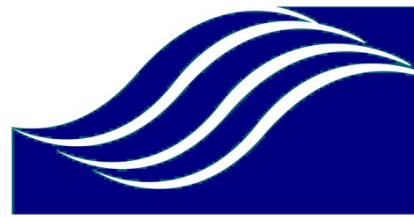


City of Tuscaloosa, AL



Tuscaloosa Water



Tuscaloosa
Wastewater
Management

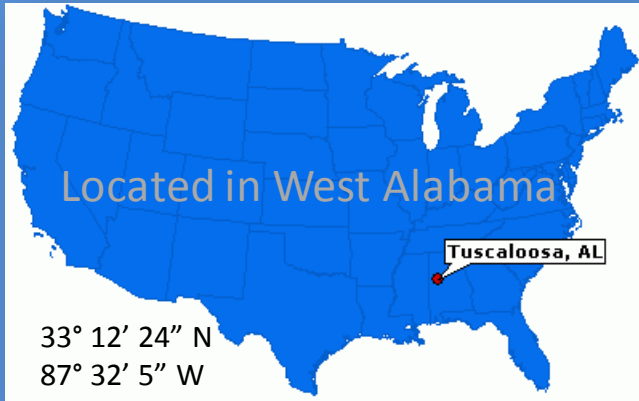
SSO Reduction with Lucity & ArcGIS

Craig Thorpe (Technical Services Supervisor)

Jarrold Milligan (Linear Assets Manager)

Marc Courville (GIS Analyst)

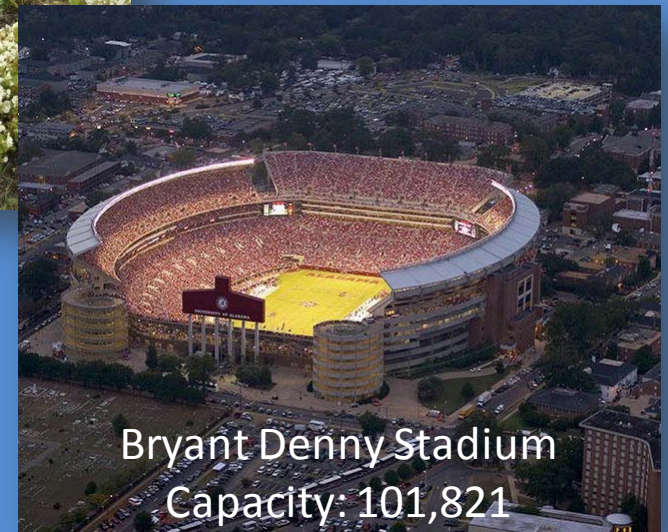
Tuscaloosa, Alabama



Population: 90,221



Daytime Population Change Due to
Commuting: +19,615 (+21.74%)
Daytime Population Change Due to Football
Games: +182,359 (+102.12%)



Wastewater System

- 11,800 Manholes
- 554 Miles of Sewer Line
- 58 Pumping Stations

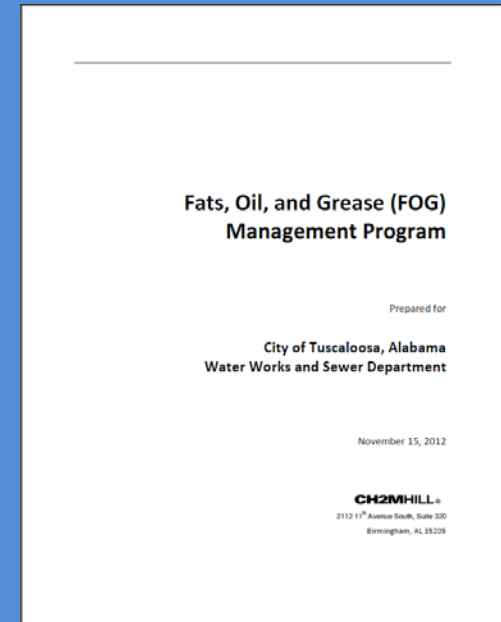
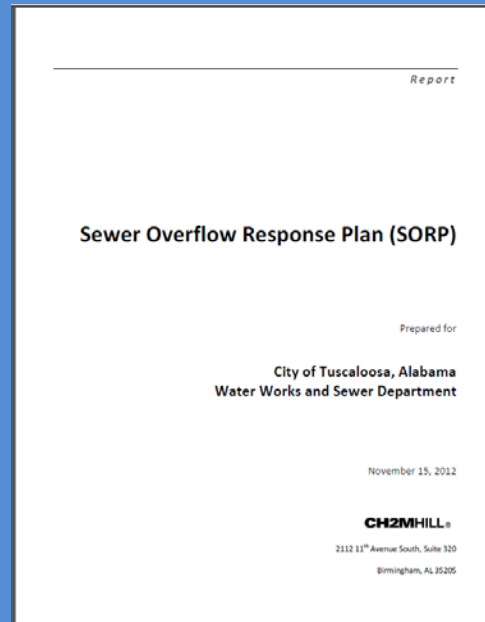
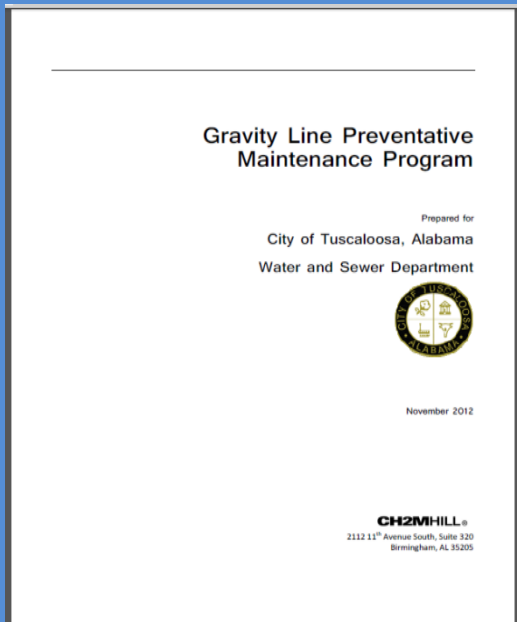


What was our Past?

