State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
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Wausau WI 54401

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August 1, 2017

PWS ID#: 70101086
Rome Water Utility-MC
Nekoosa, WI
Adams County

Rome Water Utility
299 Leisure Lane
Nekoosa, WI 54457-8151

Subject: 2017 Sanitary Survey Report for the Rome Water Utility

The purpose of a sanitary survey is to evaluate the water system's source, facilities, equipment, operation, maintenance, and management as they relate to providing safe drinking water. The sanitary survey is also an opportunity to update the Department's records, provide technical assistance, and identify potential risks that may adversely affect drinking water quality.

On 07/13/2017, I conducted a sanitary survey of your water system, Rome Water Utility. During the sanitary survey Chad Ziegler was present. At the completion of the survey, Chad was briefed on the preliminary findings. This report outlines the final findings, discusses problems that need to be addressed, and timelines for corrective action where appropriate.

The Utility is commended for the excellent water system operations, it is obvious that utility staff take great pride in their work. No deficiencies were discovered during the survey, however a number of recommendations are outlined in this report that should improve your system. Please review these recommendations and implement them as time and funding allow.

Significant Deficiencies
During the course of the sanitary survey, 0 significant deficiencies were identified. Significant deficiencies represent an immediate health risk to consumers and indicate noncompliance with one or more Wisconsin Administrative Codes. As such, the deficiencies listed below should be corrected as soon as possible.

Significant Deficiency	Compliance Due Date	Code Citation
None		

Deficiencies
During the course of the sanitary survey, 0 deficiencies were identified. Deficiencies indicate noncompliance with one or more Wisconsin Administrative Codes and/or are problems in the drinking water system that have the potential to cause serious health risks or represent long-term health risks to consumers. Corrective action should be completed for these deficiencies as soon as possible. If there were any significant deficiencies identified above, those should be given highest priority.

Deficiency	Compliance Due Date	Code Citation
None		

Water System Summary Information
System ID: 70101086
System Name: ROME WATER UTILITY
County: Adams
Type: Municipal Community
Basin:
Population: 2775
Service Connections: 1150
Owner: ROME WATER UTILITY
299 LEISURE LANE
Nekoosa, WI 54457-8151
(715) 325-2600 Fax: (715) 325-2620 rwoffice@scacable.com
Date Security VA Complete:
Date ERP Complete: 07/01/2004
Date ERP Last Exercised/Updated: 07/03/2017
Emergency Phone: (715) 572-4871
Emergency Fax: (715) 325-2620
Emergency E-mail: rwsup@scacable.com

Certified Operators

Name	Lic. #	Expires	Phone/Fax/E-mail	Address 1	Address 2	City, State, Zip
CHAD ZIEGLER	32703	11/01/2019	(715) 325-2600 ext. 2 rwsup@scacable.com	299 LEISURE LANE		NEKOOSA, WI 54457

Affiliations

Name	Affiliation	Start Date	End Date	Primary?	Phone
CHAD ZIEGLER	SAMPLER	01/01/1960		Y	715-572-4871
ROME WATER UTILITY	PLAN_CON	08/14/2006		Y	715-325-2600
ROME WATER UTILITY	OWNER	01/01/1960		Y	715-325-2600
CHAD ZIEGLER	EMERGENCY	11/19/2001		Y	715-572-4871
GLENN FALKOWSKI	DNR_REP	10/09/2006		Y	715-359-5284
CHAD ZIEGLER	PLAN_CON	02/06/2007		N	715-572-4871

Entry Points and Sources of Water (Basic Data)

Source ID	Name	WUWN	Status	Type	Source	Depth	Cased	Grouted
1	WELL 1: EMERGENCY STATUS	BP966	Active	ENTRY PT/SOURCE	Ground Water Source	80	60	51
2	WELL 2: EMERGENCY STATUS	AY368	Active	ENTRY PT/SOURCE	Ground Water Source	85	60	80
3	Well 3	OV251	Active	SOURCE OF WATER	Ground Water Source	83	62.5	82.5
4	Well 4	SB752	Active	SOURCE OF WATER	Ground Water Source	84	64	84
99	DUPLICATE WELL ADDED WHEN THE		Reconstructed Well	SOURCE OF WATER	Ground Water Source	85		

Recommendations

During the course of the sanitary survey, 7 recommendations were identified. Recommendations are suggestions the utility should consider to improve the services provided or indicate actions necessary to avoid future deficiencies.

