane Nine Filtration Plant, was completed in 2003 by the PA DEP. The assessment has found that the intakes are potentially susceptible to a high risk of significant contamination from railroad tracks, transportation corridors and illegal dumping, and a little-to-high risk from surface coal mining, abandoned mine land and natural gas wells within the respective watershed areas. A Source Water Assessment and Protection Plan was also completed for the entire AWA watershed system in 2004 by AWA's consulting engineer. A summary of the PA DEP Source Water Assessment report is available in the eLibrary page on the DEP website at www.depgreenport.state.pa.us/elibrary/GetFolder.aspx?FolderID=4490. Copies of the complete report are also available from the DEP Southcentral Regional Office, Records Management Unit at (717) 705-4732 or from the AWA at 814-944-2320.

WATER QUALITY AND HEATH RELATED ISSUES:

The Freedom Township Water and Sewer Authority routinely monitors for constituents in your drinking water according to Federal and State laws. In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (EPA) and Pennsylvania Department of Environmental Protection (DEP) prescribe regulations which limit the amounts of contaminants in water provided by public systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health. These agencies require monitoring of the water to ensure that your drinking water does not exceed certain Maximum Contaminant Levels (MCL's). These MCL's are set at very stringent levels for the protection of public health.

All sources of drinking water are subject to potential contaminants that are naturally occurring or man-made. Those contaminants can be microbes, organic or inorganic chemicals, or radioactive materials. Drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791. The sources of drinking water, including both tap and bottled water, include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or though the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural operations, and wildlife.
- **Inorganic Contaminants,** such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides,** which may come from a variety of sources such as agriculture, stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organics, which are by products of industrial
 processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic
 systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population.

Immuno-compromised persons such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advise about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

WATER QUALITY INFORMATION - The FTWSA and the AWA routinely monitor, and test, for contaminants in your drinking water according to Federal and State laws. The following table shows the results of monitoring conducted by either the FTWSA or the AWA for the period of January 1st to December 31st, 2021 and shows results for every regulated contaminant detected in the water, even in the minutest traces. Some of the data in the table may be from test results obtained from prior years, in accordance with the Safe Drinking Water Act, and these dates are noted on the table where applicable. Concentrations of such contaminants do not change frequently in the source water and annual monitoring is not necessary to safeguard the quality of water. The table also contains the nature of each substance, the highest level allowed by regulation, the ideal goals for public health the amount detected and the usual sources of contamination. In this table you will find many terms and abbreviations you might not be familiar with. Please refer to the Glossary on the back of the table page to help you better understand these terms and abbreviations. It should also be noted that many additional contaminants have been tested for during 2021 which were not detected to be present in the water and have been listed following the table page.

			DETECTED	REGULA	TED CONTAI	MINANTS TAE	BLE	
Contaminant (Unit of Measure)	MCL	MCI		st Level ected	Range of Detections	Sample Period	Violation (Yes/No)	Likely Source of Contamination
			Turbidi	ty [AWA E	ntry Point Water	r Sampling]		
Turbidity (NTU) [AWA Water Treatment System Entry Points – all sources]	TT = 0.3 sing measuremen			TU	0.01 to 0.15 NTU	2021 (10/30/21) highest)	No	Soil Runoff
	TT = at least 95% of month samples ≤ 0.	t ly	100%	monthly es ≤0.3	N/A	2021	No	Son Runon
	Disinfed	tion Resid	duals and Dis	infection	Byproducts [nts and FTWS	A Distribution System Sampling as noted]
Chlorine (ppm) [FTWSA Distribution System]	MRDL = 4	MRDL 4		68	0.54 to 1.68	2021 (December highest)	No	Water additive used to control microbes
Chlorine (ppm) [All AWA Entry Points Combined]	ntry Points NA		4 1	38 st level)	0.38 to 2.11	2021 (10/5/21 lowest)	No	Water additive used to control microbes
Total Trihalomethanes (ppb) [FTWSA Distribution System]	80 0		58	3.6	58.6 (One sample only)	9/2/21	No	By-product of drinking water chlorination
Haloacetic Acids (ppb) [FTWSA Distribution System]	60	0	10).5	10.5 (One sample only)	6/3/21	No	By-product of drinking water disinfection
		In	organic Cont	aminants	[AWA Entry Po	oint Water Sam	oling]	
Barium (ppm)	2.0	2.0	0.0	417	0.0242 to 0.0417	2021	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Bromate (ppb)	10	10		14 st RAA)	ND to 2.8	2021	No	By-product of drinking water chlorination
		Volat	tile Organic C	ontamin	ants [AWA Entr	y Point Water S	Campling]	
Ethylbenzene (ppm)	0.7	0.7	7 0.0	112	0 to 0.0112	2021	No	Found in solvents, paints, ink, and rubber
Xylene (Total) (ppm)	10	10		911	0 to 0.0911	2021	No	Found in ink, rubber, and adhesives
		Synthe	etic Organic Ch	emicals (SOCs) [AWA En	try Point Water	Sampling]	
			N	O SOC's	DETECTED in 2	2021		
	1	Unregul	ated Contami	nants [Al	VA Entry Point 1	17 & 119; Distr	ibution Sites]	
Manganese (ppb)	NA	N/	A 2	04	3.06-204	2020	No	Erosion of naturally occurring mineral deposits; Mining & industrial wastes
HAA5 (ppb)	NA I		A 38.6		2.72-38.6	2020	No	Unknown
HAA6Br (ppb)	NA		A 5.71		0.87-5.71	2020	No	Unknown
HAA9 (ppb)	NA NA		43.8		3.23-43.8	2020	No	Unknown
TOC (ppb)	NA	N/	A 23	320	887-2320	2020	No	Naturally present in environment
				per [FTV	/SA Distribution	System Sampli	ng]	
Contaminant	Action Level (AL)	MCLG	90 th Percentile Value		s Above AL of otal Sites	Sample Date	Violation (Yes/No)	Source of Contamination
Copper (ppm)	1.3	1.3		No sites were above AL out of 10 sites tested		August 2019	No	Corrosion of Household Plumbing
		1	Total Organic	Carbon	AWA Water Ti	reatment Syste	em]	
Contaminant	Range of % removal required		Range of % removal achieved		Number of Quarters Out of Compliance		Violation (Yes/No)	Source of Contamination
Total Organic Carbon	35		16 to 37		None - Met alternative compliance criteria (2021)		No	Naturally present in the environment

