



Small community wastewater treatment program start-up assistance and management evaluation

2016 Report

Executive summary

In 2006, the Minnesota State Legislature established a Small Community Wastewater Treatment Grant and Loan Program (Program) (Minn. Stat. § 446A.075), funded through Clean Water Legacy, to help small communities and local units of government address failing and non-compliant sewage treatment systems. Following start-up of the Program, it was observed that some small communities struggled to keep their new systems operating and maintained as intended. This Start-Up Assistance and Management Evaluation Report (Report) is designed as a Program enhancement to revisit new systems, after one year of operation, to provide small community infrastructure start-up assistance where necessary, and confirm that Clean Water Legacy (CWL) funded wastewater improvement projects are meeting local and/or state permit requirements and are being operated and maintained as designed and approved. If site visits reveal problems with the new wastewater systems, communication is directed to the System Owner with recommendations on how to resolve them. The Minnesota Pollution Control Agency (MPCA) will make the results of this small community start-up assistance evaluation available to interested parties including other state agencies and other local permitting authorities.

In 2014, five systems were included in this Report with recommendations to follow up on them the following year (2015). The 2015 Report included one new system as well as follow up from the five reviewed in 2014. This Report includes follow up information on small communities previously reviewed as well as one new system and one corrective action system. All of these systems are permitted/regulated by local units of government because design flows are less than the minimum set for state permitting authority (See LSTS Design Guidance for permit authority determination: <http://www.pca.state.mn.us/index.php/view-document.html?gid=5179>). It was recommended that all of the facilities included in the 2016 Report receive a follow up phone call and others a site visit. While some systems were being managed well, deficiencies were noted in others. Some of these deficiencies were serious including long term overloading of the system and bypassing. New information and follow up information are broken down and reported separately as outlined below:

Review for new systems includes

1. System condition

General summary of system condition.

2. Service activities and frequencies

Review of personnel and their qualifications, identified routine management activities taking place, and cited repairs, corrections, or replacement of components that have occurred.

3. Record keeping

Review how records are kept and reported for each community.

4. Management structure

There are multiple tools to facilitate effective system management. Communities have utilized new or existing authorities to establish ordinances, management plans, contracts, and resolutions to operate and regulate these systems. All state funded projects require public ownership and management of new assets. These practices are essential for creating an environment in which effective management can take place.

5. Financial condition

Discussion of documentation that the municipality is collecting sufficient funds to provide for operation and maintenance and equipment replacement at time of review.

6. Compliments

General positive points of operation.

7. Concerns

Concerns Identified.

8. Recommendations

MPCA recommendations for the facility.

Follow up for previously reviewed systems

1. Concerns/recommendations in previous report

Summary of concerns and recommendations brought forward from the 2015 Report along with any changes/adjustments made regarding them.

2. New concerns/recommendations

Summary of anything that was discovered through this round of information gathering that requires follow up.

3. General summary

General update of facility and follow up required/not required.

General report information management

Follow up review and reporting is currently done on an annual basis for those systems with outstanding concerns which have not been resolved and which have the potential of putting the system at risk of premature failure and/or permit noncompliance. Design considerations and recommendations will be tracked separately and brought to a technical group at the MPCA for decision/discussion. The intent of this Report is again, to confirm that CWL funded projects are meeting local and/or state requirements and being operated and maintained as designed and approved. If MPCA established design criteria are identified as needing discussion it will be done outside of this Report.

Following the individual system evaluations are Report recommendations. These are recommendations from MPCA staff to assist with start-up of systems funded with the Small Community Wastewater Treatment Grant and Loan Program.

New system review 2015

Greenleafton, York Township, Fillmore Township, Minnesota (site visit)

The following individuals were contacted to update information about this facility:

- Fillmore County (System Owner)
- Pat Loomis, Gopher Septic (Service Provider)

1. System condition

System was installed in the fall of 2015. There is not a full year of data on the system; currently it is operating well. This is a FAST system with chlorination and soil dispersal.