Recommendation
1. Well 1 and 2 and the associated equipment should be physically disconnected from the system and properly filled and sealed.
2. Updated monitoring site plans should be submitted to reflect the recent changes to the monitoring inventory.
3. The emergency operations plan should be practiced on a routine basis.
4. A fully certified back-up operator is strongly encouraged.
5. Unidirectional flushing techniques should be used wherever practicable.
6. The cross connection ordinance language should be updated to reflect current code references.
7. There is an isolated service area(s) in the distribution system which is of concern.

Discussion of Recommendations:

- Wells 1 and 2 both contain concentrations of nitrates over the maximum contaminant level of 10 ppm. These wells were removed from service due to elevated nitrates in 2007 when Wells 3 and 4 were placed into service. An extended well abandonment agreement was issued for these wells in 2007 that was renewed in 2013 and will expire in July of 2018. The reason for the well abandonment agreement was to allow the town of Rome time to determine if the nitrate in the wells would decrease over time or if sanitary sewer would be developed in the town to allow nitrate treatment for these wells to become cost effective. It has been 10 years and neither of these events has occurred or is likely to occur in the foreseeable future. Water usage stabilized with the installation of service meters and it is much more likely that if additional source capacity would be needed in the future, the water would come from new wells developed in areas less likely to have high nitrate concentrations. Keeping Wells 1 and 2 represents a cost with no benefit. The buildings, well pumps, hydropneumatic tank and ground reservoir need to be heated and maintained and the wells sampled periodically in accordance with the extended well abandonment agreement. Unless the town can demonstrate that the wells will be utilized in the future, the extended well abandonment agreement will not be renewed in 2018 and the town will need to fill and seal the wells within 90 days of the agreement expiration. Cost estimates for the filling and sealing of these wells and the physical separation of these components from the system should be determined so that funding can be budgeted for this project.
- Several monitoring sites have been added and a number of older sites inactivated since the last set of monitoring site plans were submitted to this department. The site plans need to be revised and the updated site plans for total coliform rule compliance, disinfection by-products compliance and lead and copper rule compliance submitted to this department as required.
- The Emergency Operations Plan (EOP) was updated in July of 2017, but has never been practiced. All communities are required to maintain an EOP to prepare for, respond to, mitigate and recover from all types of emergency situations, both natural and manmade. It is important to keep the EOP updated and staff trained in all aspects of the plan. The entire EOP should be practiced as a table top or situational exercise to insure all aspects of the plan are tested. Many local fire and police departments are experienced in running practice scenarios, which could be easily adapted to involve the water utility and other municipal staff and decision makers. If local police or fire departments are not equipped to handle this type of training, consultants are available to assist in setting up and running a table top exercise. Your county emergency management office may also be able to assist in setting up a practice scenario. This should be done at least every other year to insure everyone is familiar with the workings of the Emergency Operations Plan. All the various parties involved should then get together to discuss what worked well, what did not work, and how the overall plan could be improved to handle the next emergency encountered. What measures can be taken ahead of time to save valuable time during the crisis period? How can communications be improved? What additional

training would benefit various staff members? An emergency response plan should be a dynamic model constantly improving over time.