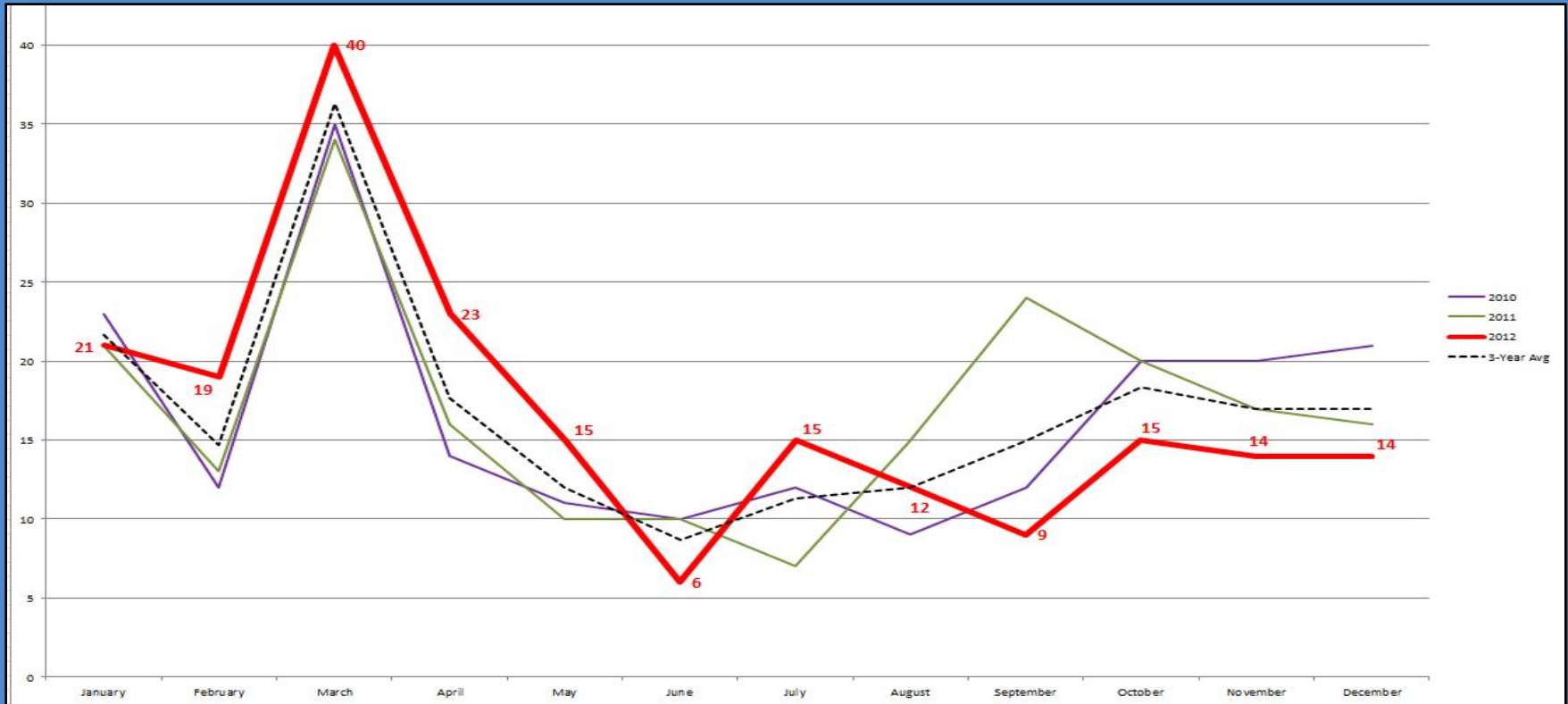
- Started Using Lucity in 2003
- Consent Decree in 2009
- Did not have an Asset Management or Data Management Plan
- Reactive Maintenance Only

Consent Decree

- September 2009 City of Tuscaloosa Water and Sewer Department Entered into a Consent Decree with Alabama Department of Environmental Management
- One of the main requirements of the Consent Order was to address SSOs



Monthly SSOs between 2010-2012



- Between 2010 – 2012 there were 581 SSOs recorded in Lucity.
- 118 were notifiable to ADEM.
- 463 were non-notifiable.

Reactive Only

Work Orders - City SSOs (create date)

Work Order # 10-000013 Category 101.12 Pipe Maintenance - Reactive
Status 999 Complete Problem 115 Other Problem
Status Date 01/05/2010 12:41 PM Main Task 131 Investigate

WO | Location | Assets | List/Events | Tasks/Res | Routing | Costs | Billing | Related | Requests/Track | Links | Custom 1 | Custom 2 | Comments

Type of Discharge	4	Private Lateral Line	Estimated Gallons	100	Discharge to Water	<input type="checkbox"/>
Location	6	Into Private Residence	Duration		MWPP Reportable	<input type="checkbox"/>
Weather			Footage of Blockage		Overflow@WWTP	<input type="checkbox"/>
MH Jet From Letter			MH Jet From		Asset Not in GBA	<input type="checkbox"/>
MH Overflow Letter			MH Overflowed		Failure/SSO Avoid	<input type="checkbox"/>
				//	WO User 30	<input type="checkbox"/>
Notification Type			Start Date	01/04/2010		
Final Destination		Private Residence	End Date	01/04/2010		
Start Time		3:00:00 PM		//	: AM	
			End Time	5:30:00 PM		
			Follow-up		Monitor Location	

Record 1 of 363 View Moc Ready...

Reactive-Call Outs

Request

Jet Line

ck | Links | Custom 1 | Custom 2 | Comments

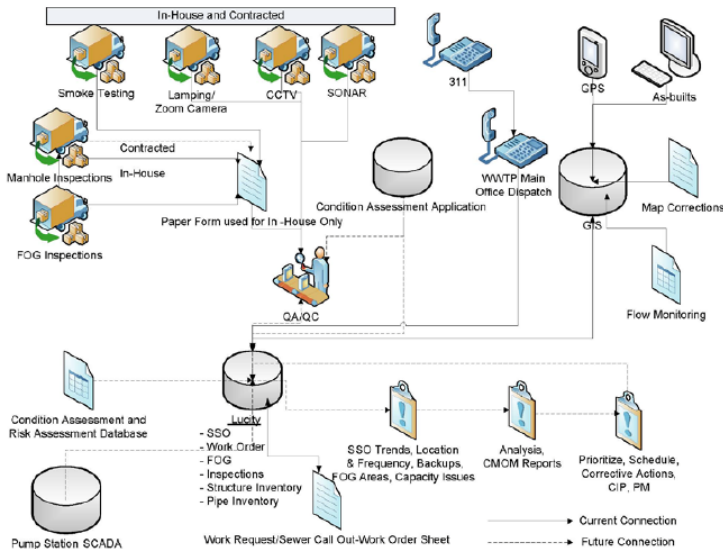
MH Overflow Letter			MH Overflowed		//	
Notification Type			Start Date	08/20/2012		
Final Destination		Onto ground	End Date	08/20/2012		
Start Time		8:00PM		//	: AM	
			End Time	9:30PM		
			Follow-up			

Record 68 of 74 View Moc Ready...