2. Service activities and frequencies

The Service Provider does not have access to the control panel or the dosing tank through telemetry-so they do not get any of the alarms and are not able to control the laterals that are in use. The manufacturer is working to get access to the system (telemetry). The Service Provider is measuring scum/sludge, cleaning filters, checking tanks, pumps and floats as well as checking the FAST unit and chlorinator during regular visits. The system has not been in one year of operation.

3. Record keeping

Records are kept by the Service Provider.

4. Management structure

Fillmore County owns and manages the system.

5. Financial condition

County collects the payment

6. Compliments

System start up seems to have gone well with some adjustments. The Service Provider is conducting adequate oversight.

7. Concerns

Design of the Chlorinator results in the middle two tubes (diamond shaped) running out of chlorine tablets while the two on the side are still full. This results in effluent limit fecal coliform permit limits not being met. Flows are not high enough to utilize the outer two chlorine tubes. The soil treatment area is still bare, with some weeds growing.

8. Recommendations

Flow diversion in the chlorinator to force flow to the outside chlorine stacks or more frequent addition of chlorine tablets to the middle chambers. Also, establish vegetation in the soil dispersal area.

9. Follow up

Phone call recommended.

City of Seaforth, Redwood County, Minnesota

The following individuals were contacted to update information about this facility:

- Pam Sheeran (City Clerk)
- Shane Symmank (Natural Systems)

1. System condition

This system was added to this Report because the Public Facilities Authority (PFA) funding was used for a corrective action project (Rural Development Project). This system was constructed circa 2009. There was a lawsuit approximately two years after construction regarding the collection system construction. PFA and Rural Development funded a corrective action project that impacted only the collection system project. Initially, each home had a septic tank with outlet filters (some needed pumps) to a 6-inch gravity system on to the treatment system (AdvanTex). The corrective action included removing the individual septic tanks and replacing them with two community septic tanks prior to the treatment system as well as rehab and replacement of the collection system (2015). Through all of this corrective action work, the treatment portion of the system was not changed. It consists of a 20,000 gallon recirculating septic tank filter system: 5,000-gallon blend tank, a 10,000-gallon recirculation tank and a 5,000-gallon dosing tank. Following this

system, it goes to two separate dispersal fields both having a series of dispersal mounds. The north field is designed for 8,000 gallons per day (gpd) and the South Field is designed for 4,000 gpd. The north drainfield is operating well, the south drainfield has had some issues with adequate pressure. Valves have been altered to compensate.

2. Service activities and frequencies

Natural Systems Utilities is on site performing visual checks quarterly. Activities include: opening recirculation tanks, inspecting blower operation, inspecting the AdvanTex system, checking pump operation, checking pump calibration, downloading flow data and influent/effluent sampling. They do have an on call maintenance person. A reminder was issued to the community that a licensed Service Provider is required.

3. Record keeping

Natural Systems Utilities sends quarterly reports.

4. Management structure

Redwood County holds the operating permit for the system. The city of Seaforth shares the quarterly reporting with the county. Prior to 2014 there was no operating permit.

5. Financial condition

The city has a designated fund set aside for future costs and they are confident that they are collecting sufficient funds.

6. Compliments

Since repairs have been made system seems to be working effectively.

7. Concerns

Initially the County Permit included nitrogen limits that were not correct for the system. The operating permit has been changed to reflect the correct limits. The city also needs to verify that they have a licensed Service Provider inspecting the facility.

8. Recommendations

Continue to monitor the system

9. Follow up

Phone call to city and county to verify licensed Service Provider.

