EPA United States Environmental Protection Agency

Region 6 Compliance Assurance and Enforcement Division

INSPECTION REPORT

Inspection Date(s):	06/29/2017		
Media:	Water		
Regulatory Program(s)	NPDES – Clean Water Act		
Company Name:	**Cedar Hill, City of – Trinity River Authority (TRA) Member City**		
Facility Name:	**Cedar Hill Wastewater Collection System**		
Facility Physical Location:	1554 South Clark Rd.		
(city, state, zip code)	Cedar Hill, Texas 75104		
Mailing address:	285 Uptown Blvd.		
(city, state, zip code)	Cedar Hill, Texas 75104		
County/Parish:	Dallas and Ellis Counties		
Facility Contact:	Elias Sassoon (Joe Komisarz)	Public Works Director (Interim PW Director)	
	elias.sassoon@cedarhilltx.com (joe.komisarz@cedarhilltx.com)		
FRS Number:	110010934409		
Identification/Permit Number:	TXU000147 [and served by TRA - Central Regional (TX0022802), Ten Mile (TX0022811), and Red Oak (TX0104345) Wastewater Treatment Systems]		
Media Number:	N/A		
NAICS:	22132		
SIC:	4952		

Personnel participating in inspection:			
Elias Sassoon	City of Cedar Hill	Public Works Director	972-291-5126
Adam Campbell	City of Cedar Hill	Public Works Ops. Manager	972-291-5126
Mike Farr	City of Cedar Hill	Public Works Utility Supervisor	972-291-5126
Duy Vu	City of Cedar Hill	Public Works Environ. Mgr.	972-291-5126
Gregg Kidd	City of Cedar Hill	Public Works Environ. Const. Mgr.	972-291-5126
Mike Tillman	EPA Region 6 (6EN-WM)	Environmental Scientist	214-665-7531
Rachel Matthews	EPA Region 6 (6EN-WM)	Life Scientist	214-665-8589

EPA Lead Inspector Signature/Date	Mike Tillman	12/19/17
	{Inspector name} Mike Tillman	Date
Supervisor Signature/Date	Carol Peters-Wagnon	12/20/17
	{Supervisor name} Carol Peters-Wagnon	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

The purpose of the inspection was to examine the City of Cedar Hill's (or City) sanitary sewer collection system as an element of the EPA's National Sanitary Sewer Overflow (SSO) Initiative to prevent raw sewage from entering streets, rivers, reservoirs, front yards, etc. For further SSO initiative information you may reference the web link: https://www.epa.gov/enforcement/water-enforcement. The scope of the inspection is to generally evaluate the municipalities that receive Trinity River Authority (TRA) wastewater treatment services in order to assist in stopping or mitigating unauthorized/unpermitted discharges or SSOs.

EPA Region 6 inspectors arrived at the City of Cedar Hill's Public Works Office at approximately 9:00 am on June 29, 2017 for an announced Compliance Evaluation Inspection (CEI). We met with the City's Public Works Director and other staff listed on the cover sheet above and illustrated by the inspection sign-in sheet (Appendix 2.) We presented our credentials and the purpose of the inspection was broadly explained as a collection system compliance evaluation of areas such as capacity, management, operations, and maintenance (CMOM) and associated SSO mitigation activities; as well as comprehensive SSO reporting according to Texas law. For further CMOM program guidance you may reference the web link: https://www3.epa.gov/npdes/pubs/cmom_guide_for_collection_systems.pdf.

The inspection was conducted in accordance with the Clean Water Act (CWA). The City's collection system is regulated under the:

- Texas Water Code (TWC)
- Texas Administrative Code (TAC)
- Texas Health and Safety Code
- Clean Water Act (CWA)
- Code of Federal Regulations (CFR)
- Associated CRWWS NPDES General Permit Conditions

Before leaving the facility, an exit briefing was conducted that explained observations, suggestions and areas of concern. This inspection report is based on information supplied by the City's representatives, observations made by the U.S. EPA inspectors, records and reports maintained by the City of Cedar Hill, the State of Texas, and the U.S. EPA. Greg Diehl and Sandy Van Cleave of the TCEQ were notified of the inspection, but did not to participate.

FACILITY DESCRIPTION

The City of Cedar Hill is approximately 36.0 square miles in size. The collection system consists of three (3) different basins which flow to three (3) different TRA wastewater treatment plants; Central Regional, Mountain Creek, and Red Oak for contractual wastewater treatment services (Appendix 3.) Most of the system (80%) has been constructed since the 1980's and consists of 213 miles of pipe comprised of 13.5% vitreous clay (VC), 1.3% ductile iron (DI), 83.8% polyvinyl chloride (PVC), and 1.3% other materials with 20 lift stations. The Utility serves approximately 49,500 residents and 714 commercial connections. Cedar Hill's wastewater supervisory control and data acquisition (SCADA) system is located at the Public

Works Department and is supported by a dedicated generator for emergency backup power (Appendix 1; photo # 1.) The water/wastewater utility has a total of fourteen (14) full time positions; one supervisor, four crew chiefs, seven utility maintenance workers, and two utility technicians. The City currently has 148 active aerobic on-site sewerage treatment systems within its jurisdiction. All septic systems with a leach field have been required to install an aerobic treatment system or tie into the City's collection system. Systems are constructed in accordance with State rules and require timely maintenance contracts.

Section II – OBSERVATIONS

A) Based on the inspection discussions, data analysis, and observations at the time of the inspection:

- According to staff, Cedar Hill's collection system does not experience any problems during dry weather.
- It was noted that the City of Cedar Hill received several 'historic' rain events (i.e. roughly greater than a 50-year flood event) in the months of June and July in 2015, but they did not have a significant impact on the collection system.
- Wet weather problems tend to occur near connections with the Trinity River Authority (TRA) system, 90% being in the Red Oak basin. Specifically, three (3) areas which include Brookside Drive, the Red Oak interceptor, and at the intersection of Cooper Street and Hastings Drive.
- The most recent inflow and infiltration (I/I) study was completed in the Red Oak basin in June 2016. Findings from 2013 and 2016 studies will help identify future capital improvement projects.
- Cedar Hill has four (4) wastewater maintenance crews available during normal business hours. Each crew rotates one (1) week each month for after hours on-call duty.
- Sewer calls that come in during business hours are received by the receptionist at the Call Center (Appendix 1; photo # 2), who sets up a work order and notifies one of the four (4) crew chiefs. The crew chief taking the call directs his crew to respond. Upon job completion, crews complete the work orders by hand (logbooks) and turn them into the supervisor who is responsible for entering the information into the automated work order system - Cartegraph. Cedar Hill has no written standard operating procedure (SOP) for the Call Center.
- After hours sewer calls are handled by the City of Duncanville Call Center and forwarded to the Cedar Hill Duty Phone, which is manned 24 hours a day.
- All SSOs, regardless of size, are reported to the Texas Commission on Environmental Quality (TCEQ) as required by state law, except for those from private property. One exception is any private property overflow that enters a curb and gutter or street inlet, these are reported.
- Normally, private side overflows are brought to the attention of the customer, who is responsible for making necessary repairs. If overflows are a repeat problem, the City will televise the line to help determine the problem. If the customer does not correct the problem, the matter is turned over to Code Enforcement, who can issue the customer a citation.
- Cedar Hill has 20 lift stations; two (2) have permanent on-site generators for backup power, four (4) are wired with quick connects and share the use of one (1) portable generator, and 14 have enough holding capacity to utilize a vac-truck to manually move wastewater to another

gravity flow line. The City has a vac-truck company on standby contract who can respond in an emergency within two (2) hours. Generators are tested weekly to verify operation and output.

- Lift stations are monitored via SCADA 24/7, are inspected weekly, and cleaned monthly. The City of Cedar Hill does not have written SOPs or checklists for lift station operation and maintenance (O&M) activities.
- The SCADA system is located at the Public Works Department on South Clark Road. The system monitors both drinking water and wastewater infrastructure, has back-up power supplied by a dedicated generator, and the capability of an alarm notification via cell phone App Mobile 911. Technicians can also log in remotely via laptop to check system status. The City is looking to eventually install a mirror SCADA system at City Hall. The City has no written SOP for SCADA operations.
- Cedar Hill has a geographical information mapping system (GIS) and is currently identifying and cataloging its wastewater infrastructure. Once up to date, the City will integrate the information with its asset management program for better tracking.
- Cedar Hill has been a participant in the TCEQ's Sanitary Sewer Overflow Initiative (SSOi) program since 2007. The initiative is set to expire in 2017, but the City has plans to renew its commitment to the program. The latest SSOi report to TCEQ, dated February 12, 2016 is attached (Appendix 4.)
- A fats, oils, and grease (FOG) program has been implemented to regulate the discharge of grease and oils to the collection system. Grease and oil are known to be a major contributor to SSOs in most municipalities. Components of the FOG program include public outreach, a public grease drop off location, a liquid wastehauler/grease trap program, and industrial pretreatment program.
- Restaurant/grease trap inspections are carried out by a 3rd party health inspector. Under the grease trap program, restaurants are required to pump their traps every 90 days. The pretreatment program is contracted out to the Trinity River Authority.
- Written SOPs are in place for SSO response and clean-up (Appendices 5 and 6.)
- An initial infiltration and inflow (I/I) analysis has been performed in some of the older sections of the city. The initial analysis has been followed up with closed circuit television (CCTV) and repairs. Repairs consist of pipe bursting and slip lining as needed. The primary target areas are the 10 mile and Red Oak basins. An assessment of ongoing work was performed in July 2016 to determine the effectiveness of repairs. The report is attached as Appendix 7
- Hydro jet cleaning and CCTVing of lines is an ongoing process to identify trouble areas. Problem (hot spots) areas receive monthly preventative maintenance to help prevent SSOs.
- The City has not established any annual cleaning goals (pipe footage/year) for cleaning of the collection system.
- Staff have regular safety meetings and training. Training consists of protocol for confined space entry; SSO response, cleanup, documentation and reporting.
- Asset management is an ongoing process. As sections of the collection system are CCTV'd, pipe condition is being assessed and categorized. This information is being transferred into the City's GIS system and integrated into the asset management and work order software. Once lines are identified for replacement or rehab, they are submitted for inclusion in the Capital Improvement Plan (CIP.)
- System funding is provided through Enterprise and CIP funds. The Enterprise fund is based on utility rates, which are reviewed on a regular basis. The next rate study is to be completed by the end of 2017. The CIP is renewed on an annual basis and has line items included for I/I

studies, line repairs and replacements. See Appendix 8 for the sewer line items in the CIP.
- The City does not have a standing emergency fund. Emergency repairs are funded as needed from the general fund.

B) Capacity Management, Operations, and Maintenance Program (CMOM)

- At the present time, Cedar Hill does not have a formal CMOM program in place, but management is looking at the possibility of establishing one.
- The Public Works, Operations Manager attended TCEQ's CMOM training last year and plans to attend again this year.

C) Relevant regulatory information:

- Failure to prevent unauthorized/unpermitted discharges or Sanitary Sewer Overflows is stipulated in TAC § 305.125(9); TWC § 26.121(a); Section 30lof the CWA; and 40 CFR § 122.l(b) corresponding to the "NPDES Permit" General Conditions.
- Failure to implement proper O&M of the collection system is stipulated in Title 30 of the TAC § 305.125(5) & 40 CFR § 122.4l(e) corresponding to the "NPDES Permit" General Conditions.

Section III – AREAS OF CONCERN

- A review of TCEQ's SSO data base determined that Cedar Hill is missing reporting data for 2013 and 2014. Although sampling data for these years is available, neither TCEQ or the City can locate any of the SSO reports. (Example SSO Report – Appendix 9).
- Visits to the Bedford Branch, Lake Ridge 3, and Sherwood lift stations provided evidence of tree and/or vegetation encroachment into the security fencing. Additionally, fence maintenance was in need of attention at the Sherwood site (Appendix 1; photo #'s 5, 9, 10, and 13.)
- The audio/visual alarm at the Lake Ridge 3 lift station was inoperative at the time of inspection (Appendix 1; photo # 8.)
- Physical signage at the Sherwood lift station is lacking emergency contact information (Appendix 1; photo # 10.)