Data Management Plan

WSD DATA MANAGEMENT PLAN

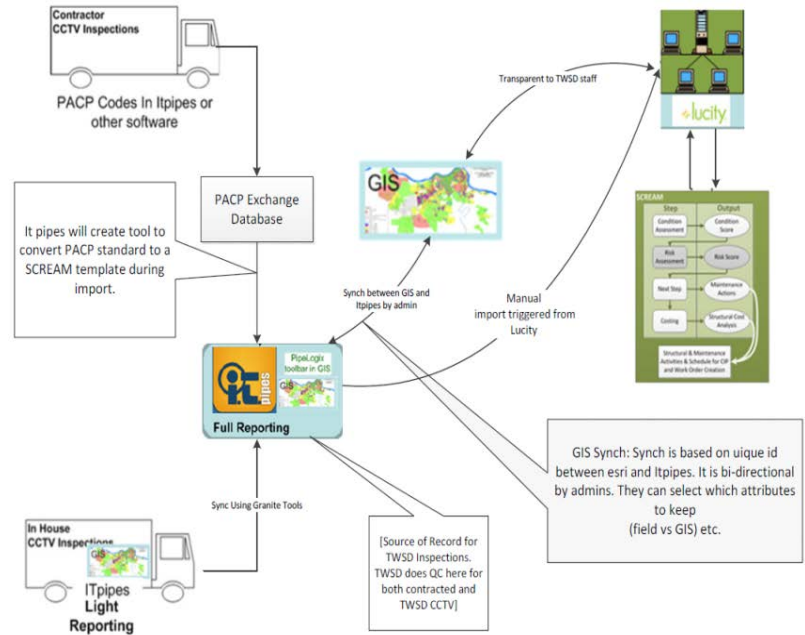
FIGURE 2-1
Data Management Flow Chart



2-2

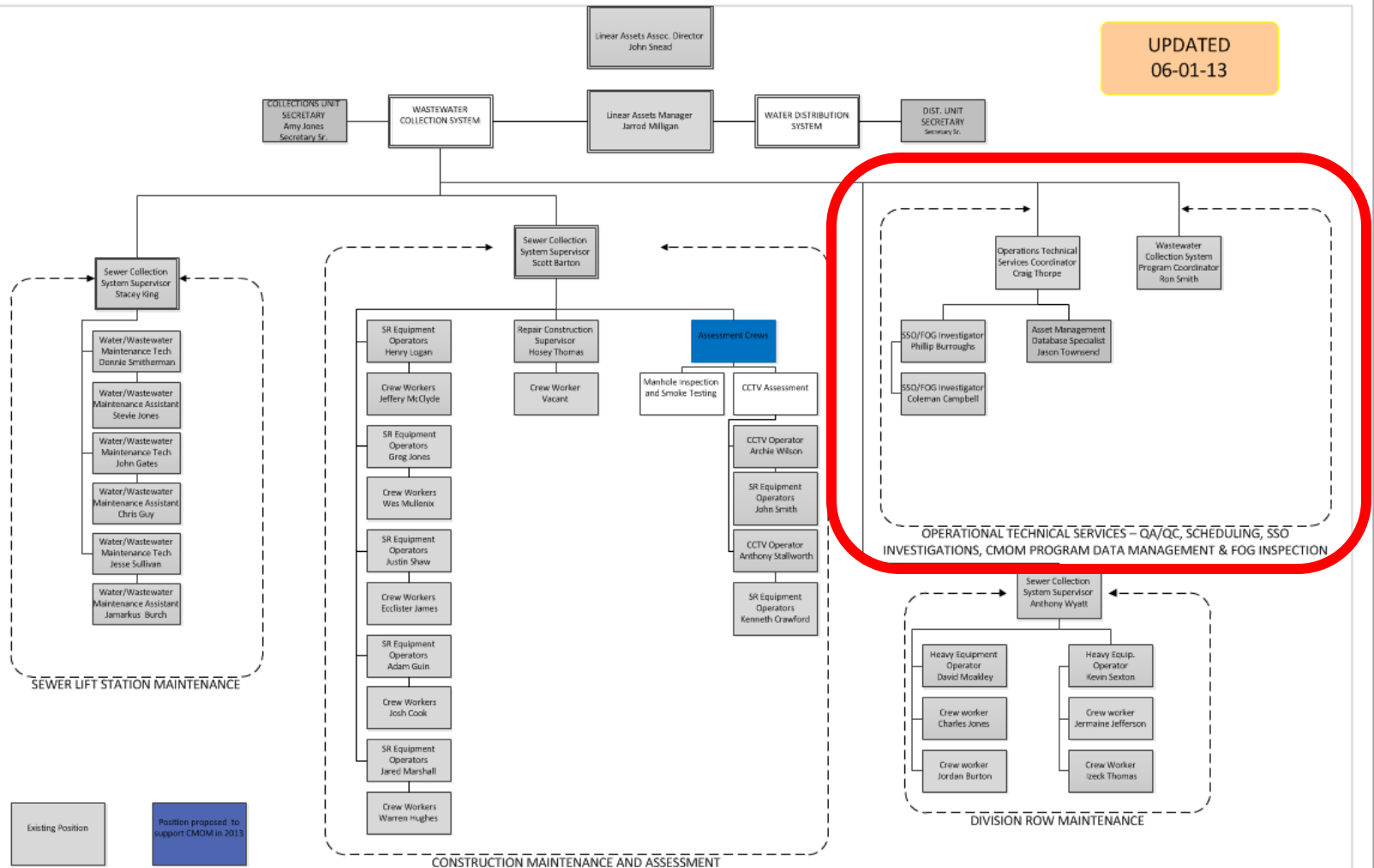
DRAFT FINAL DATA MAN

FIGURE 2.2 CCTV WORKFLOW DIAGRAM



Adding a New Division to the Org Chart

UPDATED
06-01-13



Plan Of Action

- Evaluate Existing Practices
- Conduct Evaluations of other top performing utilities
- Create an CMOM Implementation Plan
- Created Goals (Levels of Service)
- Measure our Goals
- Promote Asset Management Values