- Currently Chad is the only certified operator on staff. While the code only requires that one certified operator be employed for each municipal system, the department strongly recommends that additional staff working with the water utility also become certified in each aspect of the utility operation. For Rome Water Utility there are 3 certification subclasses required: Groundwater (G), Distribution (D), and Oxidation / Filtration (I). Municipal systems are required to have an operator, certified in all subclasses of the utility, under employ at all times. If Chad were to leave for any reason, the utility would immediately be in violation for not having a certified operator and incur a treatment technique violation for not having a certified operator overseeing the continuous disinfection process. The utility is strongly encouraged to have at least one other operator certified in all aspects of the water utility operations.
- A flushing method referred to as Unidirectional Flushing is being promoted in the water industry to improve the overall process of removing debris from a water system through flushing. The concept involves maintaining a flow velocity of at least 5 feet per second through the section of water main being flushed. Experiments have shown that a velocity of 5 feet per second is capable of cleaning most debris and deposits from a water main system. To maintain an adequate velocity through the pipe network, sections of the main must be valved off to insure flow is moving through a single section of pipe. If a hydrant is being fed from two directions, even though the velocity may be 5 feet per second at the hydrant, the flow in the mains from each direction will only be 2.5 feet per second. When performed correctly, a unidirectional flushing program will provide a much better pipe scour using less water than a traditional flushing program. Chad uses unidirectional flushing in some of the problem areas of the system, but not in the majority of the system. The concern is that the system will become excessively riled up and dirty water complaints will increase substantially. This likely will occur during the initial year of the program, so a comprehensive public education campaign would need to precede any large flushing project. Given the prevalence of small diameter mains and the large number of dead ends, the utility should also consider bringing in a consultant experienced in developing unidirectional flushing programs to set up the initial program. Eliminating the iron and manganese deposits that have built up in the distribution system over time would improve the overall water quality of the system, allow the disinfection process to be more efficient and effective and improve valve and hydrant operation.
- The cross connection ordinance should be updated to reflect current code references. A model ordinance was sent to Chad via e-mail to help with this task.
- A single main serves the entire business park area west of the elevated reservoir. Should a main break occur in this line, the entire business park would be without water service. An alternate route should be considered in the future to eliminate this isolated service area, especially if development in this area continues.

Non-conforming Features

During the course of the sanitary survey, 2 features that met code requirements at the time of your public water system's construction, but would not be allowed in the current code were discovered. These are referred to as "non-conforming features." Though you are not required to correct these non-conforming features at this time, they will need to be corrected when any major work is done in the future.

Non-conforming Features
1. Chemical feed equipment is now required to have secondary containment.
2. Well vents are now required to be at least 2 inches in diameter.

Discussion of Non-conforming Features:

- All chemical feed tanks are now required to be housed in an area that provides containment for any chemical leaks or spills. The containment area must be capable of handling the entire volume of the chemical solution tank(s). The containment area may not include a floor drain. The chemical solution barrels are not currently equipped with secondary containment.

- Wells with vertical turbine pumps in casings over 10 inches in diameter are now required to be equipped with a well vent that is 2 inches in diameter or greater to insure adequate venting. The next time the pump is pulled for maintenance at Well 4, the well vent should be upgraded to the larger diameter.

System Summary

Rome Water Utility (RWU) was a private organization supplying water to members of the Lake Camelot Property Owner's Association since 1969. In 2006, RWU was purchased by the Town of Rome and is now a publically owned municipal water system. RWU is located in Adams County, approximately 14 miles south of Wisconsin Rapids. Much of the customer base is seasonal in nature consisting of properties located around Lake Camelot, with an estimated 1000 year round residents increasing 4-fold during the summer. The area continues to develop, adding residential customer base each year with some commercial development to the west near the intersection of Hwy 13 and CTH D.

The water supply is now owned by the Town of Rome with oversight of operations by the Rome Water Utility Commission. The utility includes the following: 2 active wells (Wells 3&4); an iron and manganese removal plant; chemical addition equipment for sodium permanganate, chlorine, ammonia sulfate, blended phosphates, and fluoride; a 250,000 gallon elevated reservoir and a distribution system. Both wells are routed through the treatment plant, but only one well can be treated at a time. Generally the wells are alternated, averaging a 2.5 hour run from each well in a 24 hour period to meet the average daily demand. Water usage in the system decreased dramatically once individual meters were installed on each service connection.

The wells are each currently operated at 400 gpm, reduced from their design capacities of 650 gpm and 750 gpm respectively through the use of their variable frequency drives. Both wells contain levels of iron and manganese that must be removed to avoid water quality complaints related to brown or black staining of fixtures and laundry. The water treatment plant has a total design capacity of 650 gpm.

The water from the wells is routed to the plant where it is aerated with a compressed air diffuser and further oxidized with sodium permanganate. The oxidized water is routed through a pressure filtration vessel filled with anthracite and manganese greensand filtration media. After filtration, the water is treated with a blended phosphate for corrosion control, chlorine and ammonia to form chloramines for disinfection and then with fluoride for the prevention of dental caries. Backwash water from the filters is discharged to one of two seepage cells located adjacent to the treatment plant. Manganese removal efficiency began to decline for a period, but a shock chlorination of the media brought treatment back to design levels. This process may be required periodically or it may be possible to carry a continuous chlorine residual through the filter. The filter manufacturer should be consulted to determine if carrying a chlorine residual through the filter would be an option. Any change in chemical feed points would need to be approved prior to the change.