Section IV - RECOMMENDATIONS

EPA generally recommends that the City of Cedar Hill:

1. Regularly review staffing, equipment, and funding levels to ensure wastewater utilities has adequate resources to properly implement an SSO prevention and mitigation program. Consider an increase in proactive activities as a major component of a "sustainability" program.
2. Finalize efforts to migrate the City's work order system, asset management system and GIS information into the Cartegraph system.
3. Update any GIS mapping efforts incorporating all identified assets and hot spots into the system and map all assets and hot spots on a physical map.
4. Periodic follow-up with generators and liquid wastehaulers on the cleaning and disposal of grease/grit trap wastes.
5. Develop written SOPs for the Call Center, SCADA system, and all other critical components of wastewater operations, including all O&M procedures.

6. Consider establishing annual collection system cleaning goals (pipe footage/year.)
7. Develop and update as required, a spare parts inventory list.
8. Implement procedures to prevent future loss of SSO reporting records.
9. During site visits, wet wells at the Lake Ridge 3 and Sherwood lift stations appeared to be in need of cleaning. The frequency of scheduled maintenance may need to be increased (Appendix 1; photo #'s 7 and 11.)
10. Develop and implement a formal CMOM program.

Section V – FOLLOW UP

The following information was received by EPA after exiting the Facility on 6/29/17:

1. Mr. Elias Sassoon, Public Works Director, City of Cedar Hill, transmitted the following via email:
    - July 6, 2017 – SSO SOP, Wastewater Spill Procedure, CIP Budget, FOG Ordinance, Draft Liquid Wastehauler Ordinance, Draft On-Site Sewage Disposal (OSSD) System Ordinance, Illicit Discharge Reporting Form, Lift Station Assets
    - July 7, 2017 – City Sanitary Sewer Map, City Utility Map
    - August, 4, 2017 – Draft Liquid Wastehauler Ordinance, Draft OSSD Ordinance
    - August 30, 2017 – Final Liquid Wastehauler Ordinance, Final OSSD Ordinance
2. Mr. Adam Campbell, Operations Manager, City of Cedar Hill transmitted the following via email:
    - November 22, 2017 – Information on sewer maintenance crews and addresses for lift stations visited during the CEI
    - November 29, 2017 – TCEQ SSO Report for March 10, 2017

Section Vi – LIST OF APPENDICES

Appendix 1 – Photograph Log – 13 photos taken 6/29/17
Appendix 2 – Opening Conference Sign-in Sheet
Appendix 3 – Cedar Hill Sanitary Sewer System Map
Appendix 4 – SSOi Report to the TCEQ - February 12, 2016
Appendix 5 – Cedar Hill Wastewater Spill Procedures
Appendix 6 – Cedar Hill SOP for Sanitary Sewer Overflows
Appendix 7 – Sanitary Sewer Flow Monitoring Report
Appendix 8 – Cedar Hill Capital Improvement Budget – update May 10, 2017
Appendix 9 – Cedar Hill Example SSO Report to TCEQ
Appendix 10 – Cedar Hill SSO Checklist

Appendix 1

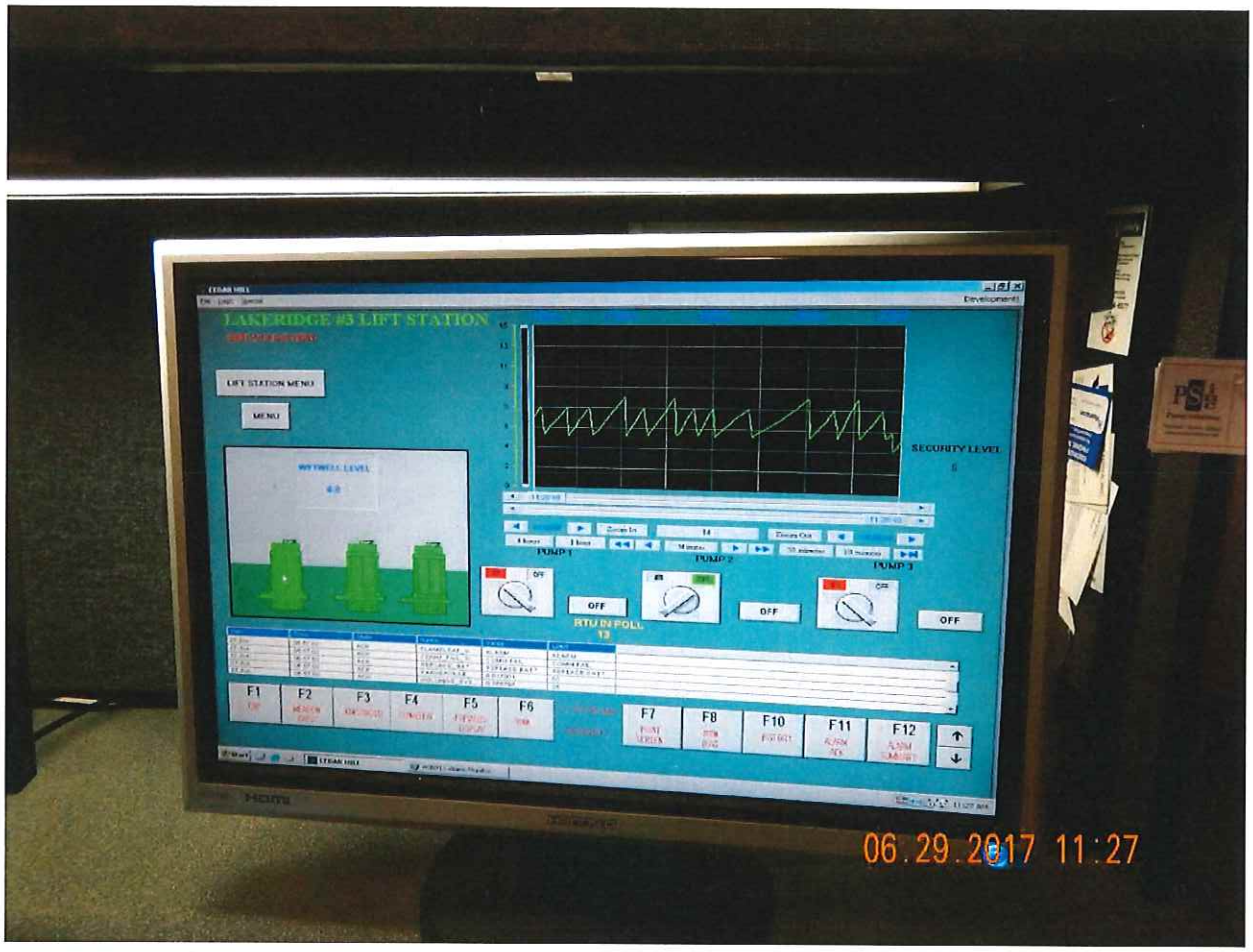
Photograph Log

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Public Works Department, 1554 South Clark Road, Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 11:27 AM	
Comments: Wastewater SCADA System.		

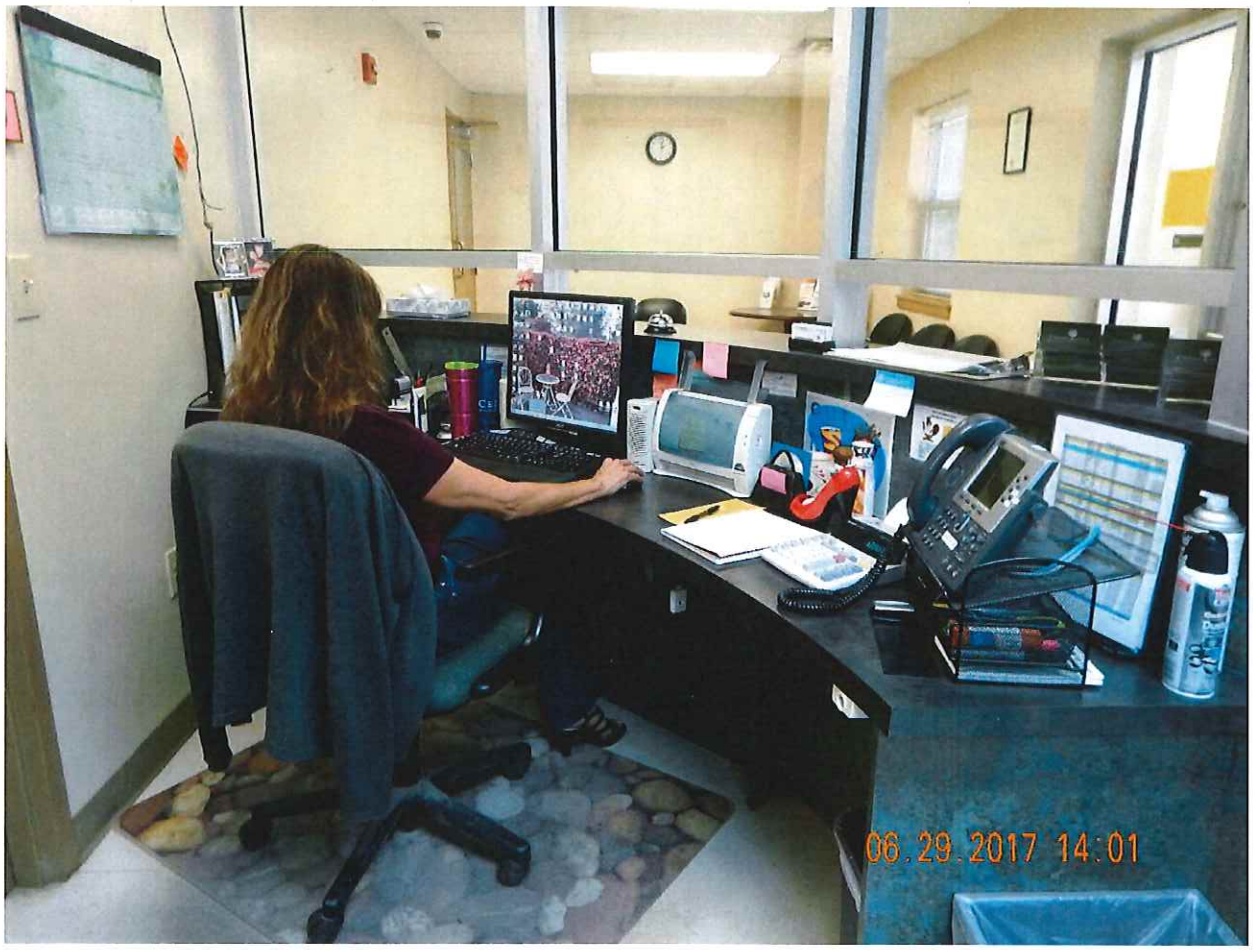


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Public Works Department, 1554 South Clark Road, Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 2:01 PM	
Comments: Customer Call Center at the Public Works Department.		



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

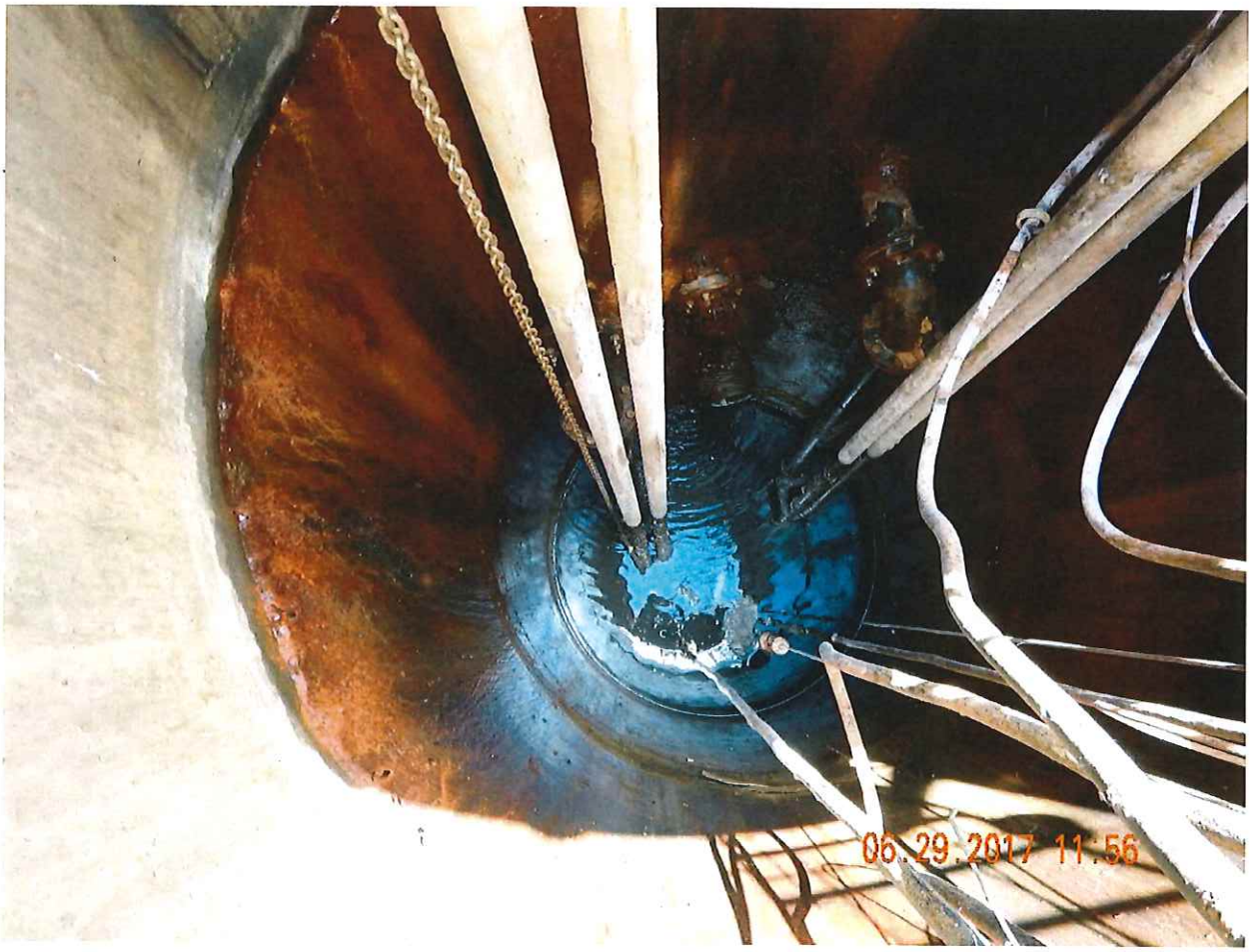
Location: Bedford Branch Lift Station, 3000 Alyssum Dr., Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 11:56 AM	
Comments: Lift station with electrical panel and back-up generator in the back ground.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: Bedford Branch Lift Station, 3000 Alyssum Dr., Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 11:56 AM	
Comments: Bedford Branch wet well.		