AWA Raw Water Quality Table

Microbial Contaminants

Contaminant Name	Highest Level Detected	Range of Detection	Sample Period	Violation (Yes or No)	Likely Source of Contamination in Drinking Water						
Cryptosporidium	0.1	ND to 0.1	2015-2018	No	Naturally present in the environment						
E. Coli Bacteria	78.2	1 to 78.2	2015-2018	No	Human and animal fecal waste						
Turbidity											
Turbidity (all AWA sources)	9.19 (Mill Run Reservoir 9/1/21)	1.05 to 9.19 NTU	2021	No	Soil runoff						

Raw Water Quality Table Notes:

The Altoona Water began testing its raw (untreated) water sources for *E. coli* & *Cryptosporidium* in late 2015 to comply with the LT2 Enhanced Surface Water Treatment Rule. Testing was continued through 2017 and was completed in February 2018. All results have been within normal, expected ranges. *Cryptosporidium* is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100% removal. Current test methods are unable to determine if organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water. The AWA has treatment processes in place at each of its treatment facilities that have been designed to remove these contaminants from the raw water prior to the release of the treated water to the distribution system. The AWA treatment facilities use ozonation, filtration and chlorine disinfection to ensure that these constituents are inactivated and removed. The PA DEP also conducts Filter Plant Performance Evaluations at all the AWA facilities on a regular basis and has never found *Cryptosporidium* in the finished water provided to our system.

Supplemental Information Regarding Lead in Drinking Water

Lead was not present at detectable levels in any of the ten samples collected from the FTWSA distribution system. However, if present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The FTWSA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at: http://www.epa.gov/safewater/lead.

Additional Testing:

Additional contaminants are regulated and are also routinely tested for, but are not present at detectable limits. Additional contaminants including Volatile Organic Compounds (VOCs), Synthetic Organic Chemicals (SOCs) and Inorganic Compounds (IOCs) were tested for in 2021 by the AWA and, except for Barium, Bromate, Ethylbenzene and Xylene (total), were **not detected** in the water system. During 2021, the FTWSA also sampled and tested water in its distribution system for presence of total coliform bacterial and no coliform bacteria were found to be present in any samples analyzed. Lead was tested for in the FTWSA distribution system in 2019 and was not detected in any samples collected. Lead, and copper, will be tested in 2022.

Violations:

Freedom Township Water and Sewer Authority - None.

Altoona Water Authority – Various. See AWA CCR link: https://www.altoonawater.com/consumer-confidence-reports

- GLOSSARY OF TERMS USED IN THIS REPORT AND WATER QUALITY TABLES-

- **AWA** Altoona Water Authority **FTWSA** Freedom Township Water and Sewer Authority
- AL Action Level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- CDC United States Centers for Disease Control; DEP Pennsylvania Department of Environmental Protection
- **MCL** Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology
- **MCLG** Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- MinRDL- Minimum Residual Disinfection Level The minimum level of residual disinfectant required at the entry point to the distribution system
- **MRDL** Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG** The level of a drinking water disinfectant below which there is no known or expected risk to health. MDRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
- N/A Not Applicable ND Non-Detects. Laboratory analysis indicates the contaminant is not present at a detectable level.
- **NTU** Nephelometric Turbidity Unit. Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- ppm Parts per million or milligrams per liter (mg/l). ppb Parts per billion or micrograms per liter (µg/L).
- TT Treatment Technique A required process intended to reduce the level of contaminant in drinking water.

