



**Environmental
Protection**

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May 23, 2014

Pamela Young, Ph.D.
New York State Department of Health
Bureau of Public Water Supply Protection
Empire State Plaza – Corning Tower 11th Floor
Albany, NY 12237

Dear Dr. Young:

As required by the Revised 2007 Filtration Avoidance Determination (FAD), the New York City Department of Environmental Protection (DEP) submitted a proposal for a Study to evaluate the potential need for a community wastewater management system for Shokan. On December 24, 2013, the New York State Department of Health (NYSDOH) submitted comments on DEP's proposal. Attached are DEP's responses to those comments.

Since these comments were provided, DEP and NYSDOH have had further discussions about the elements of the proposed Study. NYSDOH has indicated that it will no longer require a water quality monitoring component to the Study. Since the water quality monitoring is not required, NYSDOH has dropped all comments from the 12/24/13 letter which suggested enhancements to the water quality monitoring contained in DEP's initial proposal. DEP has carefully evaluated NYSDOH's reconsideration of the collection of water quality data to support the determination for the need for a community wastewater solution in the Shokan area. The entire purpose of a DEP-funded community wastewater project in Shokan would be for the protection of the New York City water supply, and the public health of water consumers. Making the determination on the need for a project is a two-step process. First, a determination must be made on whether existing conditions in the Shokan area are creating or contributing to a water quality problem in the tributaries to the City's drinking water supply reservoir. If so, then a decision must be made whether the existing Septic Repair program can adequately address the problem, or whether some type of community wastewater solution is needed. In DEP's opinion, the collection of water quality data is integral to the determination whether a water quality problem exists. Therefore, while DEP understands that there is no requirement to do so, we intend to undertake the sampling as outlined in our proposal. We will evaluate the results from that sampling as we make our determination on the need for a wastewater project and we will submit the water quality data to NYSDOH for consideration.

As always, if you have any questions about these reports or other aspects of the City's watershed protection efforts, please do not hesitate to contact me.

Sincerely,

David S. Warne
Assistant Commissioner

c: P. Sweeney, USEPA
T. Snow, NYSDEC

**DEP Response to DOH/EPA Comments on FAD Deliverable 3.3
Shokan Monitoring Plan
Submitted October 31, 2013
DOH/EPA Comments Dated 12/24/13
DEP Response Dated May 23, 2014**

Introduction

DEP has reviewed NYSDOH comments, dated December 24, 2013, on the “Study to Determine the Potential Need for a Community Wastewater Management System for the Hamlet of Shokan” (Study). DEP’s response to those comments is below. In reviewing the Study, we believe that it is important to consider the existing programs which are in place to address subsurface wastewater disposal needs in Shokan. The core of Shokan is located within the 60-day travel time area and therefore all residential properties are eligible to participate in CWC’s Septic System Rehabilitation and Replacement Program and small businesses are eligible to participate in CWC’s Small Business Septic System Rehabilitation and Replacement Program. To date, approximately a third of the subsurface disposal systems in this area have been successfully repaired.

Looking outside the core Shokan area to the surrounding area of more than 400 parcels, it is worth noting that more than 85% of the residential parcels and more than 95% of the commercial properties are located within a priority area of CWC’s Septic System Rehabilitation and Replacement Program, and are thus eligible for the Program. To date, approximately one third of these systems have also been repaired, representing well over than a hundred repairs. In addition, Shokan was selected as a community that was eligible for the Cluster System Program and therefore, CWC and the Town may opt to repair some of the systems using collective septic systems. There are also programs available (e.g., reimbursement, hardship) for the minimal number of parcels located in this surrounding area that are not within a priority area.

DEP has invested substantially in the repair of inadequate subsurface treatment systems in Shokan, fixing identified problems. The Septic Rehabilitation Program – through its residential, commercial and cluster components – is well positioned to address new issues that may be identified in the future. While water quality monitoring in the Ashokan reservoir has not identified a signal from septic failures in the area, the Study DEP has proposed will provide additional, site-specific microbial source-tracking data in the Shokan area in order to determine the potential need for a community wastewater system.

Comment 1:

We request additional information on the sampling design:

How many samples will the auto sampler collect during storm events?

Will samples be composited?

DEP Response:

The autosampler will collect one sample per hour over the course of each storm. DEP will review the stream hydrograph and select up to 10 samples from the storm to capture representative water from the rising limb, peak, and falling limb of the hydrograph. This subset of samples will be submitted to the laboratory for further

analysis. No, samples will not be composited. This would tend to dilute high concentration samples.

Comment 2:

In addition to analyzing for Bacteroides, we recommend that NYCDEP consider analyzing stream samples for artificial sweeteners, caffeine, and/or optical brighteners (from laundry detergent) as specific indicators of wastewater of human origin. These compounds have the advantage of being relatively conservative tracers and are detectable at low levels.

DEP Response:

DEP did consider additional options for determining human origin when developing the monitoring plan. Since the water quality of this stream is yet unknown, DEP decided to limit the initial testing for human fecal sources to Bacteroides until some results are gathered. If fecal coliform levels are elevated, DEP will be using two different human markers for Bacteroides analysis rather than one. These human markers (H183 and HumM2) are both well recognized as being sensitive and specific to human fecal sources, respectively, and one was developed and patented by the US EPA. DEP has decided to hold off on adding additional methods until initial data can be gathered, as the current approach alone may be conclusive. If inconclusive, DEP would consider adding caffeine analysis to the project plan. Other analytes suggested would have potential complicating factors, such as dry wells and road salt that could make interpretation difficult.