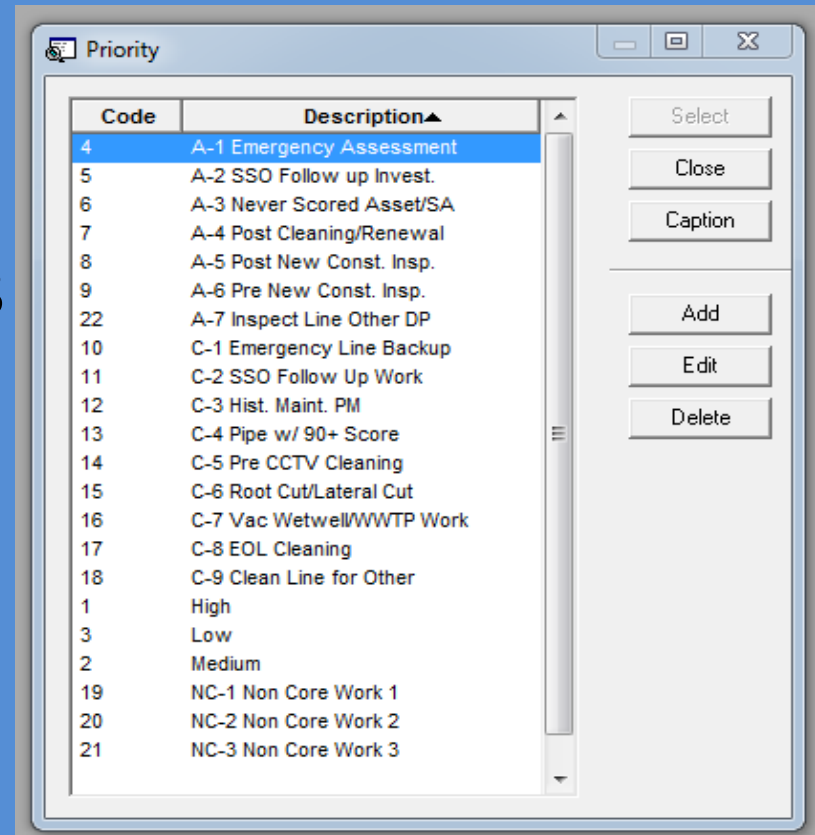
Evaluation of Past Procedures and Protocols

- Employee Moral
- Prioritization of Work
- Improve Efficiency and Accountability
- Improve Safety, Training and Equipping
- Improve Work Management
 - Better QA/QC
 - Improve Work Efficiency



Utility Site Visits

- Learned how we can prioritize work more efficiently
- Performance Measures
- Management Techniques
- Employee Accountability
- Safety
- Networking



CMOM Implementation

- Multiple Reorganizations
- Develop SORP, FOG, GLPM Plans and Data Management Plans
- Set up Implementation Schedules
- Identified safety goals

Setting Goals & Measuring Goals

- How many annual overflows per mile of pipe?
- Response Time?
- Building backups per year?
- Employee Accountability
- Cleaning and Assessment Goals

Pick Items that are measurable!!!

AND WE TRACK OUR PROGRESS!!!



Involve and communicate with the customer

Five Core Components of Asset Management



Current State of the Assets



Required Level of Service

Asset Management

Long-term Funding Strategy

Critical Assets

Minimum Life Cycle Cost



Present

Where are we now?

Currently in 2013 we have experienced a 18% reduction in SSOs due to:

- Conducting follow-up investigations in Lucity on all SSOs
- Use of FOG Module
- Using information from Lucity to drive PM washing in basins with higher SSO numbers.
- Reorganizing PM Lists and Maintenance Crews
- Creating priority list to ensure higher priority work gets completed first.

Follow-up Investigations

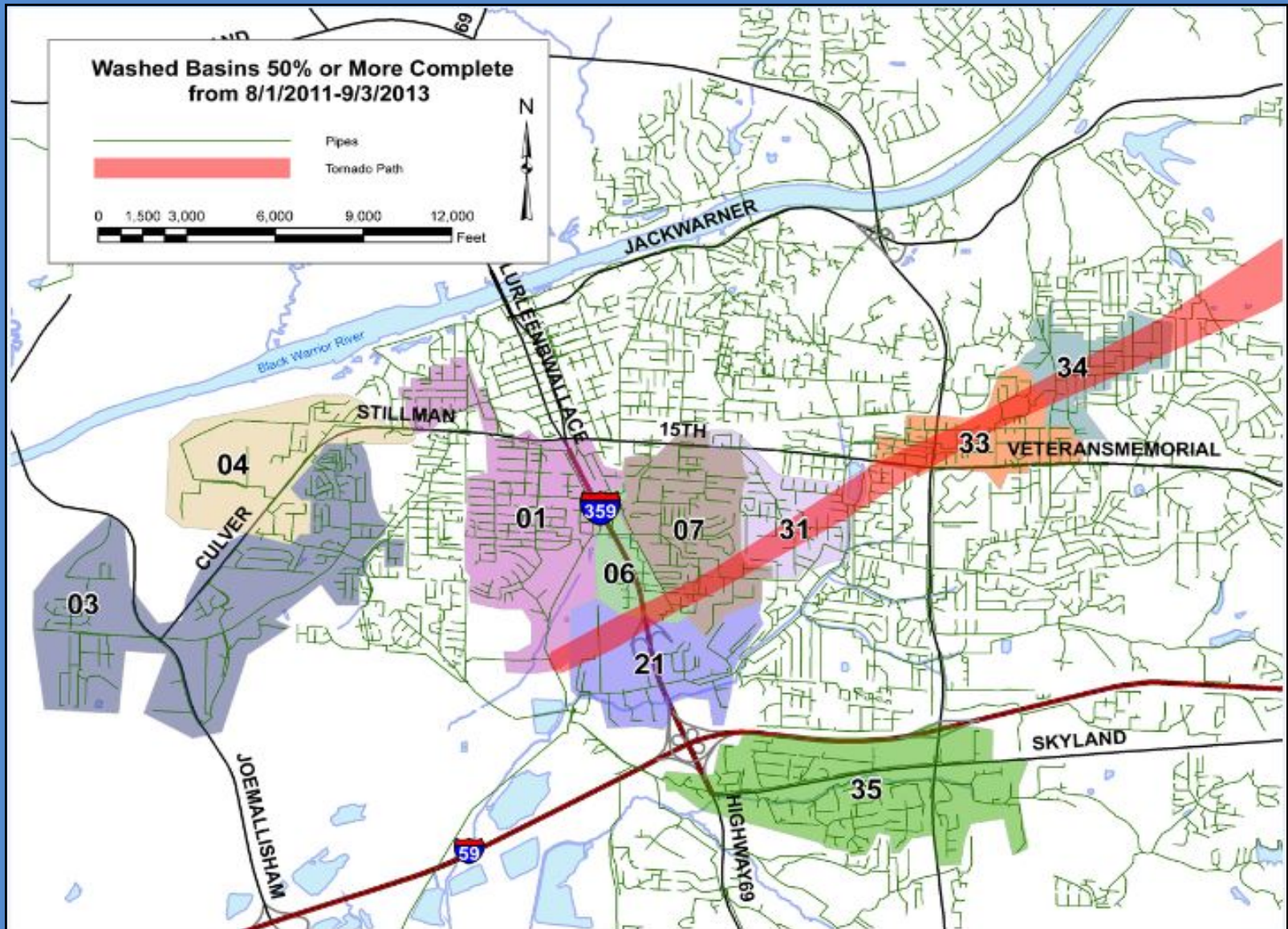
- Filter out previous SSO information for the asset in Lucity.
- View or review most current CCTV Investigation of the asset.
- Filter for past Maintenance of the asset in Lucity.
- Investigate the cause of the SSO.
- What follow-up work is needed and relate follow-up Work Order to the SSO Work Order.

