



# Village of Sharon Springs Water Accountability

## Report of Examination

Period Covered:

June 1, 2012 — March 10, 2014

2014M-148



Thomas P. DiNapoli

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# State of New York Office of the State Comptroller

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## Division of Local Government and School Accountability

September 2014

Dear Village Officials:

A top priority of the Office of the State Comptroller is to help local government officials manage government resources efficiently and effectively and, by so doing, provide accountability for tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of local governments statewide, as well as compliance with relevant statutes and observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations and Village of Sharon Springs governance. Audits also can identify strategies to reduce costs and to strengthen controls intended to safeguard local government assets.

Following is a report of our audit of the Village of Sharon Springs, entitled Water Accountability. This audit was conducted pursuant to Article V, Section 1 of the New York State Constitution and the State Comptroller's authority as set forth in Article 3 of the New York State General Municipal Law.

This audit's results and recommendations are resources for local government officials to use in effectively managing operations and in meeting the expectations of their constituents. If you have questions about this report, please feel free to contact the local regional office for your county, as listed at the end of this report.

Respectfully submitted,

*Office of the State Comptroller  
Division of Local Government  
and School Accountability*

# Introduction

## Background

The Village of Sharon Springs is located in Schoharie County (County) and has a population of approximately 560 residents. The Village provides various services to its residents such as street maintenance and improvement, refuse removal and water and sewer services. The Village's 2013-14 budgeted appropriations were \$686,730, funded primarily with real property taxes, sales tax, State aid and user fees.

The Board of Trustees (Board) comprises the Mayor and four Trustees. The Board is responsible for the general management and control of the Village's finances and operations and for providing procedures to protect Village assets.

## Objective

The objective of our audit was to review the Village's water operations and address the following related question:

- Does the Village adequately monitor and reconcile the amount of water produced to the amount billed to customers to properly account for this resource?

## Scope and Methodology

We examined the Village's records and reports for water operations for the period June 1, 2012 through March 10, 2014.

We conducted our audit in accordance with generally accepted government auditing standards (GAGAS). More information on such standards and the methodology used in performing this audit is included in Appendix C of this report.

## Comments of Local Officials and Corrective Action

The results of our audit and recommendations have been discussed with Village officials and their comments, which appear in Appendix A, have been considered in preparing this report. Village officials generally agreed with our recommendation and indicated they planned to initiate correction action. Appendix B includes our comments on issues raised in the Village's response letter.

The Board has the responsibility to initiate corrective action. A written corrective action plan (CAP) that addresses the findings and recommendations in this report should be prepared and forwarded to our office within 90 days, pursuant to Section 35 of the New York State General Municipal Law. For more information on preparing and filing your CAP, please refer to our brochure, *Responding to an OSC Audit Report*, which you received with the draft audit report. We encourage the Board to make this plan available for public review in the Clerk-Treasurer's office.

## Water Accountability

Village officials are responsible for controlling the cost of the Village's water system operations. To fulfill this responsibility, the Board should establish policies that ensure that water produced is billed or otherwise accounted for. Village officials can determine if there is unaccounted-for water by comparing the water produced or treated to the amount of water billed. Unaccounted-for water includes losses from meter errors, underground leaks, flushing of fire hydrants and water system filters, and municipal use such as firefighting. The Federal Environmental Protection Agency has established an industry standard of 10 percent for unaccounted-for water system losses. A large volume of unaccounted-for water could be a warning sign of significant infrastructure problems. The development of a formal reconciliation process will allow Village officials to determine the amount of water loss, compare the rate of loss to industry standards and take steps to correct identified problems.

Village officials do not adequately monitor water operations. Although Village officials were aware of the aging infrastructure and potential for leaks, officials did not gather information to evaluate whether water was unaccounted-for until 2014. Village officials do not have written policies or procedures requiring the reconciliation of the water produced by the water system with the water billed to customers. Further, there are no procedures to estimate the volume of water used for authorized unbilled uses, such as hydrant and water filter flushing and firefighting.