Comment 3:

It appears that one or two other streams drain the Shokan area. Please provide additional justification for monitoring only at the SHOKAN site.

DEP Response:

In the absence of water quality data suggesting an impaired watercourse in the area, DEP sought to select a watercourse with a catchment area that was representative of the developed Shokan area. The catchment area of the SHOKAN sampling site has conditions that would have the highest likelihood of revealing a water quality impairment if it exists. These conditions include the following:

- The area has a relatively high density of development and the development includes both residential and commercial uses.**
- Historic development patterns suggest that the parcels in this catchment area are among the older homes in the area. These parcels would therefore likely have the oldest subsurface treatment systems.**
- Roughly one third of the parcels have participated in the septic repair program, making it representative of the entire Shokan area in terms of the status of septic systems.**
- Other watercourses have catchment areas that have a higher percentage of vacant and protected land. These areas would likely have a lower percentage of the stream flow coming from potential subsurface wastewater disposal.**

The selected catchment area is nearly entirely developed and therefore serves as a representative – if not worst-case scenario – area suitable for the study.

Comment 4:

NYCDEP indicated that a reconnaissance survey had been done of the tributary to Ashokan Brook. NYCDEP should consider performing such surveys on all the streams draining the Shokan area. Conductivity measurements might be made as part of these surveys to provide a relatively easy way to detect possible wastewater inputs to the streams.

DEP Response:

The Study included a photo with a caption indicating that the photo was taken during a reconnaissance survey of the sampling location. Please note that the survey work of the tributary was conducted solely to ensure that the sampling site was accessible and had sufficient flow for the proposed sampling work. The survey was not intended to assess the land use patterns or septic conditions throughout the selected sub-basin. In addition, while conductivity may be useful to assess anthropogenic inputs in some areas, we do not feel it would be useful here due to the road network and reliance on road salts in the study area. The impacts of road salts on conductivity would likely overwhelm other inputs.

Comment 5:

NYCDEP should consider whether dye testing of selected septic systems might provide useful information.

DEP Response:

DEP and County Health Departments generally do not conduct dye testing of subsurface treatment systems in the absence of some evidence that a system is failing. The purpose of the proposed study is not to identify the location of failing septics. Instead, the goal is to determine whether failing septics in the area are affecting the quality of water flowing to the reservoir and, if so, to determine whether a Community Wastewater project is a necessary and appropriate solution. The integrative sampling being proposed through the Study would provide better information as to potential public health concerns than dye testing of individual septic systems.

Comment 6:

In order to complement water quality monitoring, and be consistent with conventional assessment procedures, NYSDOH, USEPA and NYSDEC request that the following information also be obtained to assess the need for a community wastewater management system for the Hamlet of Shokan: population, number of residential septic systems, number of commercial septic systems and type of businesses, lot size, lot topography, soil type, age of community/on-site septic systems, proximity to water and/or drainage, history/knowledge of failures/issues and knowledge of frequency of septic tank clean-out for residential and commercial systems.

DEP Response:

Conventional assessment procedures generally start with the task of identifying if a water quality problem exists; as noted, DEP's study focuses primarily on that task.

That said, while the assessment of existing subsurface treatment systems is typically conducted only if a water quality impairment is identified, DEP proposes to amend the Study to assess certain parameters in addition to the water quality monitoring results. This review will include the following:

- **estimate of population;**
- **number of residential systems;**
- **number of commercial systems and type of business;**
- **parcel size;**
- **topography;**
- **soil types;**
- **distance of on-site subsurface systems to a watercourse; and**
- **number of residential and commercial systems repaired through one of the existing septic repair programs.**

The focus of the Study, however, will be on determining whether there is a water quality problem. In the case of Shokan, there is no reservoir data that suggest there are septic failures which are affecting water quality in the Shokan area. Through the Study, DEP is planning to go beyond reservoir sampling in order to see if a representative watercourse in Shokan may be impacted by failing septic. DEP's sampling protocol includes both base-flow and storm-flow samples in order to ensure that samples will be collected during a variety of flow conditions. Storm event sampling will occur during periods of higher runoff when flow from systems with potential surface failures might be captured. In addition to the storm sampling, the routine fixed-frequency bimonthly sampling for an entire year will result in samples being taken during low flow conditions when the percentage of flow from potentially problematic subsurface treatment systems, if any, would tend to be higher.

DEP will use the demographic and geographic information identified above, together with the sample information, to assess the degree to which the existing programs have addressed the needs for Shokan, or if there is an unmet water quality need.

Comment 7:

NYCDEP should obtain information that will allow them to address the following questions in their assessment:

- **Can the existing lots support on-site systems that are compliant with NYC WR&R?**
- **What would be the location of the community system?**
- **Would a septic Management district be an option?**

- Is there a discharge location available?

DEP Response:

Gathering information about options for a solution would occur as part of an engineering feasibility study after it was determined that a water quality problem exists and that there is an unmet water quality need beyond the existing programs available in the area (e.g. septic repair program, cluster system program). While septic maintenance districts or community systems might be among the options considered as part of the feasibility study, it would be premature to assess discharge locations or treatment options before it was known if a water quality problem exists. DEP will, however, conduct a GIS-based analysis of certain conditions on existing lots to assess conditions for septic systems.