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: Bedford Branch Lift Station, 3000 Alyssum Dr., Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 11:59 AM	
Comments: Note trees encroaching on security fencing need to be trimmed away.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: Lake Ridge 3 Lift Station, 1617 Park Garden Ct., Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:29 PM	
Comments:		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Location: Lake Ridge 3 Lift Station, 1617 Park Garden Ct., Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:26 PM	
Comments: Lake Ridge 3 wet well. Note heavy amounts of grease / floating debris and apparent need of cleaning.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Location: Lake Ridge 3 Lift Station, 1617 Park Garden Ct., Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:27 PM	
Comments: Lake Ridge 3 electrical panel with visual alarm. Note audio / visual alarm inoperative at the time of inspection.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Location: Lake Ridge 3 Lift Station, 1617 Park Garden Ct., Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:28 PM	
Comments: Note trees and vegetation encroaching on security fencing, need to be trimmed away.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

Location: Sherwood Lift Station, 723 Sherwood, Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:49 PM	
Comments: Note physical signage with emergency contact information is missing from the gate.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Location: Sherwood Lift Station, 723 Sherwood, Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:50 PM	
Comments: Sherwood wet well. Note heavy amounts of grease / floating debris and apparent need of cleaning.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

Location: Sherwood Lift Station, 723 Sherwood, Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:51 PM	
Comments: Sherwood electrical panel with visual alarm.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Location: Sherwood Lift Station, 723 Sherwood, Cedar Hill, TX 75104		
City: Cedar Hill	County: Dallas / Ellis	State: Texas
Date: 06/29/2017	Time: 12:59 PM	
Comments: Note trees and vegetation encroaching on security fencing, need to be trimmed away. Fencing in state of disrepair with gaps in barbed wire at front gate.		

Appendix 2

Opening Conference Sign-in Sheet

United States Environmental Protection Agency
Region 6 – Water Enforcement Branch
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

DATE: **June 29, 2017**

TIME: **9:00 AM**

SUBJECT OF MEETING: **City of Cedar Hill,**
SSO Compliance Assurance Project

NPDES No.: **TXU000147 (MCRWWS: TX0025011)**

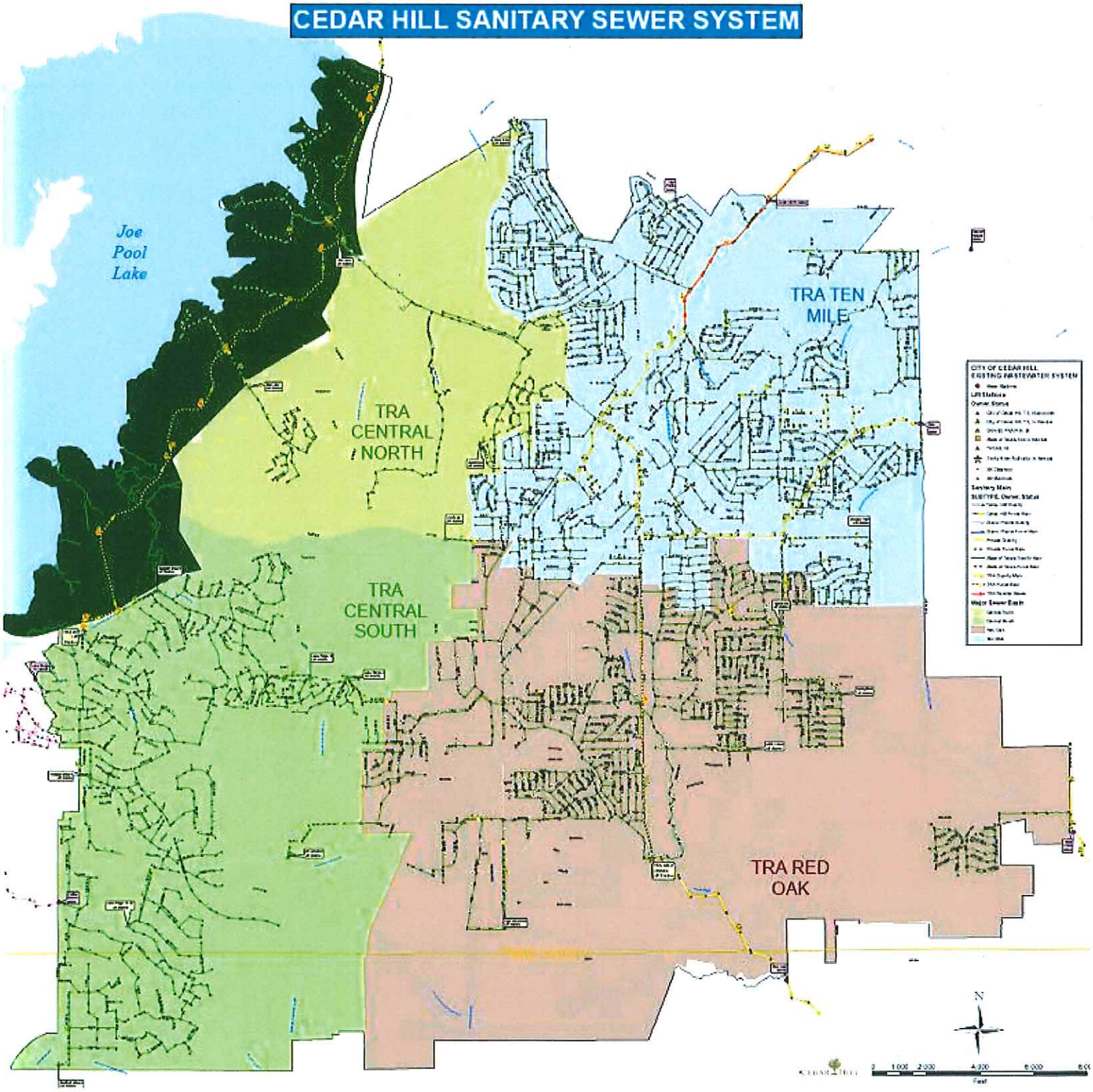
MEETING ATTENDEES

NAME	COMPANY	PHONE NO.	EMAIL
Michael Farr	Cedar Hill	972-291-5126	mike.farr@cedarhilltx.com
Elias Sassoon	Cedar Hill	972-291-5126	elias.sassoon@cedarhilltx.com
Adam S Campbell	Cedar Hill	972-291-5126	Adam.Campbell@cedarhilltx.com
Gregg Kidd	Cedar Hill	972-291-5126	gregg.kidd@cedarhilltx.com
Duy Vu	Cedar Hill	972/291-5126	Duy.Vu@CEDARHILLTX.COM
Rachel Matthews	EPA	214-665-8589	Matthews.rachel@epa.gov
Mike Tillman	EPA RC	214-665-7531	tillman.michael@epa.gov

Appendix 3

Cedar Hill Sanitary Sewer System Map

CEDAR HILL SANITARY SEWER SYSTEM



Appendix 4

SSOi Report to the TCEQ
February 12, 2016

CEDAR HILL
WHERE OPPORTUNITIES GROW NATURALLY

City of Cedar Hill
Department of Public Works
1554 S. Clark Road, Cedar Hill, TX 75104
285 Uptown Blvd, Building 100, Cedar Hill, TX 75106
Phone: 972-291-5126
Facsimile: 972-291-5120

February 12, 2016

Order Compliance Team, Enforcement Division, MC 149A,
Texas Commission on Environmental Quality,
PO Box 13087
Austin, TX 78711-3087

Reference: SSO Agreement Progress Report 2013- Enforcement Case No. 34359

Order Compliance Team:

4,200 feet of 6 and 8 inch sewer line was rehabilitated by CIPP method and pipe bursting to mitigate I&I.

Flow monitoring will be performed in basins 1,2,3,4,5 and a portion of 6 to evaluate the effectiveness of mitigation that has been performed.

Televising of basins 8,9,10 is in progress at this time. Once completed, an assessment will be performed.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Adam S. Campbell
Operations Manager
City of Cedar Hill
285 Uptown Blvd. Building 100
Cedar Hill, TX 75106
Phone: 972-291-5126 x2824
adam.campbell@cedarhilltx.com

cc: Mr. Sid Slocum, Manager, Water Section, Dallas/Fort Worth Regional Office, TCEQ
2309 Gravel Drive, Fort Worth, TX 76118-6951

Appendix 5

Cedar Hill Wastewater Spill Procedures

CITY OF CEDAR HILL
WATER DEPARTMENT
WASTE WATER SPILL PROCEDURES

1. Fix the cause of the problem:

   A. If it is a failed pump station determine the problem and restore service. If you can't make the repairs, call Chris Williams or James Kuykendall.

   B. If it is a sewer main, contact any Water Utility Crew.

   C. If it is a sewer backup use sewer jet machine.

2. Take samples. Keep samples on ice.

3. Contain the spill by use of earthen berms or hay bales when close to a stream or water way.

4. Call for vac truck to siphon up spill if necessary.
   If you can't, call Heath Gatlin at 469-585-1626.

5. Notify TCEQ at: (512) 463-7727 24-hours a day or fax: 817-588-5701.

6. Disinfect the area and wash down with proper disinfecting agent for decontamination of area. Use chlorine or an industrial disinfectant except when within 1/2 mile of Joe Pool Lake.

7. FAX report to TCEQ at 817-588-5701.

8. Take samples to TRA Central Lab at 6500 Singleton Blvd, Dallas, TX, 972-263-2251.

Appendix 6

Cedar Hill SOP for Sanitary Sewer Overflows

CEDAR HILL
WHERE OPPORTUNITIES GROW NATURALLY

PUBLIC WORKS DEPARTMENT

285 Uptown Blvd., Cedar Hill, TX 75104
O. 972.291.5126
F. 972.291.7250

STANDARD OPERATING PROCEDURE
SANITARY SEWER OVERFLOWS FROM MANHOLES

1.0 Introduction

The City of Cedar Hill Environmental Services Division confronts situations in which sanitary sewage overflows to City of Cedar Hill streets, storm water drains, public and private property, and/or waterways.

2.0 Purpose

Define the responsibilities of Environmental Services personnel when acting as a responder to the scene of an incident where a sanitary sewer manhole(s) has overflowed to City of Cedar Hill streets, storm water drain system, public or private property, and/or waterways.

3.0 Authority Reference for Public Notification

Texas Administrative Code 319.301 through 319.303: Subchapter C Public Notice of Spills or Accidental Discharges from Wastewater Facilities Owned or Operated By Local Governments.

