
EXECUTIVE SUMMARY

Environmental Engineering & Contracting, Inc., (EEC) was contracted by Johnson County Wastewater (JCW) and Johnson County Environmental (JCED) to conduct a comprehensive assessment of the County's Fats, Oils, and Grease Control (FOG) Program. The primary task associated with this assessment was a FOG Characterization Study of the County's service area. The goal of this Study was to provide objective information (e.g., true causes and FOG sources) for known problem areas in the sanitary sewer system that require more frequent cleaning and maintenance (i.e., hot spots) that are attributable to FOG (i.e., FOG-related hot spots). EEC also assessed the Johnson County Code of Regulations for Sanitary Sewer Use (Sewer Use Code 2003 edition) and the FOG source control activities conducted by JCED.

All eight known FOG-related hot spots identified in the County's service area were evaluated utilizing closed circuit television (CCTV) inspections. The findings and recommendations from the FOG Hot Spot Evaluation are summarized below.

Structural Issues

There were 5 significant hot spot structural issues identified that should be seriously considered for repair to reduce the FOG accumulation in those areas and reduce the risk of sanitary sewer overflows (SSOs). The structural issues are summarized below.

- Two significant sags identified at 119th and Roe and one significant sag identified at 95th and Barkley.
- Significant degraded iron pipe identified at 95th and Barkley.
- A manhole channel issue causing surcharging identified at 91st and Metcalf.

FOG Sources

Based on CCTV evidence of FOG accumulation in the sewer system, there were 13 Food Service Facilities (FSFs) that should be further evaluated for enhanced source control activities. Depending upon the circumstances at each FSF, enhanced source control activities could include requiring and enforcing FOG Kitchen Best Management Practices (BMPs) or re-examining if the grease interceptor pumping frequency is adequate. EEC also recommends that JCED consider a few general modifications to the FOG Control Program that are included in the "Recommended Next Steps" below.

Non-Hot Spot Locations

In addition to the 8 FOG-related hot spot locations evaluated, CCTV inspections were conducted in 10 locations not currently identified as hot spots (i.e., non-hot spots). These exploratory inspections were conducted to assess the FOG accumulation typical in areas beyond the eight known hot spots.

Varying amounts of FOG accumulation were observed throughout the 10 non-hot spot areas. In some cases, the FOG accumulation was comparable to the amounts observed during assessment of the known hot spot areas. JCW should continue to characterize non-hot spot areas that are at risk for FOG accumulation based on the hot spot characterization approach in this assessment.

State of the Johnson County FOG Control Program

The overall effectiveness of the FOG Control Program is extremely high based on the following findings:

- There were 15 FOG-related SSOs in the Johnson County service area in 1995 and only 2 FOG-related SSOs in 2008. For a collection system of 2,100 miles, this is a very low FOG-related SSO rate.
- The JCW collection system cleaning program is one of the most thorough and effective programs that EEC has evaluated. There are collection system hot spots that require increased cleaning frequencies due to structural issues or individual significant FOG dischargers, but most of these issues were identified in this assessment and are being addressed. This should lead to a further reduced risk of SSOs and reduced cleaning frequencies for some of the hot spots.
- Almost all known high-risk FSFs (i.e., those that potentially discharge significant FOG) have grease interceptors installed and JCED's required grease interceptor maintenance and inspection program is one of the most comprehensive in the country. FSFs without grease interceptors in existence prior to implementation of the current grease management program (January 2003), were grandfathered in per the Sewer Use Code. If they are found to be causing a problem in the sewerage system, they are then required to install an interceptor.
- JCW and JCED share information on a regular basis to respond to new FOG blockage issues that arise.
- Based on the findings listed above, EEC does not recommend any significant changes to the Johnson County FOG Control Program or the Sewer Use Code. The recommended minor changes are summarized in Section 3.

Recommended Next Steps

JCW Recommendations:

- 1) Seriously consider repairing the significant hot spot structural issues identified to reduce the FOG accumulation in those areas and reduce the risk of SSOs.
- 2) Continue to characterize segments of the collection system that are at risk for FOG accumulation based on the hot spot characterization approach in this assessment.

JCED Recommendations:

- 1) Further evaluate the 13 FSFs for potential enhanced source control activities.
- 2) Increase the number of inspections of high risk FSFs to be more proactive in preventing potential future FOG blockage issues.

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- 3) Provide FOG Kitchen BMP education for selected FSFs that have grease interceptor pumping frequencies more frequent than once every 90 days. This would not require a modification of the Sewer Use Code.
 - 4) Require FOG Kitchen BMPs for any FSF identified as having excessive FOG discharge at or downstream of their lateral connection to the Johnson County sanitary sewer system. This would require a modification of the Sewer Use Code.
 - 5) Make a slight modification to the current floating FOG and settleable solids maintenance rule for grease interceptors to account for varying grease interceptor fluid depths. This would require a modification of the Sewer Use Code.
 - 6) Increase resources by 0.5-1.0 full time equivalents (FTEs) if the source control recommendations cited above are implemented.