Turbidity - The measurement of cloudiness of the water. We monitor turbidity because it is a good indicator of the effectiveness of filtration.

- PLEASE CONSERVE OUR WATER RESOURCES -

The Freedom Township Water and Sewer Authority requests that customers conserve our water resources by conserving water in the home and at places of work. Efficient water use can have major environmental, public health, and economic benefits by helping to improve water quality, maintain aquatic ecosystems, and protect drinking water resources. Efficient use of water, through behavioral, operational, or equipment changes, if practiced broadly can help mitigate the effects of drought. Efficiency measures can also save the homeowner money on their water and energy bills. The following facts, tips and suggestions were obtained from *Thinkh2onow* and the EPA *Watersense* websites and can help you conserve water, save money and protect and preserve our water resources. For many more water saving tips and water conservation resources, please visit their websites at www.epa.gov/watersense.

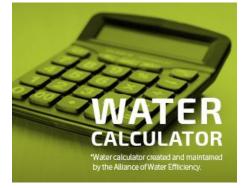
Water Conservation Facts

- 1. Less than 2% of the Earth's water supply is fresh water.
- 2. Of all the earth's water, 97% is salt water found in oceans and seas.
- 3. Only 1% of the earth's water is available for drinking water. Two percent is frozen.
- 4. The human body is about 75% water.
- 5. A person can survive about a month without food, but only 5 to 7 days without water.
- 6. Every day in the United States, we drink about 110 million gallons of water.
- 7. Showering and bathing are the largest indoor uses (27%) of water domestically.
- 8. If every household in America had a faucet that dripped once each second, 928 million gallons of water a day would leak away.
- 9. A leaky faucet can waste 100 gallons a day.
- 10. One flush of the toilet uses 3 ½ gallons of water (on average).
- 11. An average bath requires 37 gallons of water.
- 12. An average family of four uses 881 gallons of water per week just by flushing the toilet.
- 13. The average 5-minute shower takes 15-25 gallons of water--around 40 gallons are used in 10 minutes.

- 14. You use about 5 gallons of water if you leave the water running while brushing your teeth.
- 15. If you water your grass and trees more heavily, but less often, this saves water and builds stronger roots.
- 16. An automatic dishwasher uses 9 to 12 gallons of water while hand washing dishes can use up to 20 gallons.
- 17. Approximately 1 million miles of pipelines and aqueducts carry water in the U.S. & Canada. That's enough pipe to circle the earth 40 times.
- 18. About 800,000 water wells are drilled each year in the United States for domestic, farming, commercial, and water testing purposes.
- 19. You can refill an 8-oz glass of water approximately 15,000 times for the same cost as a six-pack of soda pop.
- 20. A dairy cow must drink four gallons of water to produce one gallon of milk.
- 21. 300 million gallons of water are needed to produce a single day's supply of U.S. newsprint.
- 22. One inch of rainfall drops 7,000 gallons or nearly 30 tons of water on a 60' by 180' piece of land.
- 23. A gallon of gasoline takes nearly 13 gallons of water to produce. Combine your errands, car pool to work, or take public transportation to reduce both your energy and water use.
- 24. A cross-country airplane trip (about 6,000 miles) could be worth more than 1,700 standard toilet flushes.
- 25. According to recent reports, nearly 5% of all U.S. water withdrawals are used to fuel industry and the production of many of the material goods we stock up on weekly, monthly, and yearly.
- 26. It takes about 100 gallons of water to grow and process a single pound of cotton, and the average American goes through about 35 pounds of new cotton material each year.
- 27. Try http://www.home-water-works.org/calculator

Other Resources:

- American Water Works Association (http://www.awwa.org/)
- Green Plumbers (http://www.greenplumbersusa.com/)
- <u>Earth Easy</u> (http://eartheasy.com/water-conservation)
- Alliance for Water Efficiency (http://www.allianceforwaterefficiency.org/)
- EPA Water Sense (http://www.epa.gov/watersense/)
- <u>USGS Water</u> (http://www.usgs.gov/water/)



Save Indoors



You've purchased some <u>WaterSense labeled products</u> and started down the road to savings, but don't stop there. There are lots of things you can do in your own home to reduce water use and get more from less. Just follow our simple tips below to get started!

Fix a leak:

Small household leaks can add up to gallons of water lost every day. That's why WaterSense reminds Americans to check their plumbing fixtures and irrigation systems each year in March during Fix a Leak Week.