4.0 Definitions

4.1 Reportable Discharge is defined as any release of raw sewage from the city sanitary collection system. All sanitary sewer overflows must be reported.

4.2 Sanitary Sewer Overflow is defined a release of untreated sewage from the city's sanitary sewer system into the environment.

4.3 Small Sanitary Sewer Overflow is defined as any discharge from the city's sanitary sewer system that is less than 250 gallons.

4.4 Large Sanitary Sewer Overflow is defined as any discharge from the sanitary sewer system that is more than 250 gallons.

4.5 Vactor Rodder Truck is capable of both jetting water to break up and remove clogs as well as vacuum liquid waste.

Mayor, Rob Franke • Mayor Pro Tem, Stephen Mason • Jami McCain • Daniel C. Haydin, Jr.
Wallace Swayze • Chris Parvin • Clifford R. Shaw • City Manager, Greg Porter

CEDAR HILL
WHERE OPPORTUNITIES GROW NATURALLY

PUBLIC WORKS DEPARTMENT

285 Uptown Blvd., Cedar Hill, TX 75104
O. 972.291.5126
F. 972.291.7250

5.0 Public Works Operations General Response Capabilities

5.1 Public Works Operations will contact Environmental Services when the spill is: a) over 250 gallons, b) has reached waters of the U.S., or c) consultation is needed.

5.2 The Environmental Inspector needs to be aware of the general capabilities of the Public Works Operations equipment. Public Works Operations is able to:

a. CLEAN: clean and remove large and small blockages in the sewer lines, vacuum up liquid/sludge spills, powerwash or hose down areas with potable water;
b. CONTAIN - excavate small areas, build earthen dams when feasible;
c. RECOVER SEWAGE - pump sewage overflow or mixture of sewage overflow and surface water into sanitary sewer inlet such as a manhole or into a liquid waste or Vactor Rodder truck; and
d. REPAIR - repair/replace pipeline breaks and failures.

5.3 Public Works Operations crew leaders are aware of their equipment limitations. Common sense should be applied when a stream channel is too steep, too heavily forested, or simply too large to dam. Other locations may or may not be suitable.

5.4 Time considerations should also be made. For instance, if the overflow discharge is minimal, such as 5-10 gal/minute, and the time estimated to stop the overflow is only 30 minutes, it would not be wise to call on delivery of large equipment for dam construction. The Environmental Inspector should remember that the waterway may be pumped with or without damming it.

6.0 Procedures for Handling Sanitary Sewer Overflows from a Manhole

6.1 The Environmental Inspector will arrive on the scene and discuss the probable cause of the spill with Public Works Operations. The Environmental Inspector must make note of the time that the spill began (time it was reported to Public Works Operations) on the Illicit Discharge Reporting Form (see attached).

Mayor, Rob Franke • Mayor Pro Tem, Stephen Mason • Jami McCain • Daniel C. Haydin, Jr.
Wallace Swayze • Chris Parvin • Clifford R. Shaw • City Manager, Greg Porter

CEDAR HILL
WHERE OPPORTUNITIES GROW NATURALLY

PUBLIC WORKS DEPARTMENT

285 Uptown Blvd., Cedar Hill, TX 75104
O. 972.291.5126
F. 972.291.7250

6.2 If the overflow has not stopped, the Environmental Inspector and Public Works Operations will work together to determine how to contain and stop the spill before clean-up actions can take place (actions may include building a dam, diverting flow, or pumping to a sanitary sewer manhole).

6.3 While Public Works Operations crews work to stop the overflow, the Environmental Inspector must visually observe the area of overflow.

a. Make note of the type of surroundings and whether or not it occurred in an area with high public access.
b. Make note of whether the property is private or public. Many times the area is a City-owned utility easement.
c. Look at the freshly overflowed material. If there is a suspicious sheen or color, or odor and the Environmental Inspector has reason to believe that the overflow may be a source other than typical wastewater, the Environmental Inspector must immediately refer to the Spill Procedures SOP and alert the Public Works Operations on-site crew leader.
d. Look at the stream segment that was impacted. Make note if there is a visual increase in turbidity downstream versus upstream of the overflow. Under low flow conditions it may be obvious as to the extent of the contamination.
e. If the extent of contamination is not obvious it will be necessary to take samples upstream and at duplicate locations downstream to determine the extent of contamination. Both Ammonia N and Ortho Phosphates can be indicative of sewage contamination. Instruction for sampling and testing are included in the Colorimeter kits. These kits are kept at the Environmental Quality office in the storage room and at the field office. NH_3 levels are not expected to be above 0.5 ppm under *normal* flow conditions.
f. Containment operations should begin as soon as the extent of contamination is determined. Containment may include building a dam across a small water channel, building a dam to divert flow from a highly sensitive or highly accessed public area, or suction into a Vactor Rodder truck until clean up can proceed. Placement of the dam is key to proper containment.

6.5 If the discharge location of the SSO is not known, the Environmental Inspector may need to use a storm drain map.

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O. 972.291.5126
F. 972.291.7250

6.6 Once the overflow has stopped, the Environmental Inspector and Public Works Operations will work together to determine the appropriate clean up response. Clean up actions may include:

a. Flushing the area with potable water, and/or pumping the waterway into a sanitary sewer manhole;
b. Pumping smaller area into a Vactor Rodder truck;
c. Pumping into a liquid waste hauler truck;
d. Power hosing down the manhole cover area with potable water to remove residue;
e. Removing severely contaminated soil and sludge materials around the hole by hand shovels; and/or
f. Applying lime to reduce odor and disinfect the area.

6.7 The Environmental Inspector must confer with the Public Works Operations Crew Leader on-site to determine the official estimated amount of overflow. The Environmental Inspector must record this amount and use for the Illicit Discharge Reporting Form; Public Works Operations will report this amount to the TCEQ. **Any amount ≥50,000 gallons or a spill regardless of volume that the facility owner knows or has reason to know will adversely affect a public or private source of drinking water**, will require compliance with **30TAC §319.301 through §319.303**. The Environmental Inspector must notify the Department Director and/or the Division Manager immediately. Contact the Division Manager if any special or complicated circumstances arise.

6.8 The cleanup plan may be reviewed with other Public Works staff to determine if additional water tests or containment operations should be performed.

7.0 Reporting Responsibilities

7.1 The Environmental Inspector must provide all NH_3 sampling values to Public Works Operations so that Public Works Operations may completely fulfill TCEQ reporting requirements.

7.2 If a fish kill has occurred, the Environmental Inspector must notify the Environmental Manager and TCEQ. The Environmental Inspector must take a note of the fish kill count, size of the fish, and species, if possible. The following additional parameters must be determined in the event of a fish kill: water temperature, pH, dissolved oxygen, and turbidity.

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7.3 Public Works Operations must report all sanitary sewer overflows to US waters to TCEQ within 24 hours.

7.4 Public Works Operations must notify the TCEQ by phone at 817-588-5800 or fax at 817-588-5700 with the following information: Time of Event, Date of Event, Location, Amount of Overflow, Creek Segment (if known), and County. For after hours, Public Works Operations will leave a message for the Water Program on the TCEQ voicemail system.

7.5 The Environmental Inspector must attach a copy of the Illicit Discharge Reporting Form to the NetGov complaint.

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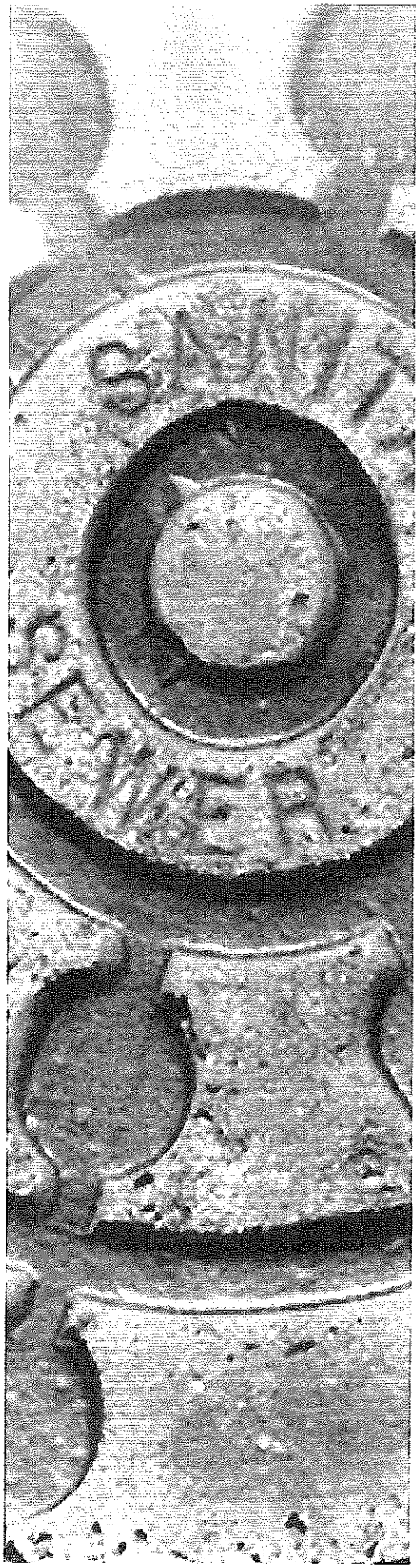
Appendix 7
Sanitary Sewer Flow Monitoring Report



Sanitary Sewer Flow Monitoring Report

CEDAR HILL
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I certify that this report was prepared under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Texas.

STATE OF TEXAS
MATTIE A. ENGELS
107277
LICENSED
PROFESSIONAL ENGINEER

P.E.
7-22-16

Mattie A. Engels, P.E.
Registration No. 107277

Pipeline Analysis LLC
Texas Registered Engineering Firm
F-006538

PIPELINE ANALYSIS

July 2016

TABLE OF CONTENTS

I. Introduction

Deltatek Engineering contracted with Pipeline Analysis, LLC to perform flow and rainfall monitoring at specified locations within the City of Cedar Hill wastewater collection system. The purpose of this analysis is to determine the amount of inflow/infiltration in the targeted sewer shed. In order to establish the existing wastewater flow, seven (7) temporary flow meters were installed to record liquid level, depth and time. Four (4) rainfall gauges were installed to facilitate inflow/infiltration analysis. The monitoring period ranged from April 20 – June 2, 2016. From this collected data, the wastewater flows were calculated. Information obtained during the monitoring period was used to determine the following for each site:

- Average daily flow
- Peak flow rate
- Minimum flow rate
- Liquid levels
- Flow velocities

The flow monitoring sites were identified by Deltatek and consist of:

1. Cedar Hill 001 (1554 S Clark Rd) 21 inch
2. Cedar Hill 002 (1554 S Clark Rd) 21 inch
3. Cedar Hill 003 (1007 Cedar Hill Rd) 12 inch
4. Cedar Hill 004 (700 Blk Willis Dr) 15 inch
5. Cedar Hill 005 (1027 Mystic Trail) 12 inch
6. Cedar Hill 006 (256 E Little Creek Rd) 15 inch
7. Cedar Hill 007 (451 Shady Brook Ln) 8 inch

Rain Gauge locations:

1. RG 001 – 1554 S Clark Rd (Service Center)
2. RG 002 – 500 S Joe Wilson Rd (Highlands Lift Station)
3. RG 003 – 1212 W Beltline Rd (Cedar Hill Fire Department)
4. RG 004 – 642 J Elmer Weaver Freeway (behind Scott A. Barber law office)

Figures 1 and 2 present the location maps. Each pipeline was inspected and no debris was noted at any of the locations during the monitoring period.