The Department of Public Works Superintendent prepares a monthly water operations report for the New York State Department of Health that summarizes monthly water production. However, it was not possible to compare all water produced and billed until the Village changed to a metered system in fiscal year 2011-12 because billings were not based on amount of water used.<sup>1</sup> As part of the fiscal year 2014-15 budget process, a Board member began questioning the amount of water billed due to revenue shortfalls; however, at the time, Village officials did not develop procedures to determine the unaccounted-for water.

We found that the Village has unaccounted-for water totaling 36.7 million gallons annually, or approximately 60 percent of the water produced; the industry standard is at 10 percent. On an annual basis, the Village produced 60.9 million gallons of water but billed its customers for 15.1 million gallons, as indicated in Figure 1.

<sup>1</sup> Prior to the metered water billing system, the Village billed for water use based on the number of plumbing fixtures at each billing address.

Figure 1: Annualized <sup>a</sup> Unaccounted-for Water (in 1,000s)		
	Gallons	Percent
Gallons Produced	60,936	100%
Gallons Billed	15,108	24.8%
Unaccounted-for Water	45,828	75.2%
Estimated Loss from Backwashing Water Filters	9,176	15.1%
Adjusted Unaccounted-for Water	36,652	60.1%
<sup>a</sup> We calculated the average monthly volume of water produced and billed for the 21-month period May 1, 2012 through February 1, 2014 and multiplied by 12 months to calculate annualized amounts.		

We estimate the cost to produce the unaccounted-for water to be as much as \$53,400 annually, or about 25 percent of the water fund’s average expenditures. The Board was not aware of this significant unaccounted-for water and estimated that at least 15 percent (or approximately 9 million gallons per year) of the total water produced was due to the daily backwashing of water filters at the water plant. Treated water was also used for firefighting, hydrant flushing and the town pool, but the Board does not have data on how much water these activities used. In addition, the Village ranks in the top 25th percentile for water production costs per resident when compared to similar villages in the region.<sup>2</sup> The Village’s average cost for water production per resident is \$189, which is almost double the \$108 average cost per resident for similar villages.

**Recommendation**

1. Village officials should develop written policies and procedures for determining water accountability that include:
  - The periodic reconciliation of the water produced to the amount billed.
  - Investigating and correcting the reasons for unaccounted-for water, including accounting for authorized unmetered use and significant leaks.
  - Working toward meeting the industry standard for unaccounted-for water.

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<sup>2</sup> Contractual water fund costs include costs to treat and then transport water throughout the system. We compared the Village’s per resident water fund contractual cost for the fiscal year ended May 31, 2013 to the same costs incurred by 20 villages located in Schoharie, Albany, Otsego, Delaware, Montgomery, Greene and Schenectady counties that are similar to the Village’s population. The data used was unaudited third-party information reported by each village in its most recent annual update document.

## **APPENDIX A**

### **RESPONSE FROM LOCAL OFFICIALS**

The local officials' response to this audit can be found on the following pages.

In their response, Village officials reference page numbers that were included in the draft report. The page numbers have changed due to the formatting of the final report.



# Village of Sharon Springs

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State Office Building, Suite 1702  
44 Hawley Street  
Binghamton, NY 13901-4417

September 5, 2014

Re: Village of Sharon Springs Water Accountability Report of Examination

To Whom It May Concern:

The Village of Sharon Springs is in receipt of the water accountability report of examination for the period of June 1, 2012 through March 10, 2014 which provided specific review and focus of the village's adequate monitoring and reconciliation of the amount of water produced within the municipality. The Village Board of Trustees has thoroughly reviewed this report and acknowledges its responsibility to manage and control the Village's finances and operations, and protect Village assets. While we are in agreement that there are additional steps to be taken in order to enhance this responsibility, the Village Board would like to make correction and clarification of some of the statements provided by the reviewers.

See  
Note 1  
Page 9

As referenced on page 5, paragraph 2 of the aforementioned report, the reviewers stated, although "Village officials were aware of the aging infrastructure and potential for leaks, they did not gather information to evaluate whether water was unaccounted-for until 2014". This statement is inaccurate.