Transition to FOG Module in Lucity

In Late 2012 FSE Information was moved from the Lateral ID Module to the FOG Module making it easier to:

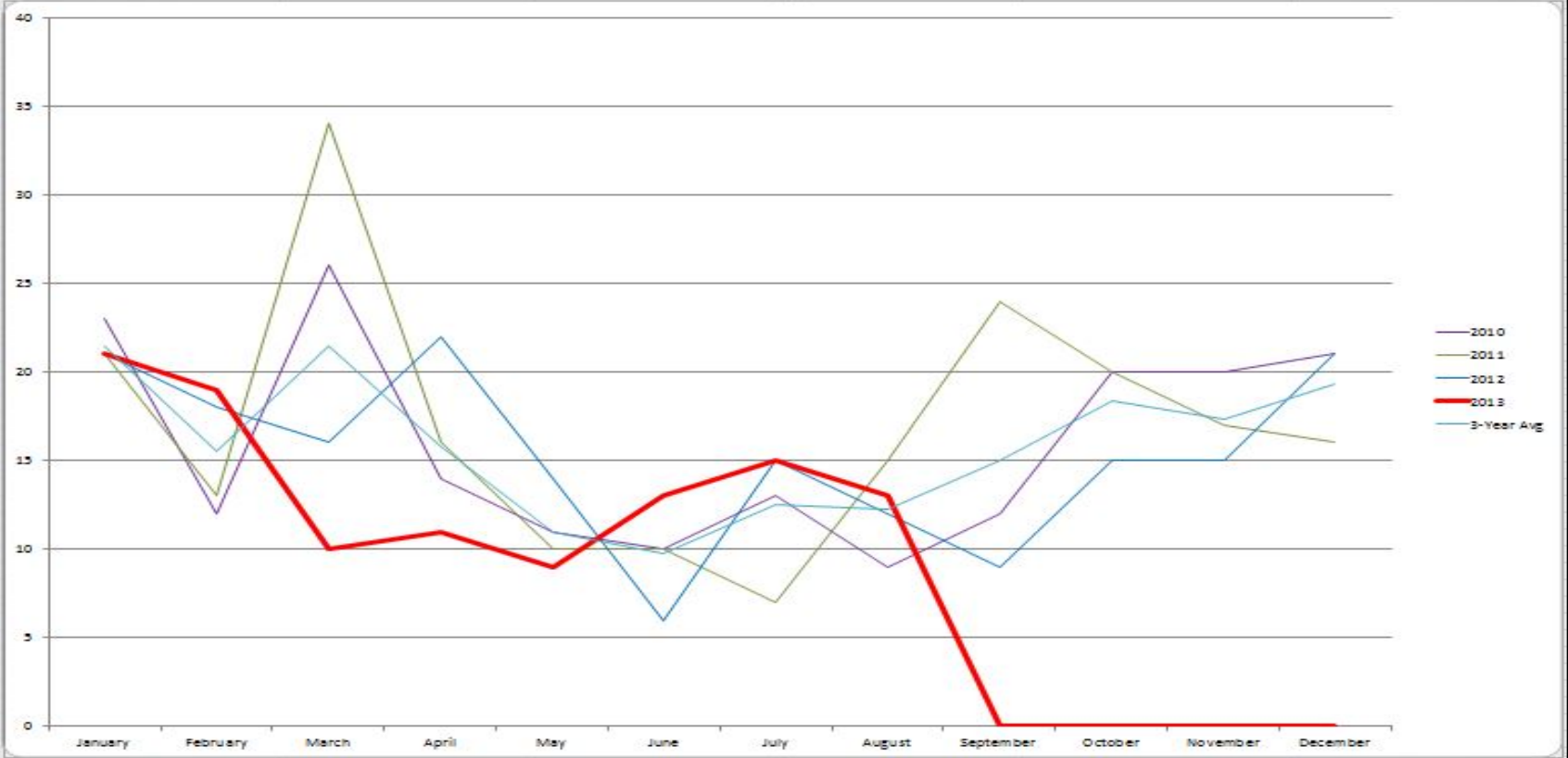
- Keep a record of BMP violations
- Have contact and facility information
- Keep up with FOG Hauler Information
- Know location of trap/interceptor
- See previous inspections of the FSE
- Filter for FSEs that are or are not compliant

Basins Washed in 2011-2013



Monthly SSO Track

Month	2010	2011	2012	2013	3-Year Avg
January	23	21	21	21	22
February	12	13	18	19	16
March	26	34	16	10	22
April	14	16	22	11	16
May	11	10	14	3	11
June	10	10	6	13	10
July	13	7	15	15	13
August	9	15	12	13	12
September	12	24	3	13	15
October	20	20	15		18
November	20	17	15		17
December	21	16	21		19
Annual Total	191	203	184	111	190