Figure 1
Location Map (Red Oak Basins)

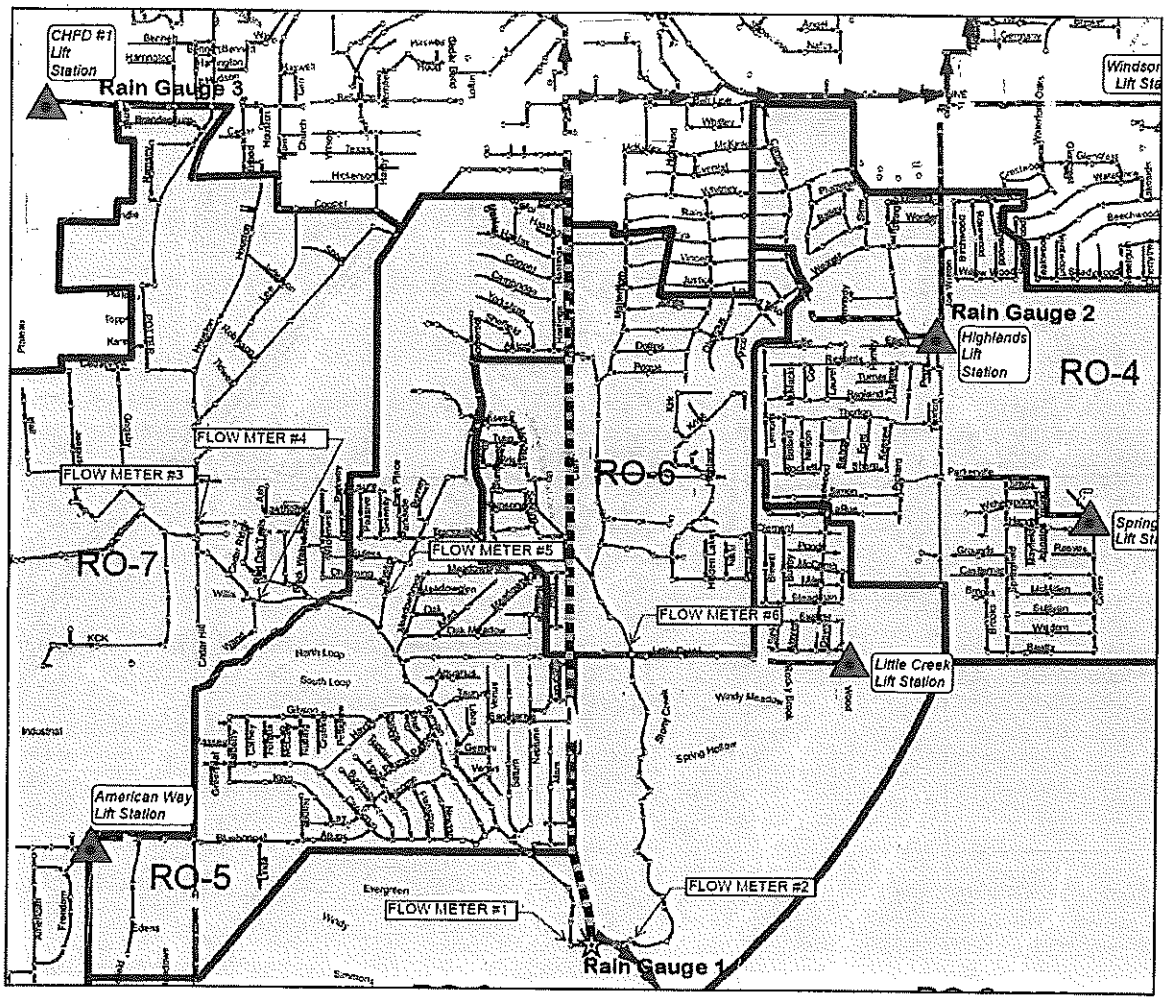
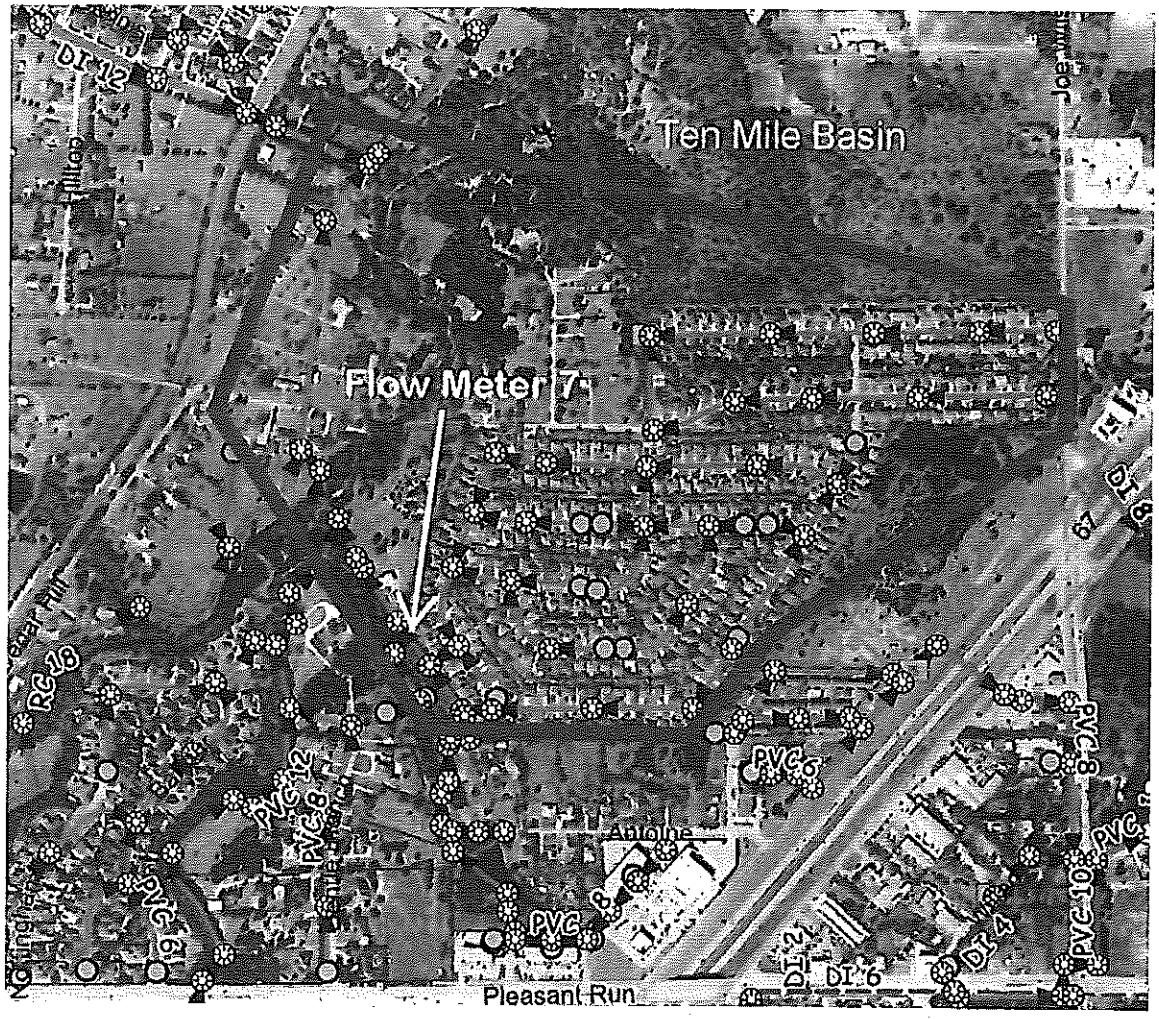


Figure 2
Location Map (Ten Mile Basin)



The soils are predominately Eddy clay loam on 1 to 3 percent slopes and Eddy-Stephen complex on 1 to 5 percent slopes. Figure 3 shows the major soil associations within Cedar Hill. The topography and soil types will have an impact on the collection system response to rainfall. Both soil types have moderately slow permeability. Where defects allow a more direct entry of runoff into to collection system, high peak flows will be possible for the duration of the runoff or ponding period. Normal annual rainfall is 33.7 inches (Figure 4).

Figure 3
Local Soils Map

Predominate Soil Associations:

26	Eddy clay loam, 1 to 3 percent slopes
30	Eddy-Stephen complex, 1 to 5 percent slopes
5	Austin silty clay, 1 to 3 percent slopes
23	Dalco clay, 1 to 3 percent slopes

Figure 4
Rainfall Summary

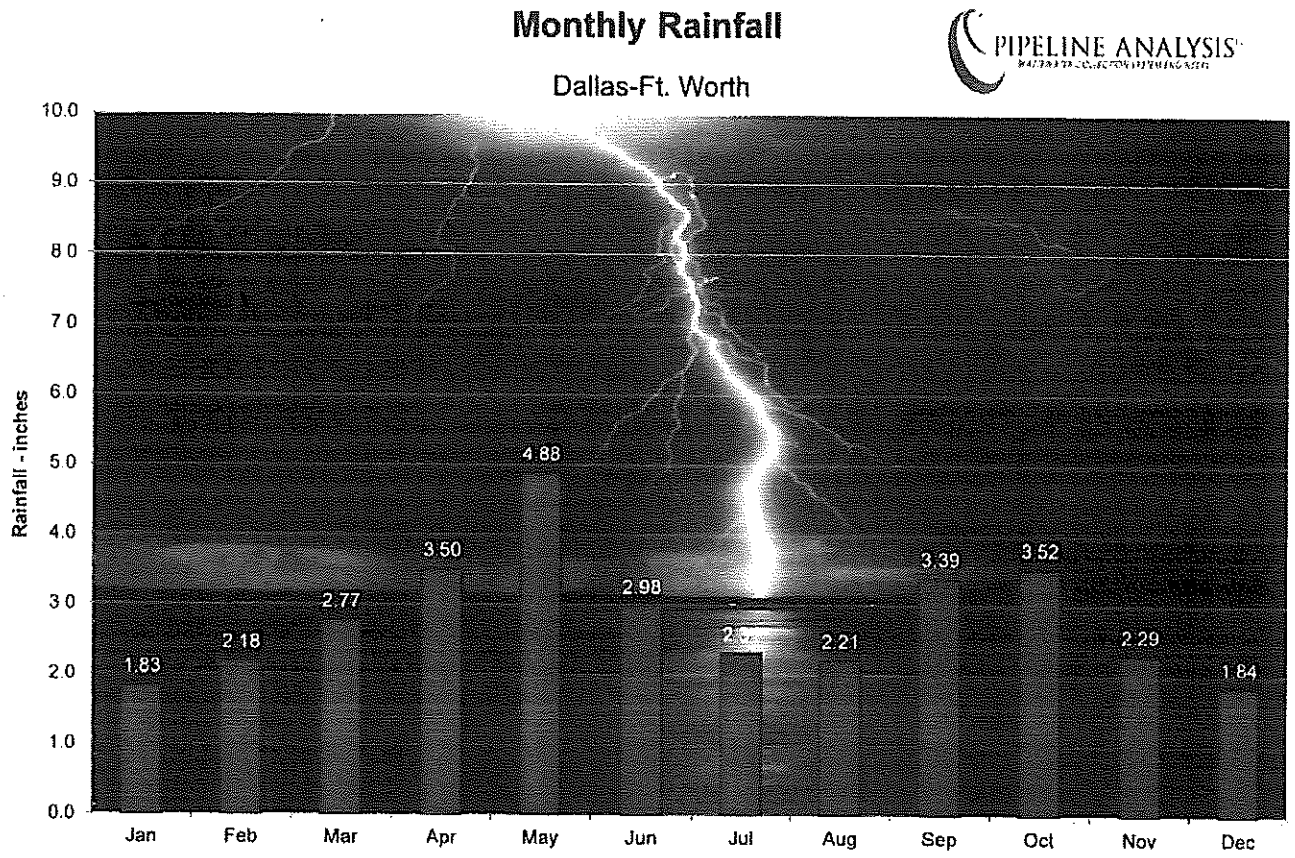
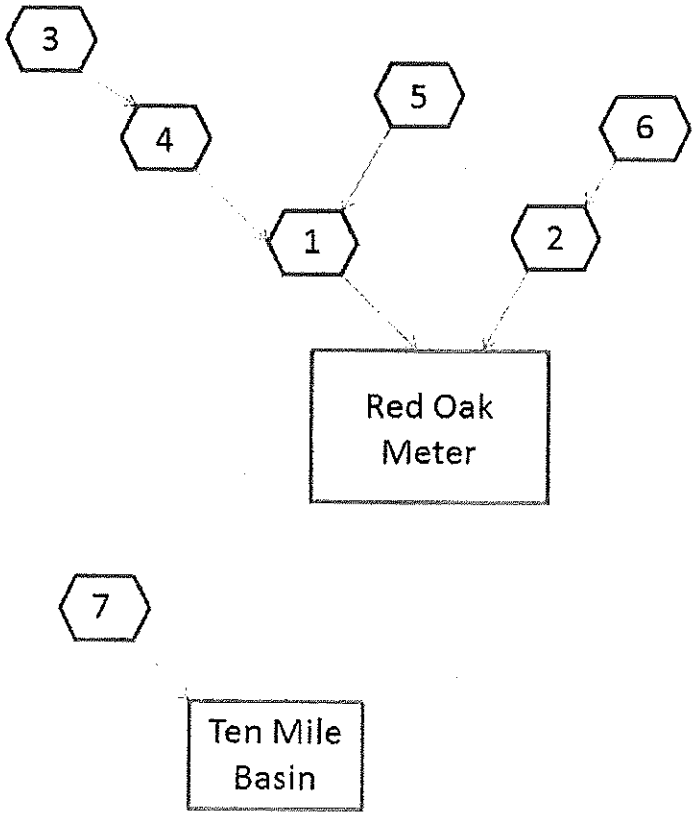


Figure 5 presents a wastewater schematic diagram that graphically represents the association between each flow meter placed in the collection system. This flow monitoring study consists of seven (7) meter sites. The flow meter sites determine the boundary of each monitored area. Meter sites 001 and 002 were surcharged the entire monitoring period and not included in flow analysis. No useable data was obtained due to the continuous surcharge.