Beginning in 2007, the Village Board of Trustees acknowledged the ever growing need for water accountability and accurate billing practices. This acknowledgement initiated a two-year period of grant searches and application writing with the desired goal to improve and/or replace the aging water and sewer infrastructure. In 2009, the Village of Sharon Springs was awarded the Green Innovation Grant, a water infrastructure grant specific for the purchase of a water meter system, in the amount of \$203,100.00.

See  
Note 1  
Page 9

Once funding was acquired in November 2009, the required bidding process for the purchase and installation of water meters began. In addition to the various state requirements which the municipality had to meet, grant funding acceptance requirements specified the water meters had to be United States built, a requirement which limited the amount of equipment and installation provider options. Once bidding and acquisition of equipment was complete, water meter installation began in the Spring of 2010. Due to unforeseen delays caused by a lack of available meters, faulty equipment, faulty installation and other contractor delays, the water meter installation project was finally considered complete in the Fall of 2011.

The Village of Sharon Springs is an Equal Opportunity Provider and Employer.  
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USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building,  
1400 Independence Ave. SW, Washington DC 20250-9410

Around the same time as the Sharon Springs project was beginning, Schoharie County began developing a water billing software program. This software was later found to be insufficient for the Village of Sharon Springs. In late 2012, the Village of Sharon Springs made an investment and purchased water monitoring and billing software from [REDACTED] Software the Village still utilizes to date.

As referenced on page 5, paragraph 3 of the aforementioned report, the reviewers stated, "As part of the fiscal year 2014-2015 budget process, a Board member began questioning the amount of water billed due to revenue shortfalls, however, at the time, Village officials did not develop procedures to determine the unaccounted-for water". This statement is also incorrect.

See  
Note 2  
Page 9

Through the use of the [REDACTED] water billing software, beginning in 2012, Village Trustees were able to collect several months of water usage data, information that was not previously available. After analysis, it was determined that the residents of the Village were either not being billed or were being under billed for their actual water usage. This information was the catalyst for the Village Board of Trustees to pass Sharon Springs Local Law #2 of 2012, establishing water rates, special assessment rates and water main connection requirements. This law was later updated with the passage of Sharon Springs Local Law #1 of 2013 to include water assessment fee requirements for properties within the Village that were not currently connected to the water/sewer infrastructure but have the ability to connect, based on proximity to the mains, in the future if so desired.

Beginning with the 2013-2014 budget process, the newly established water usage rates and water assessment rates were implemented. During the 2014-2015 budget process, it was determined that based on another year's worth of data collection, water usage analysis and future forecasting, the water usage and assessment figures were sufficient and therefore did not require an increase in rates for the upcoming fiscal year.

As referenced on page 5, paragraph 4 of the aforementioned report, the reviewers stated, "the Village has unaccounted-for water totaling 36.7 million gallons annually, or approximately 60 percent of the water produced". Although the Village of Sharon Springs acknowledges there are additional steps to be taken to accurately account for all water produced versus water being used and/or billed, the Village would like to note there were outside factors which took place during the review period of June 1, 2012 through March 10, 2014 which do not seem to be referenced within these initial findings.

See  
Note 3  
Page 9

The Village of Sharon Springs utilizes a pond-like reservoir water supply to feed its municipal water system. This reservoir provides an adequate supply of water to the Village on an annual basis. A deep well is available as a redundancy or back up system, should there be a problem with the reservoir. Regular water treatment facility maintenance requires a daily backwashing of the two water filters found within the facility. Additionally, as part of standard maintenance of the overall water delivery system, treatment facilities personnel conduct fire hydrant flushing twice annually, once in the spring and once in the fall. It has been calculated that a typical daily backwash of the filter system uses 8,000 gallons of unbilled water (4,000 gallons per filter).

Due to excessive heat and very little rainfall during the summer and fall of 2012, the quality of the water within the Sharon Springs water reservoir was adversely effected due to extremely high turbidity and required the Village to implement emergency procedures and utilize the deep well back-up system from June 2012 – November 2012. The water pumped out of the deep well is much harsher or harder than

that which is provided by the reservoir, causing additional wear on the filter system and the overall Village water system. Backwashing of the treatment facilities two water filters went from a once a day process to a necessary five times a day process, taking usage from 8,000 gallons of unbilled water a day to 40,000 gallons of unbilled water a day.