A natural gas powered generator with automatic transfer switch is located in the Well 3 building and will power either of the wells and the treatment plant should an electrical failure occur.

Two emergency wells (Wells 1&2) with a ground storage reservoir and high lift pump system are currently off-line due to elevated nitrates. An emergency well agreement was initiated in 2007 and renewed in 2013 which allows the utility to keep Wells 1 and 2 for possible future use, provided the conditions in the agreement are followed. These wells may not be pumped into the distribution system unless specifically authorized, in writing, by the department. The emergency well agreement will again expire in July of 2018, at which time the agreement would need to be extended or the wells permanently filled and sealed. As outlined in the recommendations above, the utility is encouraged to fill and seal these wells and permanently remove the associated facilities from service.

A water system summary, based on the information available in our data system, is attached. Please review this information for accuracy. If there are changes that need to be made, contact me at (715) 359-5284.

Water Quality Monitoring and Reporting

The utility has an excellent overall monitoring and reporting record. Bacteriological samples have been submitted on a timely basis and all Safe Drinking Water Act samples have been submitted as required. The monthly reports are completed and submitted on a timely basis. The sampling site plan was reviewed in detail during the survey resulting in a few changes submitted. The sampling site plans for Bacteriological sampling, Disinfection Byproducts sampling and Lead and Copper sampling shall be updated and submitted to the department to reflect these changes. All samples taken must be from the designated sites using the established Monitoring Site ID's. Any further changes to the monitoring plans must be submitted for approval by this department.

Rome Water Utility had struggled with water quality issues for quite some time. Wells 1 and 2 were shut down due to elevated nitrate concentrations above the MCL of 10 parts per million (ppm). The utility looked into nitrate removal for these wells, but determined that it would be difficult to dispose of the treatment waste products without a wastewater treatment plant available to discharge to.

Wells 3 and 4 were constructed in an area determined to be low in nitrates, but manganese and iron were present in concentrations that required treatment. A pressure filter was installed to remove iron and manganese, and water quality was improved. Chad noticed that his chlorine demand continued to increase over time and the chlorine feed was increased to compensate. In 2010, disinfection by-product testing showed a marked increase in Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) concentrations, prompting an increase to quarterly monitoring. Chad reduced his chlorine feed rate and the disinfection by-product concentrations declined, but a free chlorine residual could not be maintained throughout the distribution system. The utility contracted for a water quality assessment by Strand Associates, which determined that Wells 3 and 4 had elevated concentrations of TOC at 4.3 ppm and 5.0 ppm respectively. No other parameters that would cause a chlorine demand were discovered.

Pilot testing of adding ammonium sulfate in conjunction with the sodium hypochlorite to form chloramines for disinfection showed that the disinfection by-products TTHM and HAA5 were both reduced significantly. A permanent installation for chloramine disinfection with ammonium sulfate and sodium hypochlorite was approved for startup in August of 2013. Total chlorine residuals average just over 1.5 ppm throughout the system, disinfection by-products remain low and water quality complaints have been eliminated.

Required Reports, Records, and Utility Programs

Residential inspections are required to be performed at least once every ten years, or on a schedule equivalent to the meter replacement, with written documentation of each inspection maintained on file at the utility. A written cross connection control program is available describing how the Rome Water Utility implements their comprehensive program. The cross-connection program was initiated by having the entire system inspected by BZA, Inc., between 2005 and 2007. Residential meter replacements will be occurring soon, and each meter replacement will include a cross connection survey. There are 4 commercial class services that are required to be inspected every 2 years. Non-residential services are under contract with HydroCorp, Inc.; non-residential service surveys were completed in 2017 and are awaiting follow-up confirmation of compliance.

A review of the existing cross connection ordinance indicates that some of the code references remain outdated and should be updated; a model ordinance with the latest updates was sent to Chad via e-mail.

The private well permit program now has 51 wells under permit; all permits will expire in 2021. The 2015 well permits were issued after each well was inspected by a licensed well driller or pump installer as required. The licensed well inspection portion of the permit will not need to be done again until 2025. Expiration dates are tracked and well owners notified when their permits are set to expire so that they can be renewed on a timely basis. It should be noted that wells can no longer be abandoned by the home owner and must be filled and sealed by a licensed well driller, pump installer, or a certified waterworks operator within their community.