To determine the individual flow from Basin 004 (known as discrete flow), one must take the data recorded by Meter 004 (known as cumulative flow) and subtract the data from Meter 003. Discrete flow is used to determine the ranking of each metered basin and the individual wastewater contribution by area. Site photographs and summary hydrographs are presented in the Appendix.

Figure 5
Flow Meter Schematic Diagram



II. Flow Data Analysis

Wastewater flow data was obtained from the seven temporary flow meters in order to establish flow hydraulics at key locations within the collection system. The temporary flow meters used were FlowAV area/velocity sensors combined with Telog RU-33 recorders and tipping bucket rainfall gauges manufactured by Onset. For analysis, rainfall totals from four (4) temporary rainfall gauges were evaluated. Storm events were investigated to establish the Rainfall Dependent Infiltration/Inflow (RDII). Normal annual rainfall is 33.7 inches. An average of 7.4 inches of rainfall was recorded during the monitoring period April 20 through June 2, 2016. The normal historical rainfall during this period would be expected to be approximately 6 inches. The average rainfall was approximately 123% of normal.

Each meter was field calibrated prior to installation. Calibration of each meter is a simple procedure consisting of independent verification of the depth of flow and velocity. The flow sensors were secured to a steel mounting band that fits securely in the pipeline. The data recorder for each site was installed in the top of each metering manhole and the meter was activated at user defined sampling intervals, typically 15 minutes.

Dry Weather Results

Total daily wastewater volume during dry weather was determined from analysis of the dry weather period. These days were representative of dry weather flow conditions with low groundwater potential. Dry weather data for each metering site is summarized in Table 1. Silt levels were negligible for all meter sites indicating that scouring velocity is adequate to prevent debris settlement and flow hydraulics are not reduced due to debris. The ratio of peak recorded liquid depth to the pipeline diameter (d/D) provides a method to gauge the capacity of the pipeline being utilized during dry weather. When the d/D ratio exceeds 50%, then the pipeline is over half full. Site 006 was observed to exceed a d/D of 50% during peak dry weather conditions. Overall, the collection system has adequate dry weather capacity to transport wastewater without any evidence of surcharge.

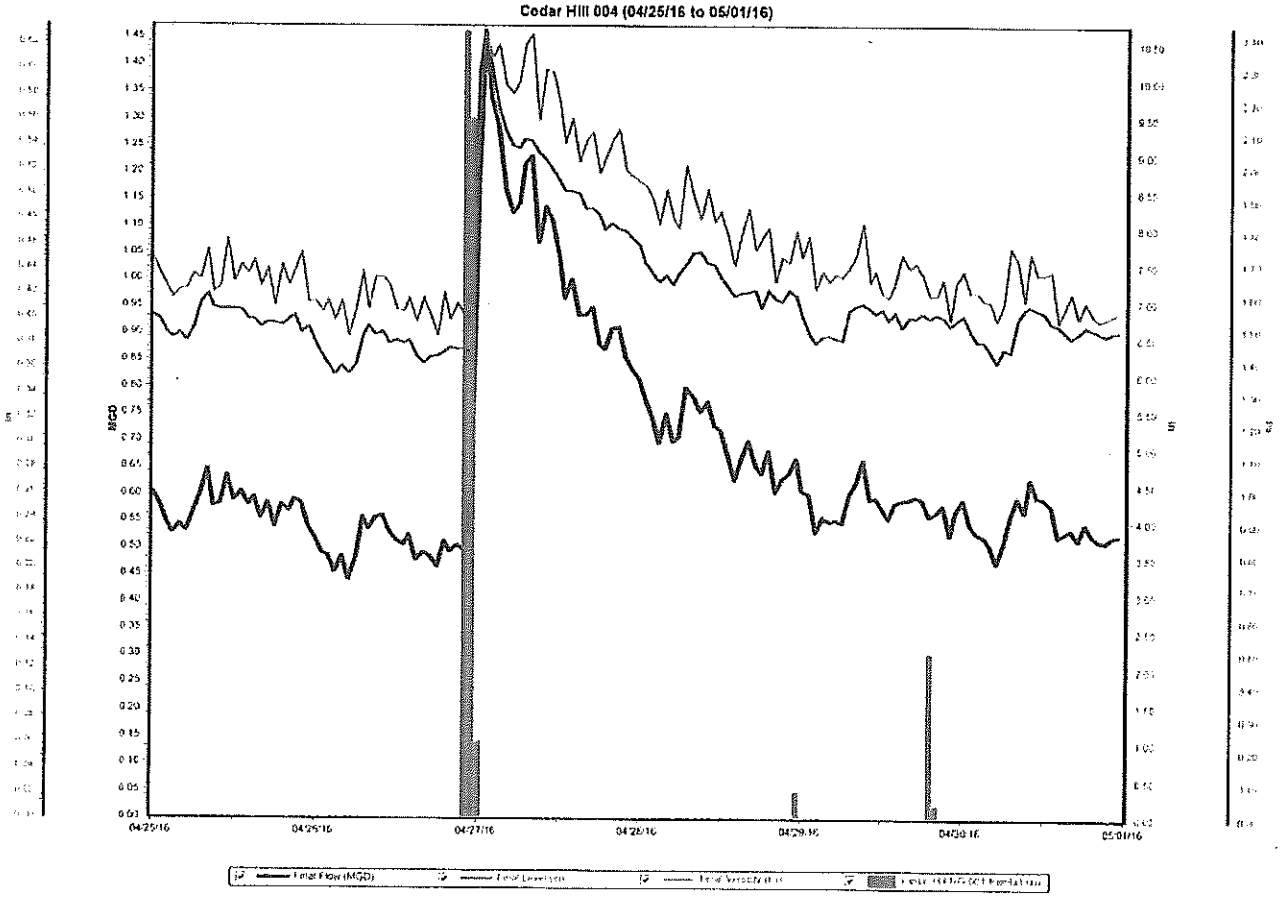
Table 1
Dry Weather Flow Summary

DESCRIPTION/SITE	Site 003	Site 004	Site 005	Site 006	Site 007
Dry Weather Period	5/12 - 5/17	5/12 - 5/17	5/12 - 5/17	5/12 - 5/17	5/12 - 5/17
Daily Average Flow (mgd)	0.06	0.33	0.07	0.21	0.02
Discrete Daily Average Flow (mgd)	0.06	0.26	0.07	0.21	0.02
Minimum Flow (mgd)	0.02	0.19	0.03	0.06	0.00
Maximum Flow (mgd)	0.15	0.50	0.16	0.67	0.05
Peaking Ratio	2.42	1.53	2.38	3.18	2.50
Pipe Diameter (in)	12	15	12	15	8
Daily Average Level (in)	1.98	5.19	1.21	4.69	1.02
Minimum Level (in)	1.40	4.21	0.90	2.76	0.35
Maximum Level (in)	2.70	6.16	2.37	8.81	1.60
Peak Flow Depth/Diameter	22%	41%	20%	59%	20%
Average Silt Level (in)	0	0	0	0	0
Daily Average Velocity (fps)	1.11	1.33	2.55	0.95	1.12

Wet Weather Results

For the monitoring period, rainfall was recorded at four gauging sites. Five storm events ranging from 0.60 inches to 2.10 inches were used for analysis. Figure 6 presents data from Site 004 for the storm event of April 26, 2016. The high peak flows are a characteristic of wet weather inflow while the long duration for flows to return to normal is indicative of infiltration.

Figure 6
Wet Weather Flow
Meter Site No. 004



The wet weather analysis summarizes the system responses observed during the wet weather periods. The analysis computes the volume of wet weather I/I, also known as rainfall dependent I/I (RDII), which entered the collection system during the storm. Table 2 presents a summary of the wet weather system response and compares this response to dry weather conditions. From this data, the discrete RDII was calculated for the analyzed storm events. The total discrete RDII for each meter basin was normalized using the average rainfall which established the RDII volume per inch of rainfall. Figure 7 presents the ranking of the metered basins based on the observed wet weather flows.

Table 2

Wet Weather Flow Summary

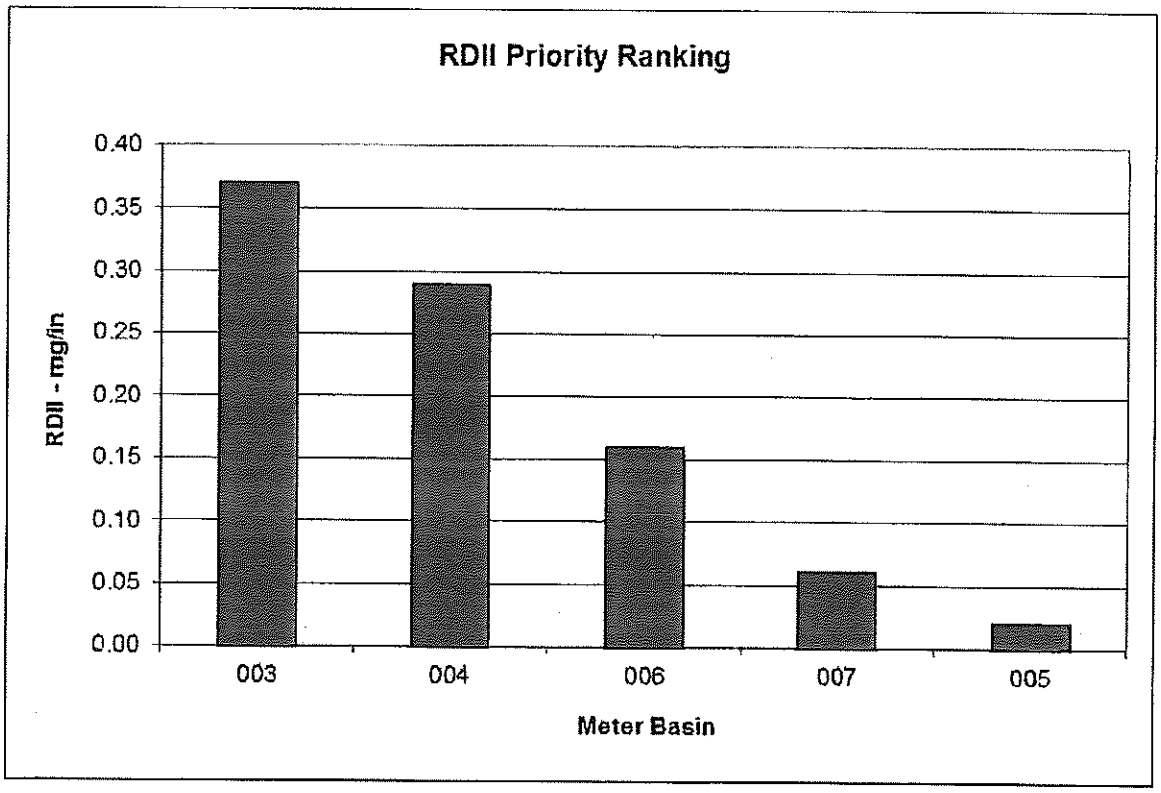
Meter	Pipe Diameter (in)	Storm Event Date	Basin Rainfall (in)	Cumulative Storm Event Volume (mg)	Equivalent Base Flow Volume (mg)	RDII Volume (mg)	Peak Flow Rate (mgd)	Peaking Factor	Maximum Level (in)	Maximum d/D	Discrete RDII (mg)	Discrete RDII (mg/in)
003	12	26-Apr	0.60	1.01	0.53	0.48	0.67	5.1	7.97	66.4%	0.48	0.80
		2-May	0.75	0.36	0.30	0.06	0.31	2.1	4.94	41.1%	0.06	0.08
		18-19-May	1.03	0.18	0.11	0.07	0.35	6.6	5.26	43.9%	0.07	0.07
		26-27-May	1.63	0.53	0.17	0.37	0.39	7.0	6.45	53.7%	0.37	0.22
		30-31-May	0.94	0.97	0.31	0.66	0.73	7.1	9.60	80.0%	0.66	0.71
	Average											0.37
004	15	26-Apr	0.60	2.89	2.02	0.87	1.63	3.2	10.88	72.6%	0.39	0.65
		2-May	0.75	1.12	1.01	0.12	0.84	1.7	7.91	52.7%	0.06	0.08
		18-19-May	1.03	0.97	0.90	0.08	0.72	2.4	7.77	51.8%	0.00	0.00
		26-27-May	1.63	1.54	0.91	0.63	1.03	3.4	8.61	57.4%	0.27	0.16
		30-31-May	0.94	2.41	1.23	1.18	2.09	5.1	12.35	82.3%	0.52	0.55
	Average											0.29
005	12	26-Apr	0.60	0.05	0.05	0.00	0.11	2.3	1.76	14.6%	0.00	0.01
		2-May	0.75	0.07	0.05	0.02	0.13	2.9	1.98	16.5%	0.02	0.03
		18-19-May	1.03	0.24	0.21	0.03	0.16	2.3	2.05	17.1%	0.03	0.03
		26-27-May	1.63	0.19	0.17	0.02	0.18	2.1	2.24	18.6%	0.02	0.01
		30-31-May	0.94	0.22	0.17	0.05	0.20	2.3	2.56	21.3%	0.05	0.05
	Average											0.02
006	15	26-Apr	1.39	0.97	0.67	0.30	0.77	2.3	10.97	73.1%	0.30	0.22
		2-May	0.98	0.32	0.29	0.03	0.70	2.5	9.28	61.9%	0.03	0.03
		18-19-May	1.09	0.68	0.56	0.12	0.69	3.7	8.84	58.9%	0.12	0.11
		26-27-May	2.10	0.78	0.38	0.40	0.74	3.9	9.61	64.0%	0.40	0.19
		30-31-May	1.68	1.39	1.00	0.40	0.84	2.5	10.45	69.7%	0.40	0.24
	Average											0.16
007	8	18-19-May	1.29	0.13	0.08	0.04	0.07	3.5	2.07	25.9%	0.04	0.03
		26-27-May	1.55	0.15	0.08	0.07	0.17	6.0	3.13	39.1%	0.07	0.04
		30-31-May	1.23	0.26	0.11	0.15	0.25	6.6	3.94	49.2%	0.15	0.12
												0.06
											Total	0.91