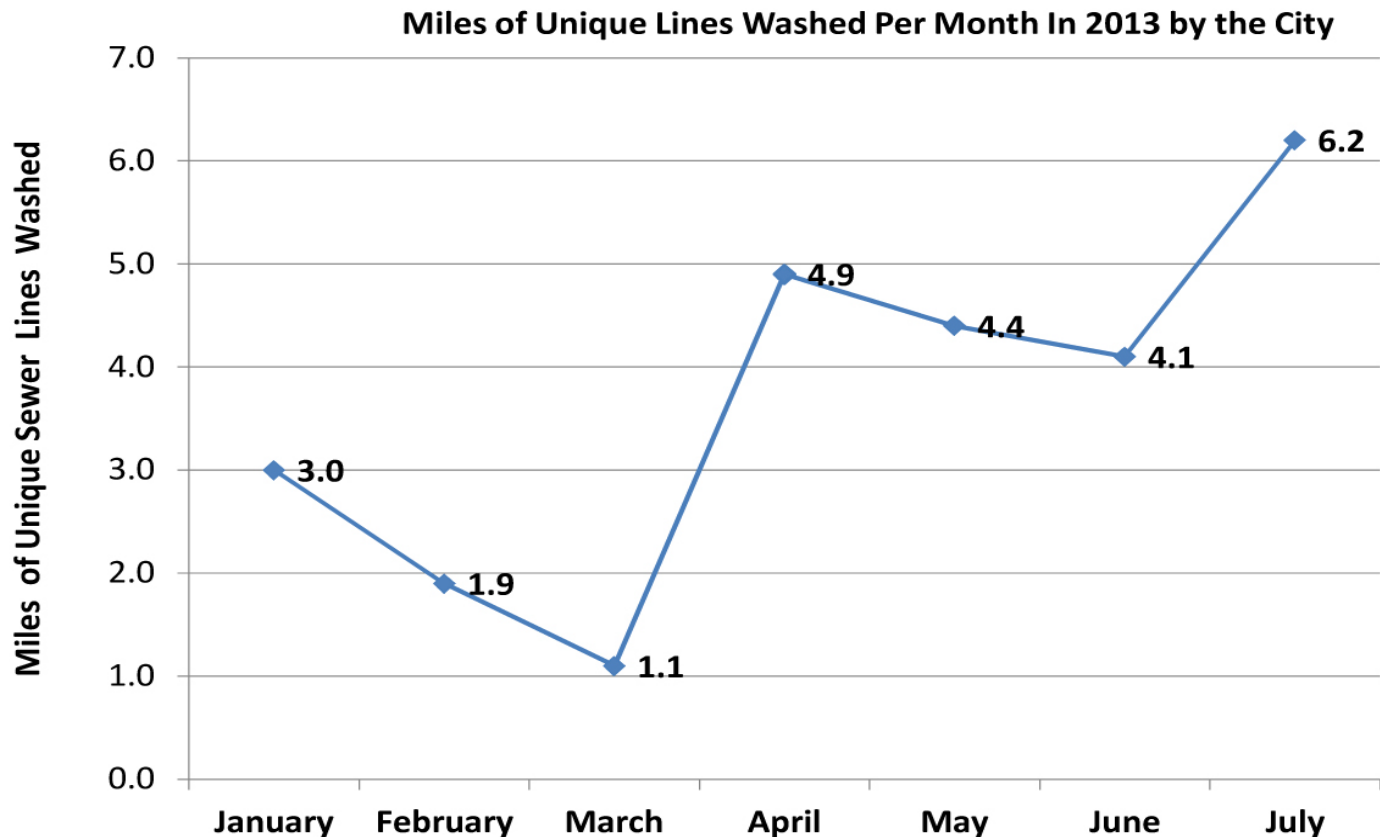


Reorganization of PM Lists

- Starting in late 2012, the PM lists were generated in Lucity at the beginning of each month.
- At the beginning of 2013, the 3 Monthly PM lists were mapped and reorganized by location.
- Monthly PM Lists were reviewed and a 6 Month PM list was created.
- Mapped siphons and created a 6 month PM list for washing siphons.

CMOM/Wastewater Collection System

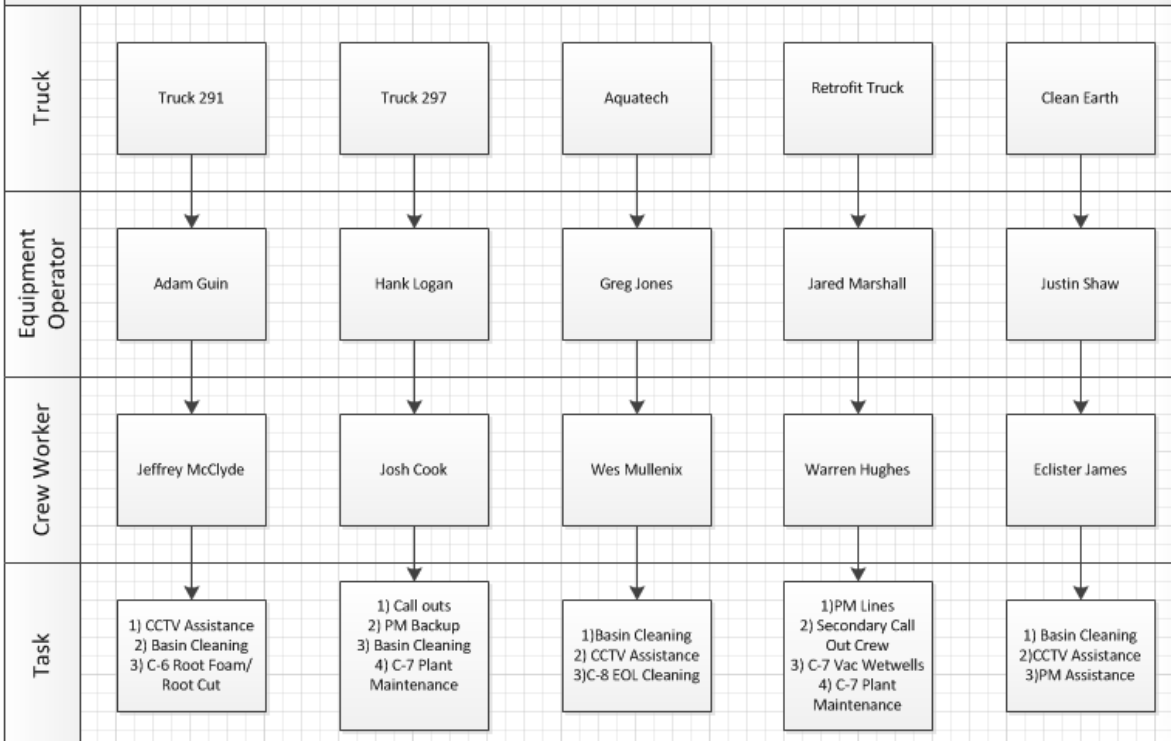
2013	Miles of Unique Lines Washed Per Month In 2013
January	3.0
February	1.9
March	1.1
April	4.9
May	4.4
June	4.1
July	6.2
Total	25.6