The utility has a comprehensive well head protection (WHP) plan for the wells, complete with an ordinance.

The valve and hydrant maintenance programs are up to date with valves exercised every other year and hydrants exercised twice per year. Inventory and locational records are maintained for the valves and hydrants in computer format. Global positioning is now used to record hydrant and valve locations.

Fire hydrants are flushed every spring and fall with additional flushing of dead ends as needed. Two approved automatic flush hydrants were installed to help reduce stagnant water in areas where complaints are common. Chad stated that the system is easily riled up from iron and manganese deposits left over from when iron and manganese filtration was not provided. Unidirectional flushing is used in some areas, but additional areas could benefit from the higher scouring velocities achieved using unidirectional principals. A comprehensive unidirectional program would require a strong public educational component to prepare residents for significant volumes of dirty water while the program is initiated, but the long term benefits of removing residual deposits would make the effort worthwhile. Due to the complexity of the system with multiple dead ends and significant lengths of undersized mains, it may be best to consider hiring a consulting firm experienced in unidirectional flushing to help set up and administer the initial program.

The distribution system was not originally designed for fire flow with nearly the entire system developed around the lake system. Nearly 45 percent of the water mains are 3 and 4 inches in diameter with 47 dead end water mains, many terminating in cul-de-sacs. A 12 inch diameter main run around the perimeter of the system does provide fire flow capacity for 110 of the 147 hydrants on the system. The 37 flushing hydrants are clearly available for flushing only and all the fire departments are aware of the limitations of these hydrants. Much of the original water main was constructed of asbestos cement and makes up nearly 75% of the system. Care must be taken when cutting or tapping asbestos cement pipe and AWWA standards must be followed when working on this material.

Certified Operator

Chad Ziegler is listed as your designated "Operator in Charge" for the water system at Rome. Chad is certified in the Groundwater (G), Distribution (D) and Oxidation and Filtration Treatment (I) subclasses at the Grade 1 level. George Treul is no longer certified as his certification expired in May. The utility is strongly encouraged to add another certified operator, certified in all aspects of the operation, to their staff. If Chad should leave for any reason, the utility would immediately be out of compliance and be subjected to a treatment technique violation under the current Groundwater Rule. Municipal systems are required to have a municipal waterworks operator under employ at all times. Operators are required to accumulate a minimum of 18 continuing education credits every three years to maintain their certifications.

Water System Security

It is recommended that a daily security check be performed on the entire drinking water system to insure doors are locked, windows are secured and nothing has been tampered with. The utility should continue to enhance the security of all of their water supply facilities whenever possible. Currently the main water system facilities are contained within locked fenced areas and the buildings are equipped with intrusion alarm systems connected to the SCADA control.

The Emergency Operations Plan (EOP) was recently updated in July of 2017, but the plan has never been practiced as a situational or table top exercise. Often County emergency management staff or local police and fire departments can help with a table top exercise or there are consulting firms that specialize in setting up and running table top exercises for community water systems. The utility should practice using their emergency operations plan on a routine basis to insure all staff and board members are familiar with their roles and responsibilities during an emergency response situation.

Capacity Development Evaluation

This sanitary survey serves as an evaluation of the capabilities of your water system. This system has been determined to have adequate technical, managerial and financial capacity to provide safe drinking water. The ability to plan for, achieve, and maintain compliance with applicable drinking water standards has been demonstrated.

The utility continues to do an excellent job of maintaining the water system facilities and supporting the many operational programs necessary to run a water system.

The next sanitary survey of your system is scheduled to take place in 2020. The designated operator in charge will be contacted prior to the survey to schedule a date that is convenient.

I would like to thank Chad for his time and cooperation during the sanitary survey. If there are any questions concerning this report, please feel free to contact me at (715) 359-5284. I would also offer to attend a Water Utility Commission or Town Board meeting to discuss this report at our mutual convenience.