Definitions

Basin Rainfall - Average rainfall across basin
Cumulative Storm Event Volume - Total flow recorded at meter site
Equivalent Base Flow Volume - Dry weather average flow for storm duration.
Rainfall Derived I/I Volume - Storm event volume minus equivalent base flow volume
Peak Flow Rate - Observed peak flow rate during storm event
Peaking Factor - Peak rate divided by average dry weather flow rate
Maximum Level - Recorded maximum flow level during storm events
Maximum d/D - Ratio of maximum recorded depth of flow to pipe diameter
Discrete RDII (million gallons per inch of rainfall) - RDII divided by rainfall

Figure 7

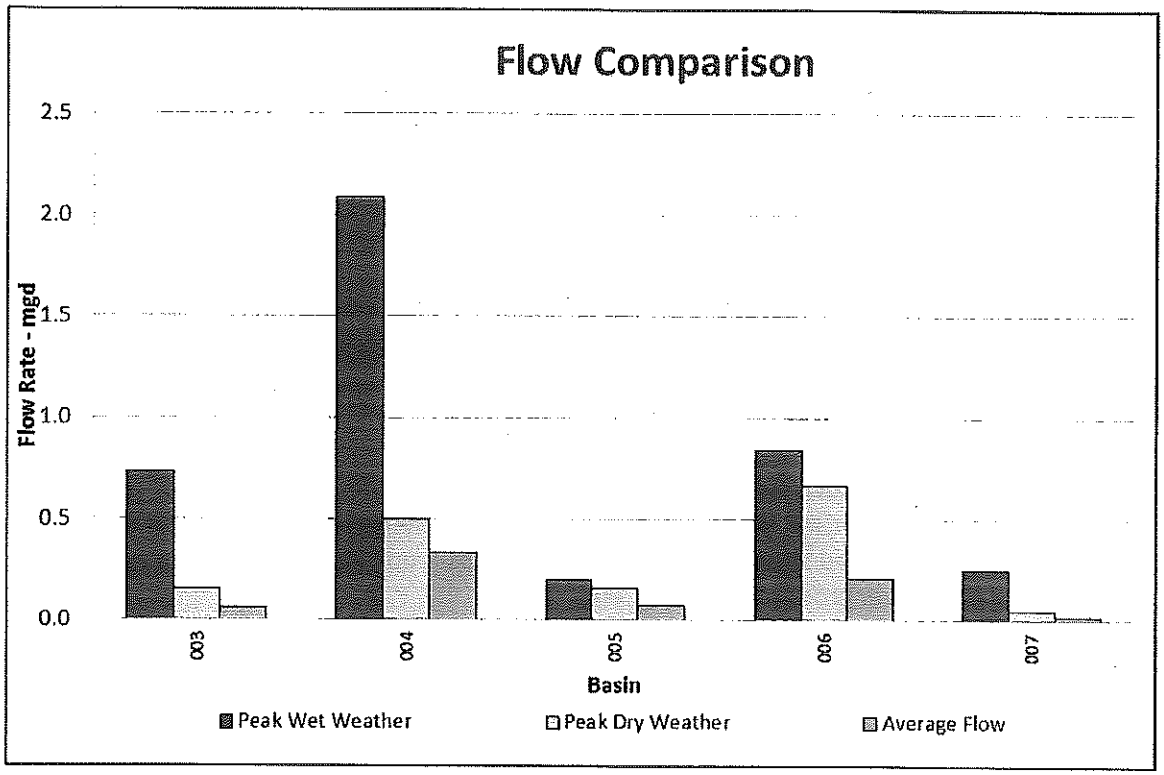
RDII Ranking of Meter Basins



The major issue with wet weather inflow is the inability of the collection system to transport the peak flow rates due to the influx of extraneous infiltration/inflow. Peak flows generally do not have long durations, but even short durations may create surcharge and the potential for SSO's (Sanitary Sewer Overflows). In addition, peak flow rates can upset the treatment plant process resulting in less than optimum treatment. Figure 8 presents a summary of peak flow rates recorded compared to a representative average dry weather day. Peak flow rates are a qualitative measure of the impact of wet weather on the collection system. Peak flow can be affected by bottlenecks in the system due to inadequate capacity, roots, broken pipe, etc. In addition, the peak flow rate will normally be reduced due to pumping stations equalizing flows (cutting off peak flow rates). High peak flows will also create elevated depth of flow in the pipelines.

Figure 8

Peak Flow Rates
Dry Weather versus Wet Weather Comparison



Without rehabilitation, the rate of extraneous water that enters the collection system will increase over time. Defects within the collection system will continue to deteriorate and allow additional RDII to enter the system. Periodic rehabilitation will reduce (but not eliminate) RDII, restore system capacity and extend the life of the underground assets.

The calculated RDII rate is 0.91 million gallons per inch of rainfall based on the analyzed rainfall events. The RDII value is highly variable and is dependent on soil moisture conditions prior to the rainfall event. The data presented in this report is based on a higher than normal rainfall season. Using the normal annual precipitation of 33.7 inches, the annual projected wet weather RDII is 31 million gallons (0.91 mg/in x 33.7inches).

III. Conclusions and Recommendations

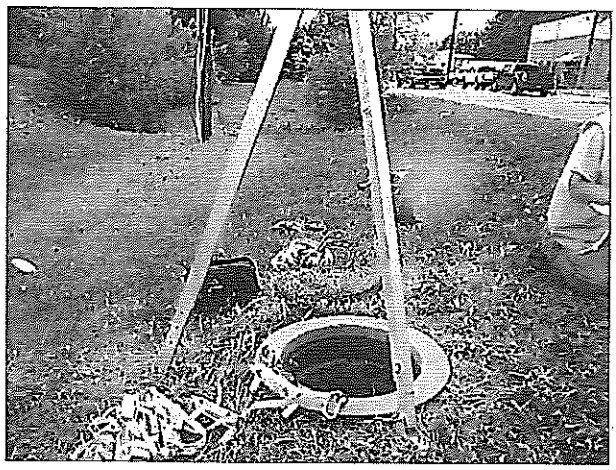
Extraneous water from infiltration/inflow (I/I) sources reduces the capacity of the collection system to transport wastewater and may result in Sanitary Sewer Overflows (SSO's). The presence of infiltration/inflow within a collection system is an indicator of system deterioration that if left unchecked will continue to increase and reduce system capacity. Infiltration occurs when existing sewer lines undergo deterioration. Groundwater may enter the collection system through defects such as open pipe joints, cracks, broken pipe, dropped joints, etc. Inflow (Rainfall Dependent Infiltration/Inflow – RDII) normally occurs when rainfall enters the sewer system through yard drains, missing cleanout caps, roof leaders, manhole covers and frame seals, storm sewer cross connections, etc.

The reduction in infiltration/inflow by rehabilitation and on-going operation and maintenance will extend the life of the collection system assets and restore capacity. This report quantifies the extraneous infiltration/inflow (I/I) and characterizes its location and impact on the collection system. Following is a summary of the temporary flow monitoring:

1. Meter sites 001 and 002 were surcharged the entire monitoring period. The sensor was placed in the bottom of the manhole to roughly monitor level. Analysis was not performed on these two sites due to the backwater conditions and inability to collect accurate data.
2. Dry weather flows are adequately transported and treated without overflow and no surcharging was observed during dry or wet weather for sites 003, 004, 005, 006, 007.
3. Wet weather rainfall induced infiltration/inflow (RDII) of the monitored areas that could be analyzed averages 0.91 million gallons per inch of rainfall based on the recorded storm events. This represents approximately 31 million gallons of extraneous wet weather infiltration/inflow on an annual basis.

APPENDIX

FM Site 003



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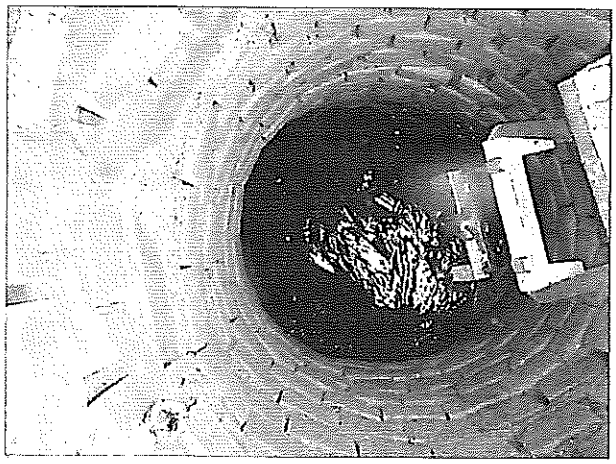

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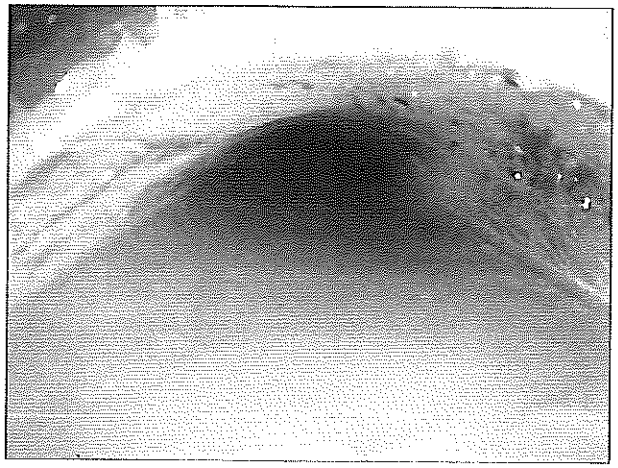