Reorganized Crews to Improve Efficiency

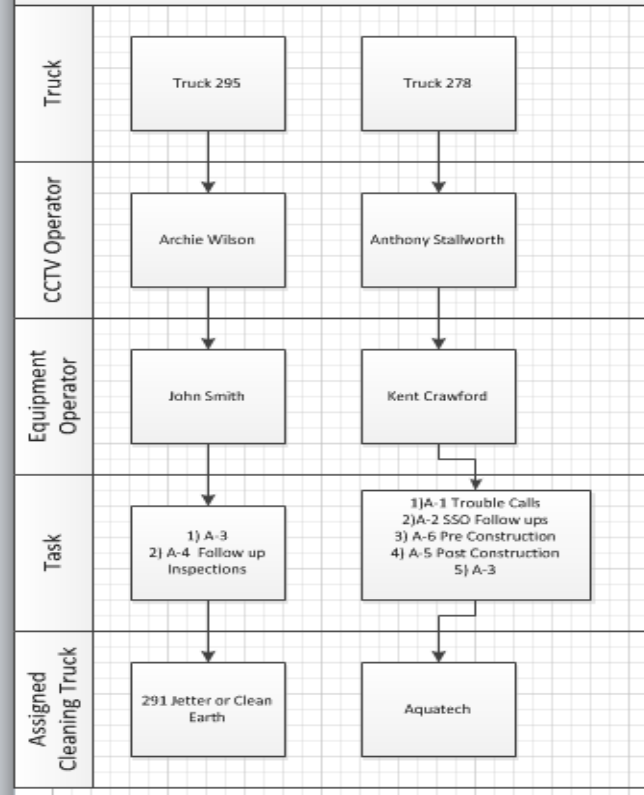
Cleaning Crew Structure

After Replacement is Hired and Retrofit is delivered



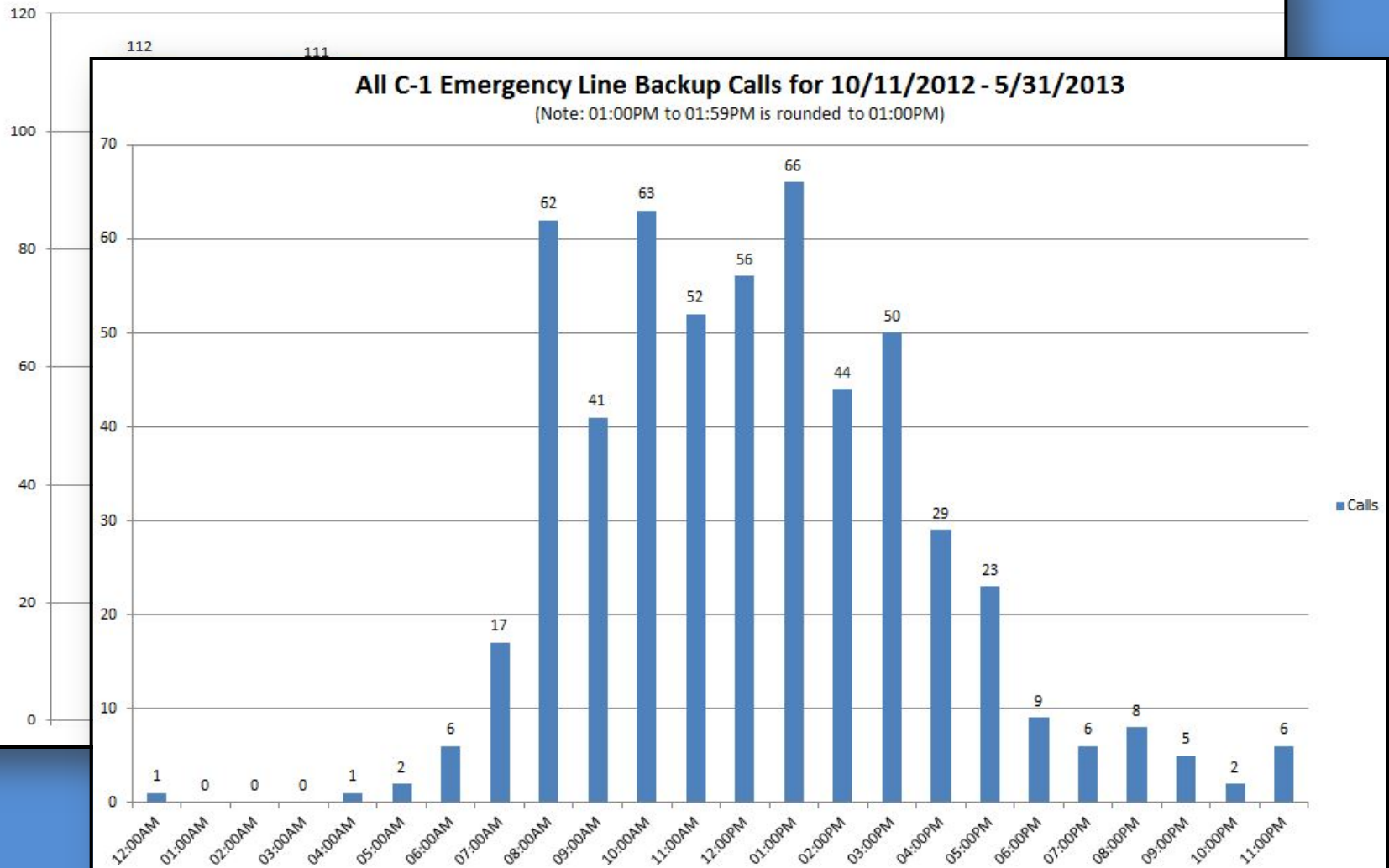
Assessment Crew Structure

After Replacement is Hired and Retrofit is delivered



Staff Reorganization

All C-1 Emergency Line Backup Calls for 10/11/2012 - 5/31/2013



Reformatted Custom 1 and Comments Tabs

Work Orders - Unnamed Filter Set

Work Order # 13-003299 Category 105.1 Pipe- Reactive Call Outs
 Status 999 Complete Problem 208 City Sewer Line Blockage
 Status Date 07/24/2013 08:30 AM Main Task 132 Jet Line

WO Location Assets List/Events Tasks/Res Routing Costs Billing Related Requests/Track Links Custom 1 Custom 2 Comments

Type of Discharge 5 Manhole Discharge
 Location 1 Onto Ground
 Weather 4 Heavy Rain
 MH Jet From Letter 2 b
 MH Overflow Letter 1 a

Notification Type Note-3 Notifiable: Potential of Human Exposur
 Final Destination Onto ground
 Start Time 8:00PM

Work Orders - Unnamed Filter Set

Work Order # 13-003369 Category 101.8 Lift Station Equipment
 Status 999 Complete Problem 203 Lift Station Alarm/Discharge
 Status Date 07/26/2013 01:37 PM Main Task 125 Get Station Online

WO Location Assets List/Events Tasks/Res Routing Costs Billing Related Requests/Track Links Custom 1 Custom 2 Comments

Recorded By	Recorded Date /	Recorded Time	General Comment
chorpe	07/26/2013	02:04 PM	The lift station crew found the station overflowing due to ...
chorpe	07/26/2013	02:09 PM	Follow-up recommended by Stacy King is to have the tr...
chorpe	07/26/2013	02:11 PM	Verbal to ADEM by CMT on 7/24/13 at 1:49pm on 248-59...
chorpe	07/26/2013	02:12 PM	Written to ADEM by Jarrod Milligan on 7/26/2013 at 7:37...
chorpe	07/26/2013	02:13 PM	Written to Health Dept by CMT on 7/25/13 at 2:29pm by ...
chorpe	07/26/2013	02:14 PM	Website notification by Jason Townsend on 7/25/13.
chorpe	07/29/2013	03:09 PM	Samples were pull from above and below the spill locati...
pburroughs	08/05/2013	08:50 AM	SSO Signage was placed by CMT on 7/23/13.