In order to maintain quality water for the Village residents, an increase in fire hydrant flushing was also necessary. As mentioned previously, hydrant flushing is typically a twice a year activity, once in the spring and again in the fall. Due to the hard water conditions provided by the deep well, hydrant flushing became a daily activity, an activity that unfortunately did not have a meter available to measure the amount of treated water being utilized and unaccounted-for.

Both of these daily activities and the overall water quality issue were of great concern to the Village Board and the Mayor. At the request of these elected officials, on October 12, 2012, Sharon Springs held an Emergency Water Summit with other municipalities throughout the county and with local and regional water experts. The intended purpose for the summit was to discuss water quality issues, water waste issues due to flushing routines and to share best practice ideas that would save both water usage and tax payer dollars. As a result of this meeting, the Village Board allocated funds in the 2013-2014 budget to attempt to remediate the water quality issues and conserve wasted water utilized for daily maintenance.

The chart on page 6 of the report depicts the millions of gallons of water produced, billed and unaccounted-for during the review period of 2012-2014. This depiction is based on a calculation for an annualized amount; however it does not depict if there was a change in the production/unaccountable water month over month or year over year. The Village of Sharon Springs feels this is noteworthy due to mentioned atypical environmental factors which occurred to the Village and surrounding area during the summer and fall of 2012, as we expect a great deal of the unaccounted water came from this time period.

See  
Note 4  
Page 9

Although the Village of Sharon Springs maintains it has continued to make water usage and accountability one of its primary focus items for the past several years, as evident from the explanations above, we also concur there is additional work that needs to be done in order to be more effective in our duty of water reconciliation and policy and procedure documentation. The Mayor and Board of Trustees are currently working on an action plan for policy and procedure remediation, based on the recommendations provided within the initial findings review, and anticipate having these items complete within the next 90 business days. Upon completion, we will be happy to share this documentation to your office for review and additional advisement.

Sincerely,

Doug Plummer  
Mayor  
Village of Sharon Springs

CC: Trustee Neary  
Trustee Kelly  
Trustee Navilio  
Trustee White

## APPENDIX B

### OSC COMMENTS ON VILLAGE'S RESPONSE

#### Note 1

Throughout their response, Village officials provide a historical narrative of their efforts to improve the water fund operations beginning in 2007. However, the focus of our report is the Village officials' lack of procedures to compare the water billed to the water produced once they installed a metered water system during the 2011-12 fiscal year.

#### Note 2

Village officials did not provide us with any evidence to show that they had prepared a calculation to compare the billed water to the water produced. Further, our audit did not address the sufficiency of the Village's water rates.

#### Note 3

Our report acknowledges outside factors affecting water accountability. In fact, in Figure 1, we adjusted the unaccounted-for water from 45.8 million gallons to 36.7 million gallons to include the daily backwashing of water filters. Our report also acknowledges that treated water was used for firefighting, hydrant flushing and the town pool. However, the Board did not have data on how much water these activities used.

#### Note 4

Water production records provided by the Department of Public Works Superintendent showed that the average amount of water produced was greater in fiscal year 2013-14 than in 2012-13. In addition, the volume of water billed for in 2013-14 declined from the volume of water that was billed in 2012-13. This evidence indicates that the 2012 issues brought forth by local officials did not have a significant impact on the amount of unaccounted-for water.

## APPENDIX C

### AUDIT METHODOLOGY AND STANDARDS

To accomplish our objective, we interviewed appropriate Village officials and employees. We tested selected records and examined historical documents for the period June 1, 2012 through March 10, 2014.

- We interviewed the Mayor, Trustees and the Clerk/Treasurer to gain an understanding of the Village's policies and procedures relating to oversight over the water operations.
- We calculated the amount of unaccounted-for water for the period May 1, 2013 through February 1, 2014 by comparing the amount of water produced to the amount of water billed.
- We calculated the water fund contractual cost per resident using population and water fund costs reported on the Village's financial report and then compared that rate to villages with similar populations from the same county as the Village and six surrounding counties.

We conducted this performance audit in accordance with GAGAS. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

## APPENDIX D

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