Sincerely,

Glenn Falkowski, P.E.
Environmental Engineer
Department of Natural Resources

Encl.

cc: Wausau File
Chad Ziegler, Rome Water Utility
Troy Stapelmann, Eau Claire
Bureau of Drinking Water/Groundwater – DG/5

Source ID	Name	WUWN	Status	Type	Source	Depth	Cased	Grouted
	TWO SYSTEMS COMBINED							
200	Dilution blended for nitrate		Inactive	ENTRY POINT	Permanent Ground Water Entry Point			
300	ENTRY POINT 300 serving Wells 3 and 4		Active	ENTRY POINT	Permanent Ground Water Entry Point			

Entry Points and Sources of Water (Misc. Data)

Source ID	PLSS	Lat./Long.	Pump Cap.	Pump Type	Lube	Aux. Power?
1	T20, R6E, S15, Q-NE QQ-NW	44.21235N x 89.76665W	1150	Vertical_Turbine	Water	Yes
2	T20, R6E, S15, Q-NE QQ-NE	44.21314N x 89.76234W	1000	Vertical_Turbine	Water	No
3	T20, R6E, S9, Q-SW QQ-SE	44.21463N x 89.79272W	650	Vertical_Turbine	Water	Yes
4	T20, R6E, S9, Q-SW QQ-SE	44.21466N x 89.79072W	750	Vertical_Turbine	Water	Yes
99	T20, R6E, S15, Q-NE QQ-NW	44.21193N x 89.76536W				Unknown
200	T, R, S, Q- QQ-	N x W				Unknown
300	T, RE, S, Q- QQ-	N x W				Unknown

Storage

ID/Location	Type	Vol. (gal)	Firm Pumping Capacity (gpm)	Height to Overflow (ft.)	Overflow Elev. (sea-level, ft.)	Aux. Power?	Mfg.	Model
302 PENHURST WAY	GROUND STORAGE	30000	1000			No	Drain Down Inspection	reinforced concrete
302 PENHURST WAY	PRESSURE TANK	10000	650			Yes	Drained	welded steel
EAST OF LODGE, ADJACENT TO WELL 3	ELEVATED TANK	250000		121	1158	No	Drain Down	Spheroidal

Booster Stations

ID/Location	Type	Firm Pumping Capacity (gpm)	Aux. Power?

None

System Interconnects

ID/Location	Type	Capacity (gpm)	Metered?	Chemical Injection Capable?

None

Treatment Summary Data

Source ID	Type	Description	Begin	End	Objective(s)	Pump Model	Cap.	Stroke %	Speed %	Sol. Tank Cap.	Dil. Ratio	Comments
1	380	Fluoridation	10/27/1981	12/31/1999	Other							
1	421	Hypochlorination, Post	06/29/1981		Disinfection							
1	680	Sequestration	04/01/1992		Manganese Removal							
2	380	Fluoridation	03/07/1990	12/31/1999	Other							
2	421	Hypochlorination, Post	03/07/1990		Disinfection							
2	680	Sequestration	03/27/1992		Manganese Removal							
3	000	0	11/05/2007		No Treatment at Source							
3	380	Fluoridation	11/01/2001	11/05/2007	Other							
3	421	Hypochlorination, Post	11/01/2001	11/05/2007	Disinfection							
3	680	Sequestration	11/01/2001	11/05/2007	Corrosion Control							
4	000	0	11/05/2007		No Treatment at Source							
99	380	Fluoridation	11/01/2001	12/06/1995	Other							
200	380	Fluoridation	01/01/2000		Other							
300	143	Aeration, Diffused	11/05/2007		Iron Removal							
300	200	Chloramines	08/01/2013		Disinfection	STENNER	17		25	50	0	ammonium sulfate
300	344	Filtration, Pressure Sand	11/05/2007		Iron Removal							
300	380	Fluoridation	11/05/2007		Other	STENNER	5		42	100	0	
300	421	Hypochlorination, Post	11/05/2007		Disinfection	PULSATRON	42	68	80	50	0	
300	447	Inhibitor, Polyphosphate	11/05/2007		Corrosion Control	STENNER	5		20	100	0	
300	560	Permanganate	11/05/2007		Iron Removal	TWO PULSATRONS	12	90	90	55	0	

