Sewer Backup Program

Overview for the Regulators

Virtual Meeting
June 9, 2021
It’s All About Clean Water

MSD collects, treats, and manages wastewater from Greater Cincinnati communities, protecting the environment and public health by returning clean water to local rivers and streams.
MSD At A Glance

Its All About Clean Water

- MSD treats 160 million gallons of wastewater a day
- MSD maintains more than 3,000 miles of sewer pipe
- MSD has 9 treatment plants
- MSD serves >225,000 residential, commercial and industrial customers
Overview of the SBU Customer Service Investigation
Regulator Question: How are inspections conducted? What are inspectors trained to look for?

MSD conducts multiple checks and review investigations to verify the accuracy of our findings.

• Initial Field Investigations, typically within 4 hours of a request for service*
• Supervisor reviews all investigations to confirm findings & ensure accuracy
• Supervisor may schedule follow up Work Orders

When in Doubt, MSD Cleans
Customers report sewer backups online or by calling the MSD Call Center

• MSD prefers to get the call within 24 hours of observed sewage in the basement however, we investigate all reports.
Field Inspection
MSD Dispatcher assigns this Sewer Backup Investigation to the next available Customer Service Crew.
Customer Service inspects the upstream and downstream manholes for signs of surcharging.
The crew will also document the backup inside the building.

- Due to COVID19, MSD suspended most entries into buildings and determined that most investigations did not necessitate inside confirmations by MSD.
What is a crew looking for in a manhole or cleanout?
Is the manhole surcharged?
If the manhole is surcharged, is it an isolated blockage or a system overload?
The crew will inspect other manholes downstream to determine this.
If multiple downstream manholes are also surcharged, it is likely a large-scale capacity issue within that drainage basin.
If the crew finds an open downstream manhole, they can isolate the issue to one sewer segment and call for assistance from either a TV inspection or a flusher.
The crew will also attempt to clear any possible obstruction in the surcharged manhole.
Identifying & Clearing the Obstruction

Blocked manhole

Clearing Debris

Manhole flowing freely
Is the cleanout surcharged?
If both the cleanout and the manholes are surcharged, the issue is in the public sewer.
If the cleanout is surcharged, but the manholes are not surcharged, the issue is in the privately-owned sewer.
The crew may be able to open the line or locate the blockage with a rodding machine.
Is there an MSD-installed FLI in a clean out or nearby manhole?
What is a FLI?
Float Level Indicators: an Evolution in MSD Expertise & Ingenuity

• In 2013 MSD piloted customized solution that MSD developed; a local company produced a number of them for testing
  • Purpose was to remove the guess work of investigations after the water receded in the sewer
  • Results were exceptionally promising
• In 2020, MSD began installing FLIs at SBU investigation
  • MSD installs about 150 FLIs/month
  • Staff are trained on installation, interpretation & maintenance

When in Doubt, MSD Cleans
Level is indicated by the metal clip that has been raised by the float of a surcharged manhole.
Benefits of using FLIs

• More accurate determinations of SBU investigations and differentiates between public and private causes of water in basements.

• The use of FLIs is now customary for each SBU investigation and they are important tool to help differentiate between overland flow and an SBU.

• The use of FLIs reduce MSD liability and staff can perform better customer service to help customers understand the problems better.
If no cleanout....

• A work order may be created to install a cleanout at a later date.
• Cleanouts are installed using traditional excavating or hydro-excavating.
• Once the cleanout is installed, the repair crew will install a FLI in the new cleanout.

If no FLI....

• If there is not FLIs in the manholes, the Customer Service crew will install them, when possible, at the conclusion of their field investigation.
Since 2015, MSD has installed over 4,000 FLIs in manholes.
Supervisor Review
Follow up Reviews of Investigations

• The completed investigation is submitted electronically to the crew’s supervisor
  • The investigation is reviewed for completeness and accuracy.
  • The supervisor also determines any additional actions needed by MSD, such as a closed-circuit TV investigation, clearing debris from a pipe or providing sewer back-up cleaning services.
• MSD’s Cityworks System – overview
Regulator Questions

When in Doubt, MSD Cleans

How are uncertain inspections ultimately determined?

- MSD customer service crews are trained on the various “uncertain” conditions that they will experience when they are investigating issues like overland flooding, mainline capacity or blockage situations.
- For a situation that is complex, crews call in a supervisor to help assist in determining the ultimate cause of the backup.
- Additional Wastewater Collection Personnel, including multiple, licensed Wastewater Collection Operators and Engineers are available for consultation.

Are these inspections conducted in the rain?