Follow up of systems reviewed in 2015

Kings Park, Oronoco Township, Olmsted County, Minnesota (site visit)

The following individuals were contacted to update information about this facility, which was originally evaluated in in 2015:

- Mark Thein, Chairman, Oronoco Township (System Owner)
- John Harford, Olmsted County Septic (Permitting Authority)
- Sheila Craig, Southeast Minnesota Wastewater Initiative (Community Facilitator)
- Pat Loomis, Gopher Septic (Service Provider)

System condition

Kings Park Subordinate Service District (SSD) serves 14 properties; construction was substantially completed in November of 2013. The system has individual septic tanks at homes with grinder pumps or effluent pumping. The pump stations connect to a 2-inch force main which transports the wastewater to the stilling tanks at the soil treatment area. From the stilling tanks wastewater flows to a dosing chamber which doses the four cells within the two cluster mounds. Wenck Associates, Inc. was the consulting engineer for the project and Ellingson Drainage Inc. was the installer. Overall, the system appears in good condition.

1. Concerns/recommendations in previous report

Included in the 2015 report was a recommendation that Olmsted County Issue an operating permit, the Service Provider should submit and annual report to the district of management activities, repairs and upcoming year forecast of anticipated repairs (if any)

2. New concerns/recommendations

No new concerns/recommendations

3. General summary

Project is currently operating below design flow. The operating permit is not yet complete but is being worked on. Recommend follow up phone call to verify operating permit is complete.

4. Follow up

Phone call recommended.

Follow up of systems reviewed in 2014

City of Doran, Wilkin County, Minnesota (phone call only)

The following individuals were contacted to update information about this facility, which was originally evaluated in 2014:

- Linda Wanek, Doran City Clerk (current SSTS program administrator and resident)
- Matt Miranowski, M&M Contractors (Service Provider)

Concerns/recommendations in 2014 report

In 2014, it was recommended that the city require the Service Provider to submit an annual report and document the system's performance level, issues and forecasted maintenance activities. At that time flow was not being calculated and reported. Recording flow values for each mound were also recommended. Since that time, pumps have not been calibrated to the individual mound system. The Service Provider does complete an entire system check in April of each year and the system is discussed at each council meeting, but no formal record is kept and no annual report is submitted.

New Concerns/recommendations

No additional issues were discovered during follow up interviews.

General summary

Concerns identified in 2014 have been addressed.

Follow up

No follow up.

Red Rock Township (Nicolville), Mower County, Minnesota

The following individuals were contacted to update information about this facility, which was originally evaluated in 2014:

- Theresa Booms, Red Rock Township Clerk
- Pat Loomis, Gopher State Septic Service (SSTS Service Provider)
- Sheila Craig, Southeast Minnesota Wastewater Initiative (Community Facilitator)

Concerns/Recommendations in 2014 Report. In 2014, the main concern for this system was excessive Inflow/Infiltration. A Notice of Violation was issued on 4/27/11 and Completion of Corrective Action issued on 1/12/2012.

The system is operating well now that the I&I issues have been resolved. The ground water issues that were affecting the flow of the system were resolved by installing a sump pump and replumbing the interior of the house. The citizens are happy that the interior fixes were mostly covered by a

PFA. There is still an issue with the surface water as it is not draining away from the houses. A tile line that will outlet to the ditch and creek has been proposed to divert the surface water away. The system does not have any extra money in their account for any fixes. They would like to have the service provider go down to twice a year for service activities so they could keep the assessment the same but be able to put some money in their account for an extra pump or unexpected fixes. The road through town needed to have additional gravel brought in. The citizens and township would like to give the ownership to the county to handle. They don't believe that they can do as good of a job as the county can. The county can tax easier and they have the expertise of SSTS systems. Also the township officials tend to only stay on the board for a few years.

The service provider (Pat Loomis of Gopher Septic) said the Soil Treatment Area was working great and no blow outs have been recorded. The different zones have been switching and they are not overloading any lateral. Some ball valves have had to be replaced due to freezing and breaking. The I&I issues are thought to be resolved as the flow measurements did not jump during the spring melt and they did not jump during any rain events. They check the floats, pumps and the counter at the lift station and pump tank during service activities. They assess septic tanks for pumping too. Reports are submitted to the LGU.