System Evaluation Summary

Inspector/Reviewer	Date	Report Date	Type	Agency	Response Due	Response Recd
FALKOWSKI, GLENN	07/13/2017	08/01/2017	SURVEY	DNR	09/14/2017	
FALKOWSKI, GLENN	07/16/2014	08/01/2014	SURVEY	DNR	09/14/2014	08/18/2014
FALKOWSKI, GLENN	07/09/2013	07/19/2013	ANNUAL	DNR		
FALKOWSKI, GLENN	07/19/2012	07/23/2012	ANNUAL	DNR		
FALKOWSKI, GLENN	07/27/2011	08/23/2011	SURVEY	DNR	10/10/2011	09/29/2011
FALKOWSKI, GLENN	07/13/2010	08/20/2010	ANNUAL	DNR		
FALKOWSKI, GLENN	07/20/2009	08/19/2009	ANNUAL	DNR		
FALKOWSKI, GLENN	07/22/2008	09/15/2008	SURVEY	DNR	11/10/2008	12/01/2008
FALKOWSKI, GLENN	07/24/2007	09/27/2007	ANNUAL	DNR		
FALKOWSKI, GLENN	07/21/2006	08/25/2006	ANNUAL	DNR		
FALKOWSKI, GLENN	08/24/2005	10/05/2005	ANNUAL	DNR		
FALKOWSKI, GLENN	08/11/2004	08/27/2004	ANNUAL	DNR		
FALKOWSKI, GLENN	08/07/2003	10/08/2003	SURVEY	DNR	11/24/2003	
FALKOWSKI, GLENN	08/28/2002	09/24/2002	ANNUAL	DNR		
FALKOWSKI, GLENN	07/26/2001	09/26/2001	ANNUAL	DNR		
FALKOWSKI, GLENN	07/11/2000	09/13/2000	ANNUAL	DNR		

Bacteriological Sampling History

Year	Distribution Safe	Distribution Unsafe	Confirmed Unsafe	Missed Samples	Raw Safe	Raw Unsafe	Fecal Positive?
2017	21			0	8		N
2016	36			0	16		N
2015	36			0	16		N
2014	36			0	16		N
2013	37			0	17		N
2012	36			0	16		N
2011	36			0	16		N

Chemical Sampling History

Year	Sample Group	Source ID	Samples Taken	Missed Samples	MCL Violations
2017	SOC	300	2	0	0
2017	IOC	300	1	0	0
2017	RAD	300	1	0	0
2017	VOC	300	1	0	0
2017	FLUORIDE		6	0	0
2016	DBP		1	0	0
2016	FLUORIDE		12	0	0
2016	NITRATE	300	1	0	0
2015	DBP		1	0	0
2015	FLUORIDE		13	0	0
2015	NITRATE	300	1	0	0
2014	PBCU		10	0	0
2014	DBP		1	0	0
2014	IOC	300	1	0	0
2014	RAD	300	1	0	0
2014	VOC	300	1	0	0
2014	FLUORIDE		12	0	0
2013	DBP		3	0	0

Year	Sample Group	Source ID	Samples Taken	Missed Samples	MCL Violations
2013	FLUORIDE		12	0	0
2013	NITRATE	300	1	0	0
2012	DBP		4	0	0
2012	FLUORIDE		12	0	0
2012	NITRATE	300	1	0	0
2011	PBCU		10	0	0
2011	NITRATE	1	1	0	0
2011	SOC	300	2	0	0
2011	DBP		7	0	0
2011	IOC	300	1	0	0
2011	VOC	300	1	0	0
2011	FLUORIDE		12	0	0

Sample Group	Last Sampled
BACTI	2017
FLUORIDE	2017
IOC	2017
RAD	2017
HAA5	2007
WQP	1997
PBCU	2014
NITRATE	2016
VOC	2017
SOC	2017
TTHM	2007
DBP	2016

MCL Violations

Source ID		Contaminant	Concentration	MCL	Units	Viol. Start	Viol. End	Continuing Operation?

None

Definitions

MCL = Maximum Contaminant Limit (as set by the Environmental Protection Agency (EPA))
BACTI = Bacteriological Sample
IOC = Sample for Inorganic Compounds
NITRATE = Nitrate Sample
PBCU = Lead and Copper Sample
RAD = Sample for Radioactivity
SOC = Sample for Synthetic Organic Compounds
VOC = Sample for Volatile Organic Compounds
FLUORIDE = Fluoride from Fluoridation
TTHM = Total Trihalomethane Sample