- Yes, MSD does not wait for the rain to stop.
- 43% of inspections are done within an hour.
Regulator Questions

How accurate are the float levels? How often are they calibrated?

• The FLIs are very simplistic in their design and operation. When an installation fails, it is repaired or replaced.
• There is no calibration.
• The FLI remains as one line of evidence and other factors are used to characterize an incident.

When in Doubt, MSD Cleans
When in Doubt, MSD Cleans

Regulator Questions

How is it determined if a manhole is surcharged?

• The crew will inspect other manholes downstream to determine this.
• Check any nearby FLIs.
• Document any remnants of debris on manhole walls or steps.
• If multiple downstream manholes are also surcharged, it is likely a large –scale capacity issue within that drainage basin.
Questions & Discussion

MSD’s Cityworks System – overview

SBU Reports and Data
The above photo is a 100-year storm and overland flooding that no sewer system would be designed to convey
**Definition of Terms & Conditions**

**Water in Basement (WIB)**
Former name of the SBU program. May be overland flooding related, from stormwater, heavy rain. "WIB" is a prior terminology no longer used by MSD. Consent Decree was clarified and was renamed Sewer Backup.

**Sewer Backup (SBU)**
A customer can submit a “Request for Service.” MSD will evaluate and investigate and determine cause. If MSD is responsible under the CD.

**Overland Flooding**
May be a result of historical or natural drainage, rainfall, stormwater blockage, heavy discharge, etc.

**Per Consent Decree, MSD must deal with Sewer Backup inside buildings – if caused by capacity or maintenance issues of main sewer.**

**MSD manages and implements a “SBU program”**
What is the cost of SBU program to MSD ratepayers?

https://sbu.msdgc.org/sbu/page/5-Learn-about-Backups.aspx

### Service Description

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Total for 2021 through April</th>
<th>Total for 2020</th>
<th>Total for 2019</th>
<th>Total for 2018</th>
<th>Total for 2017</th>
<th>Total for 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer Back Up (SBU)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewer Backup (SBU) Investigation Work Orders</td>
<td>961</td>
<td>3,773</td>
<td>3,610</td>
<td>3,857</td>
<td>5,135</td>
<td>5,850</td>
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<tr>
<td>SBUs Considered for Cleanups</td>
<td>32</td>
<td>621</td>
<td>545</td>
<td>648</td>
<td>915</td>
<td>2,284</td>
</tr>
<tr>
<td>SBU Cleanups Performed/Accepted</td>
<td>25</td>
<td>465</td>
<td>422</td>
<td>531</td>
<td>715</td>
<td>1,253</td>
</tr>
<tr>
<td>Cleanups - Final Status to be Determined @ Reporting Time</td>
<td>7</td>
<td>145</td>
<td>132</td>
<td>117</td>
<td>200</td>
<td>1,031</td>
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<tr>
<td>Cleanouts Installed at ROW (by MSD Repair Section)</td>
<td>231</td>
<td>1,010</td>
<td>860</td>
<td>779</td>
<td>851</td>
<td>1,064</td>
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### Prevention Program

<table>
<thead>
<tr>
<th>Properties Contacted</th>
<th>13</th>
<th>130</th>
<th>162</th>
<th>146</th>
<th>170</th>
<th>170</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties Protected</td>
<td>18</td>
<td>87</td>
<td>102</td>
<td>100</td>
<td>61</td>
<td>12</td>
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<tr>
<td>Professional Service Costs- Capital Funds</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Professional Service Costs- Operating Funds</td>
<td>$ 283,187</td>
<td>$ 1,460,826</td>
<td>$ 1,277,369</td>
<td>$ 1,162,243</td>
<td>$ 1,460,826</td>
<td>$ 283,187</td>
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<tr>
<td>Contractor Costs- Capital Funds</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
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<tr>
<td>Contractor Costs- Operating Funds</td>
<td>$ 523,951</td>
<td>$ 5,271,280</td>
<td>$ 5,969,830</td>
<td>$ 1,737,291</td>
<td>$ 1,774,040</td>
<td>$ 523,951</td>
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<tr>
<td>Total SBU Prevention Dollars Spent</td>
<td>$ 807,138</td>
<td>$ 6,732,106</td>
<td>$ 7,247,199</td>
<td>$ 2,899,534</td>
<td>$ 5,285,065</td>
<td>$ 807,138</td>
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### Claims