WO Creator ajones WO Creation Date 07/24/2013 07:49 AM PM Trigger
 Last Modified By chorpe Last Modified Date 08/08/2013 02:44 PM

Overflow Module

Sewer Overflows - Unnamed Filter Set

Overflow Rec # | 239 | AltID | | Status | 1 | Overflow Reported | Confirmed | Locked |

Info Receipt | Investigation | Cleanup | Affected Assets 1 | Affected Assets 2 | Review | Notification | Tracking | ReqWO | Custom | Custom2 | Comments |

Received | 07/17/2013 | 08:00 PM | Reported By | Ronnie Sheerer |

Taken By | Chris Green | Reported Phone | N/A |

Location

Address | 204 | 51ST ST |

Sewer Overflows - Unnamed Filter Set

Overflow Rec # | 239 | AltID | | Status | 1 | Overflow Reported | Confirmed | Locked |

Info Receipt | Investigation | Cleanup | Affected Assets 1 | Affected Assets 2 | Review | Notification | Tracking | ReqWO | Custom | Custom2 | Comments |

Investigator | Burroughs, Phillip | Primary Cause | 2 | Grease |

Invest Phone | (205) 210-2173 | Secondary Cause | |

Investig Start | 07/18/2013 | 08:00 AM |

Est. GPM | |

Est. Minutes | 120 | Overflowing Structure | Structure | 7427A | 0 |

Sewer Overflows - Unnamed Filter Set

Overflow Rec # | 239 | AltID | | Status | 1 | Overflow Reported | Confirmed | Locked |

Info Receipt | Investigation | Cleanup | Affected Assets 1 | Affected Assets 2 | Review | Notification | Tracking | ReqWO | Custom | Custom2 | Comments |

Rep Agency 1 | 1 | Verbal ADEM | Rep Agency 3 | 4 | Notify Health |

Reported to 1 | ISO Hotline (205-249-5921) | Reported to 3 | Tracy Elmore |

Date Reported 1 | 07/18/2013 | 07:58 AM | Date Reported 3 | 07/19/2013 | 07:38 AM |

Rep Method 1 | 1 | Telephone | Rep Method 3 | 3 | Email |

Rep Agency 2 | 2 | Written ADEM | Dept Health Not. | |

Reported to 2 | Sandra Lee | ADEM Notify | |

Date Reported 2 | 07/19/2013 | 07:40 AM | Other Notification | 3 | Website |

Rep Method 2 | 4 | Website | Notification Notes | Web - 7/18/13 |

Notifications

Notification #	Date Reported	Agency Text	Contact	Reporting Method Text

Record 1 of 1 | View Moc Ready...

Sewer Overflows - Unnamed Filter Set

Overflow Rec # | 239 | AltID | | Status | 1 | Overflow Reported | Confirmed | Locked |

Info Receipt | Investigation | Cleanup | Affected Assets 1 | Affected Assets 2 | Review | Notification | Tracking | ReqWO | Custom | Custom2 | Comments |

Notification Type | 6 | Notify Pot. of Exposure |

User 17 | | User 26 | | Disc. to Water | |

User 27 | | MWPP Reportable | |

Subbasin | 35 | 35 | Footage of Blockage | 125.00 |

MH Jet From Letter | 2 | b | MH Jet From | 7427.00 |

MH SSO Letter | 1 | a | MH SSO | 7427.00 |

User 21 | | User 31 | // | User 38 | |

User 22 | | User 32 | // | User 39 | |

User 23 | | User 33 | // | User 40 | |

User 24 | | User 34 | // | User 41 | |

Temp | | User 35 | // | User 42 | |

User 43 | |

User 44 | |

User 45 | |

Record 1 of 1 | View Moc Ready...

Cleaning Crew | Eclister James | Cleaning Meth 1 | |

Clean Crew Arrv. | 07/18/2013 | 07:30 AM | Cleaning Meth 2 | |

Contain Meth 1 | | Cleaning Finished | // | : AM |

Contain Meth 2 | | Disposal | |

Contain Meth 3 | | Gal. Recovered | |

Sign Posted | | Barricaded | | Samples Taken | | Notified Public | | Hurt Fish/Wildlife | |

Cleanup Comments

Signage placed by Eclister James on 7/18/13.

Record 1 of 1 | View Moc Ready...

Last Ty Date | // | | |

Last Maint Date | 11/15/2012 | | Follow Up | 108 | CCTV |

Last Maint Type | 122 | Foam Line | | Needed Sys Impr | |

Cond at Maint | | | | Reason | |

Current Act Taken | 132 | Jet Line | | Est Cost incurred | |

Overflow Cause

Grease

Review Comments

CCTV assigned per W.O. #12-002257 and Basin washing assigned per W.O. #13-001949.

Record 1 of 1 | View Moc Ready...

Present Priorities

Work Orders - Unnamed Filter Set

Work Order # 13-003299 Category 105.1 Pipe- Reactive Call Outs
Status 999 Complete Problem 208 City Sewer Line Blockage
Status Date 07/24/2013 08:30 AM

Asset 7427A 7427B
Location 204 51ST ST Tuscaloosa

Cause 302 Grease
Assigned Crew 112 Vac Truck (Old) Crew
Supervisor 78 Barton, Scott
Lead Worker 46 Jones, Gregory L.
Priority 10 C-1 Emergency Line Backup
Account #
Contact Person
Project Text
Project #

Priority

Code	Description
1	High
2	Medium
3	Low
4	A-1 Emergency Assessment
5	A-2 SSO Follow up Invest.
6	A-3 Never Scored Asset/SA
7	A-4 Post Cleaning/Renewal
8	A-5 Post New Const. Insp.
9	A-6 Pre New Const. Insp.
10	C-1 Emergency Line Backup
11	C-2 SSO Follow Up Work
12	C-3 Hist. Maint. PM
13	C-4 Pipe w/ 90+ Score
14	C-5 Pre CCTV Cleaning
15	C-6 Root Cut/Lateral Cut
16	C-7 Vac Wetwell/WWTP Work
17	C-8 EOL Cleaning
18	C-9 Clean Line for Other
19	NC-1 Non Core Work 1
20	NC-2 Non Core Work 2
21	NC-3 Non Core Work 3
22	A-7 Inspect Line Other DP

Select
Close
Caption
Add
Edit
Delete

Where are we going?



The Future

- Fully Migrating all SSO data to the SSO Module
- Update to Current Lucity Version
- Sewer Condition Risk Evaluation Assessment Model (SCREAM) in conjunction with Lucity to drive Continuing Sewer Assessment Program
- Implementing Lucity and GIS in Water Distribution Division
- Implementing Lucity in Water and Wastewater Treatment Plants
- Lucity Mobile for Field Crews
- Dashboard for Supervisors & Management
- Scheduling Predictive Maintenance

Extensive Training

- Bi-Weekly Lucity and GIS Training Session with Supervisors
- SQL Training for Asset Management DB Specialist
- Crystal Report Training for Analyst Staff

Questions?