New concerns/recommendations

Additional bypassing occurred in 2014 due to excessive flows related to I/I. Roughly 108,000 gallons bypassed.

General summary

The facility is not operating as designed as it is receiving excessive flows due to high I/I that needs to be addressed. The facility is not meeting state/local requirements as they do not have a current operating permit with the county.

Follow up

Phone call and site visit recommended.

City of Taopi, Mower County, Minnesota (phone call only)

The following individuals were contacted to update information about this facility, which was originally evaluated in 2014:

- Jim Kiefer, Taopi City Clerk and resident (System Owner)
- Sheila Craig, Southeast Minnesota Wastewater Initiative (Community Facilitator)
- Dave Heimer, Lone Star Plumbing (SSTS Installer and Designer)

Concerns/recommendations in 2014 report

In 2014, it was recommended that the Service Provider submit an annual report to the city documenting past management and system use activities, repairs, and upcoming year forecast of anticipated repairs (if any). It was also recommended to back calculate flows, measure scum-sludge and pump tanks as appropriate. The Service Provider has regular contact at this time with the city, but no annual report is provided to the city. It is important to note that the city will be turning the system over to the homeowners once the loan is paid. Flows are not calculated but tanks are scheduled to be pumped this year.

New concerns/recommendations

No new concerns.

General summary

Concerns identified in 2014 have been addressed.

Follow up

No follow up.

Forest City Township, Meeker County, Minnesota (phone call only)

The following individuals were contacted to update information about this facility, which was originally evaluated in 2014:

- Phil Valiant, Village Resident and SSD Board Member (Owner)

Concerns/recommendations in 2014 report

In 2014, it was recommended that the operating permit with the county be renewed and the water table monitoring device (WTMD) observations be completed. As of February 18, 2015, the township was in the process of renewing the operating permit. The Service Provider has been checking the WTMD and no water has been observed.

New concerns/recommendations

No new concerns or recommendations.

General summary

Concerns identified in 2014 have been addressed.

Follow up

No follow up.

Town of Bixby, Steele County, Minnesota (phone call only)

The following individuals were contacted to update information about this facility, which was originally evaluated in 2014:

- Laurie Johnson, Steele County Planning and Zoning SSTS Inspector (Permitting Authority)

Concerns/recommendations in 2014 report

In 2014 it was recommended that the zone management and flow splitting management be evaluated and improved, and the flow data spreadsheet should be reviewed and corrected. The Service Provider has reviewed and corrected the flow data spreadsheet and all four zones have been used since the fall of 2014 (the hydro splitter valve was cleaned to allow this). Service Provider has monthly flow data for the main site and the ability to obtain flow data from individual homes.

New concerns/recommendations

Annual reports not being submitted by the Service Provider in a timely manner.

General summary

Concerns identified in 2014 have been addressed.

Follow up

Phone call recommended. (verify annual reports are being submitted).

Report recommendations

1. This new wastewater treatment start-up assistance and evaluation has been valuable in developing a general understanding of how new facility start-up successes vary across the state. It has also been helpful in assisting new facility owners becoming more knowledgeable of their systems and compliant with their permit compliance.
2. While this program for start-up assistance will not be completed in state fiscal year 2017, the need for this or a similar local process should be further considered in the future to best assure small community wastewater system compliance for protection of public health and the environment.
3. Important "take-aways" from this program should be documented and shared with all possible wastewater facility owners and permitting authorities. This is proposed to be completed on the MPCA webpage as well as summarizing information in an "On-Point" article.

4. Standardize system evaluation/reporting requirements for the individual systems to streamline system analysis. Currently, MPCA staff conduct informal phone calls with the parties involved and write the report. This process could be made more efficient by identifying a standard set of information that needs to be reported for each system, including Service Provider reports and any permits involved.
5. Share individual reports with projects via email upon submittal of final report to PFA.

Anticipated Projects completing one year of operation for FY2017

- Biscay