In the bathroom—where over half of all water use inside a home takes place:

- Turn off the tap while shaving or brushing teeth.
- Showers use less water than baths, as long as you keep an eye on how long you've been lathering up. Learn tips on how to Shower Better.
- If you're dreaming of a Better Bathroom, get ready for your mini-makeover.
- Calculate how much you can save with WaterSense labeled products in the bathroom!

In the kitchen—whip up a batch of big water savings:

- Plug up the sink or use a wash basin if washing dishes by hand.
- Use a dishwasher—and when you do, make sure it's fully loaded!
- Scrape your plate instead of rinsing it before loading it into the dishwasher.
- Keep a pitcher of drinking water in the refrigerator instead of letting the faucet run until the water is cool.
- Thaw in the refrigerator overnight rather than using a running tap of hot water.
- Add food wastes to your compost pile instead of using the garbage disposal.

In the laundry room—where you can be clean AND green:

- Wash only full loads of laundry or use the appropriate water level or load size selection on the washing machine.
- To save money on your energy bills, set your washing machine to use cold water rather than hot or warm water.

Save Outdoors

Of the estimated 29 billion gallons of water used daily by households in the US, nearly 9 billion gallons, or 30 percent, is devoted to outdoor water use. In the hot summer months, or in dry climates, a household's outdoor water use can be as high as 70 percent.

- Create a water-smart landscape that is both beautiful and efficient to give your home the curb appeal you desire.
- Timing is everything! Knowing when and how much to water allows you to keep a <u>healthy landscape</u>.
- Upgrade to a WaterSense labeled controller if you have an in-ground irrigation system.
- Find a certified irrigation professional to install, maintain, or audit your irrigation system to ensure it is watering at peak efficiency.
- Sweep driveways, sidewalks, and steps rather than hosing off.
- Wash the car with water from a bucket, or consider using a commercial car wash that recycles water.
- If you have a pool, use a cover to reduce evaporation when the pool is not being used.
- Take action during the <a href="https://example.com/https://exam
- If a <u>drought</u> is declared in your area, go the extra mile to save water.

Save Energy

It takes a lot of energy to deliver and treat the water you use every day for bathing, shaving, cooking, and cleaning. Homes with electric water heaters, for example, spend one-quarter of their electric bill just to heat water. As an example, letting your faucet run for five minutes uses about as much energy as letting a 60-watt light bulb run for 14 hours.

Drops & Watts: You Can't Have One Without the Other

On average, the annual energy used to deliver and treat water for only 10 households could power a refrigerator for more than two years. In some areas of the country, that estimate is very low. Heating water for showering, bathing, shaving, cooking, and cleaning also requires a considerable amount of energy. Homes with electric water heaters, for example, spend one-fourth of their total electric bills.

Did you Know?

It also takes water to create energy. Vast amounts of water are used to cool the power plants that generate electricity. In fact, it takes 3,000 to 6,000 gallons of water to power a 60-watt incandescent bulb for 12 hours per day over the course of a year. One of the simplest ways to save both water and energy is to install water-efficient products. WaterSense labeled products not only save water, but can help reduce your energy bills. Installing WaterSense labeled faucet aerators in your bathrooms, for example, costs just a few dollars but could save you enough electricity to dry your hair every day for a year! You can be sure the products will not only save resources, but will perform well. All WaterSense labeled products are tested and independently certified to ensure they meet EPA's criteria for both efficiency and performance.

Please help us find leaks, save water and reduce water service costs... Because water lines are located underground, leaks may go unnoticed for days and even years resulting in a considerable waste of our valuable water resource and additional costs for all customers. Please help us locate these leaks by reporting to the Water Department any occurrences of: water running in locations that are normally dry; wet spots in yards and streets; the sound of water running in your home when water is not in use; the sound of water trickling or running in a storm inlet when it is not raining; sudden or unusually low water pressure; and slugs of discolored or cloudy water. When an occurrence such as this is reported, a representative of the water department will make contact and investigate the situation.

Freedom Township Water & Sewer Authority 131 Municipal Street East Freedom, PA 16637 FIRST CLASS U.S. POSTAGE PAID PERMIT NO. 249 ALTOONA, PA

FREEDOM TOWNSHIP WATER AND SEWER AUTHORITY



2021 DRINKING WATER REPORT

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

This report contains important information about your drinking water.

Translate it or speak with someone who understands it.

How to Contact Us: We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the third Tuesday of each month, at 7 PM, in the Freedom Township Municipal Building located at 131 Municipal Street in East Freedom, PA. If you have any questions about this report, or questions concerning the Freedom Township Water and Sewer Authority or the water system in general, you may contact: Mr. Rick Miller, Freedom Township Water and Sewer Authority, 131 Municipal

Street, East Freedom PA 16637. Phone: (814) 695-8051 - Weekdays from 8 AM to 3 PM or ftwsa@atlanticbb.net.