<table>
<thead>
<tr>
<th>Settlement Checks Processed</th>
<th>39</th>
<th>165</th>
<th>189</th>
<th>346</th>
<th>1,296</th>
<th>404</th>
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</thead>
<tbody>
<tr>
<td>Average Processing Time for Settlements Offered (in days)</td>
<td>29</td>
<td>35</td>
<td>68*</td>
<td>59*</td>
<td>51*</td>
<td></td>
</tr>
<tr>
<td>Claim Costs- Operating Funds</td>
<td>$ 1,944,924</td>
<td>$ 2,786,489</td>
<td>$ 2,281,197</td>
<td>$ 2,876,746</td>
<td>$ 9,932,467</td>
<td>$ 1,944,924</td>
</tr>
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### Expenses to Date

<table>
<thead>
<tr>
<th>MSD SBU Labor</th>
<th>$ 776,263</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Clean Up Costs- Operating Funds *</td>
<td>$ 6,556,014</td>
</tr>
<tr>
<td>SBU Customer Service- Operating Funds</td>
<td>$ 1,237,535</td>
</tr>
<tr>
<td>TOTAL FUNDS SPENT</td>
<td>$ 11,321,875</td>
</tr>
</tbody>
</table>

Source: MSD SBU Program
Beginning in 2017, MSD transitioned to Cityworks – a new system of logging data.

These are Customer Service Requests – not SBUs, not investigated...

When in Doubt, MSD Cleans
Approximately 85-90% since 2004 of all Customer Service Requests (CSR) were either overland flooding or building sewers issues, not under MSD responsibility.

What are the main causes of water in basements?

- Capacity issues/Main line Blockage
- Building sewers issues
- Climate patterns
- Natural drainage ways/ overland flooding
### 2017-2021 First Quarter SBU Cleaning & Claims Stats

<table>
<thead>
<tr>
<th><strong>2,618 SBU Cleanings performed</strong></th>
<th><strong>1,612 Claims received and resolved</strong></th>
<th>In last two years, 20 claimants have filed a Request for Review.</th>
</tr>
</thead>
</table>
| MSD estimates that at least 100 were approved for cleaning but later determined to not be MSD responsibility. | $8,255,945 paid in SBU claim settlements.  
1,172 Settled  
440 Closed w/out payment. | Reviews include denial of liability or agreement as to damages.  
The Court has upheld MSD’s decision in 17 of 20 cases.  
For remaining 3 the Magistrate overturned denials, resulting in payments of to the claimants of approx. $42,100 total. |

*The 440 “Closed” refer to the claims that have a final result of DENIED. RFRs won by claimant are included in the 1172 settled, as are any claims that were initially denied but additional information was received causing MSD to reconsider its decision leading to a settlement.

Source: MSD City Works & SBU Program
Distribution of SBU Claims Paid (2017-Present)
Regulator Question (Bullet #2)

Does a “private responsibility” in the quarterly update indicate that a person’s cleanup request is denied?

• There is no “denial” of a “cleanup request”.
• Investigations are performed to determine the cause of the incident which is reported in the consent decree report.
• When in doubt, MSD offers cleaning
• If a subsequent review determines the backup was not MSD’s responsibility but MSD authorized cleaning, MSD does not seek reimbursement from the resident.
• MSD is refining the report headers to clarify

When in Doubt, MSD Cleans
Status of Properties with Customer Service Reports of 2 or more in 5 years (368)

- In design (64)
- Property owner did not respond (77)
- Operational Controls Pilot (7)
- Mt. Washington Pilot Source Control (29)
- Under review (2)
- Owner actions needed (10)
- Eastside SBU Mitigation Study (8)
- Other (5)
- Do not qualify (158)
- On hold (8)
- Muddy Creek FEMA (6)
Status of SBUPPs at locations with 2 or more Verified SBUs in 5 years

- Mt. Washington Source Control (29)
- Muddy Creek FEMA (6)
- Eastside SBU Mitigation Study (8)
- Operational Controls Pilot (7)
- Under review (2)
- In design (64)
- Other (5)
2021 SBU Program Refresh
2021 SBU Program Refresh

Why?

SBU Program Overview: 2004 – present

Total Properties Receiving SBU services = 10,797
Total Dollars Spent = $158,369,477

Total Properties Protected under SBUPP = 1,205
Total Dollars Spent on SBUPP = $55,584,073
Average SBUPP cost/home = $46,127
The SBU Non-personnel Budget request is $10.99M.

- Rapid response and cleaning
- Damage Claims
- Prevention Program

Pilot program to proactively address SBU prevention through Operational Controls: $1M

Eastside SBU Mitigation CIP Study: $1M

Mt. Washington Source Control CIP Project: Plan & design

Muddy Creek FEMA CIP Project: $4.4M
Lick Run Greenway

Lick Run Ambassador Program

Lick Run Ribbon Tying Event

Lick Run Nature Scavenger Hunt 6/5
Questions/Discussion