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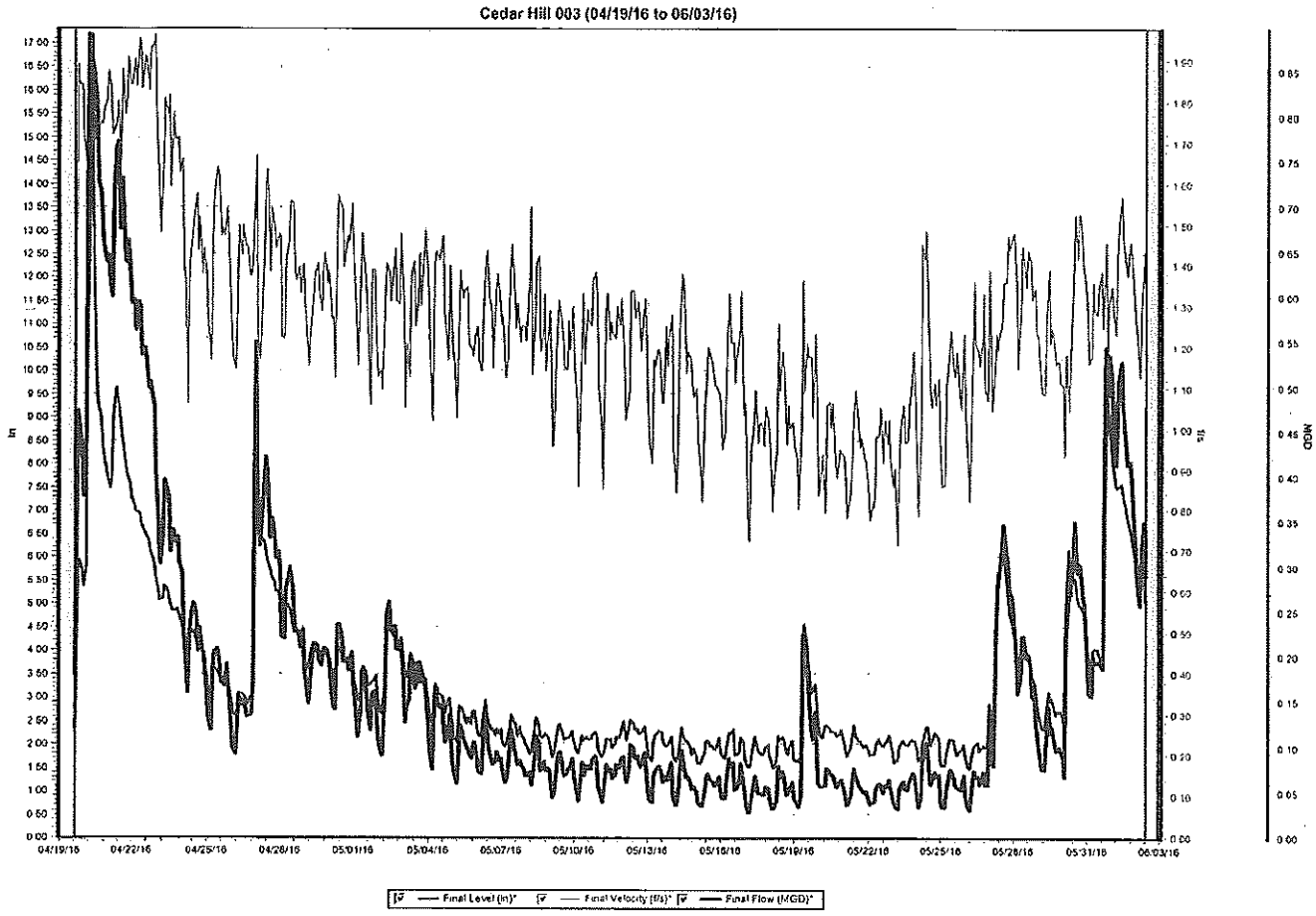
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In
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MGD
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04/22/16
04/25/16
04/28/16
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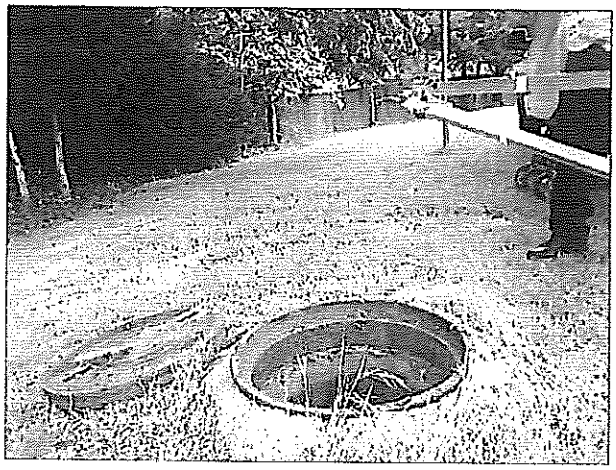
05/04/16
05/07/16
05/10/16
05/13/16
05/16/16
05/19/16
05/22/16
05/25/16
05/28/16
05/31/16
06/03/16
Final Level (in)*
Final Velocity (ft/s)*
Final Flow (MGD)*

FM Site 004



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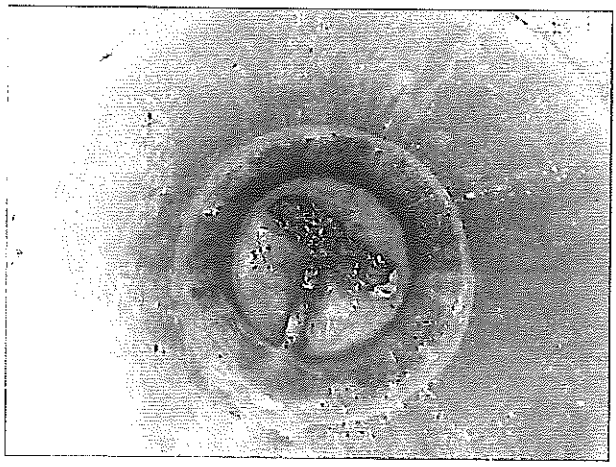

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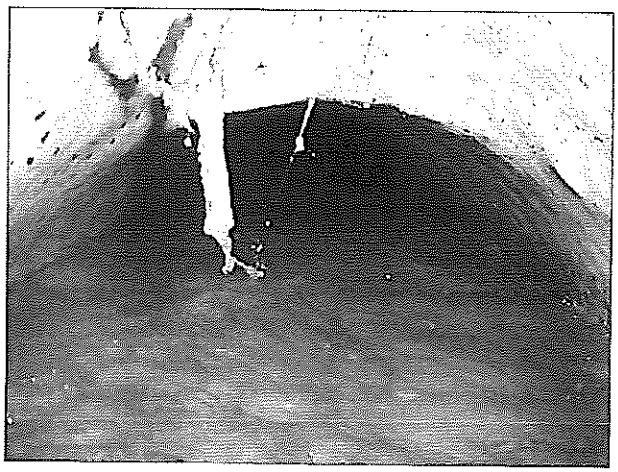

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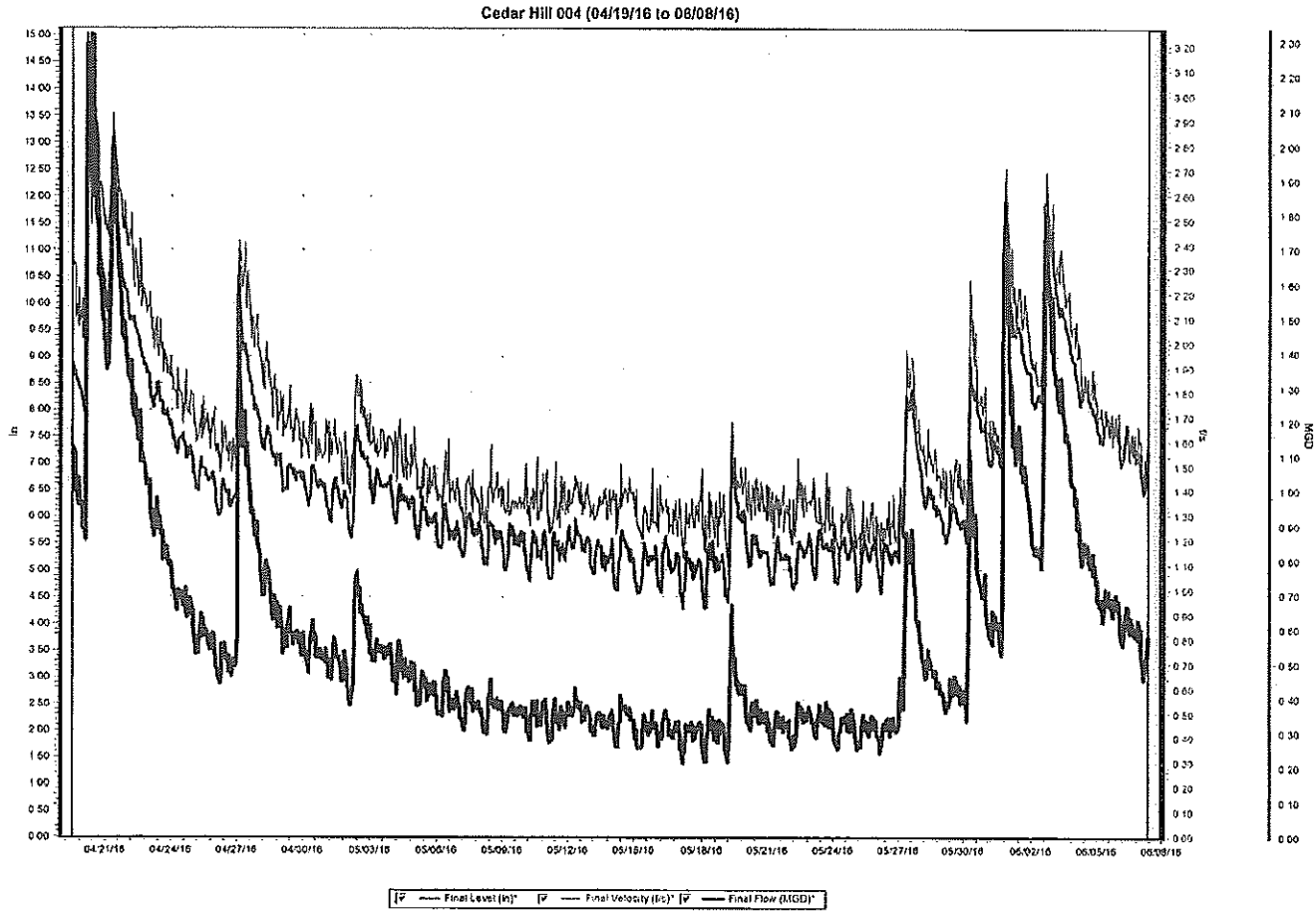
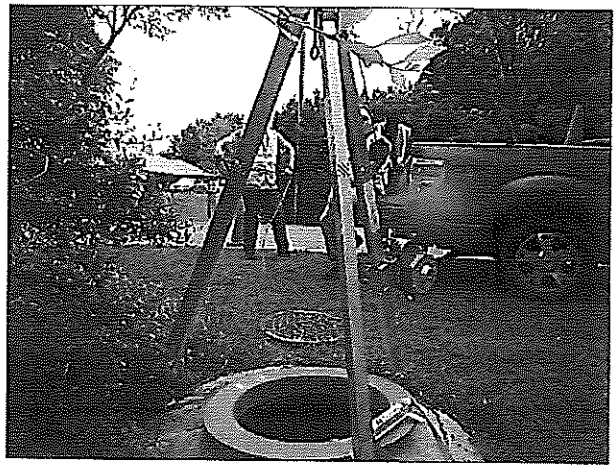
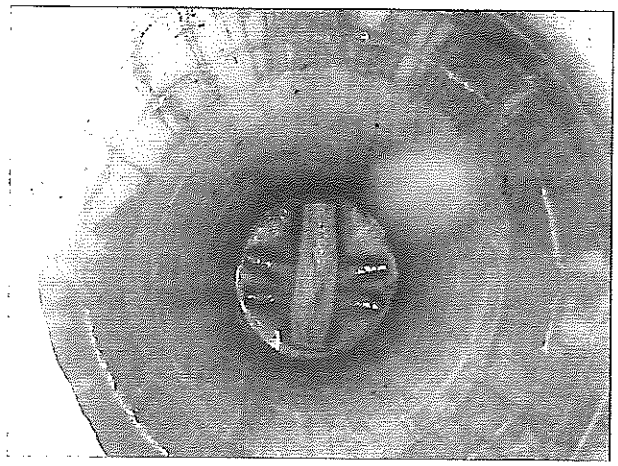

Cedar Hill 004 (04/19/16 to 08/08/16)
In
ft/s
MGD
04/21/16
04/24/16
04/27/16
04/30/16
05/03/16
05/06/16
05/09/16
05/12/16
05/15/16
05/18/16
05/21/16
05/24/16
05/27/16
05/30/16
06/02/16
06/05/16
06/08/16
Final Level (in)*
Final Velocity (ft/s)*
Final Flow (MGD)*

FM Site 005



SITE005AREA.JPG



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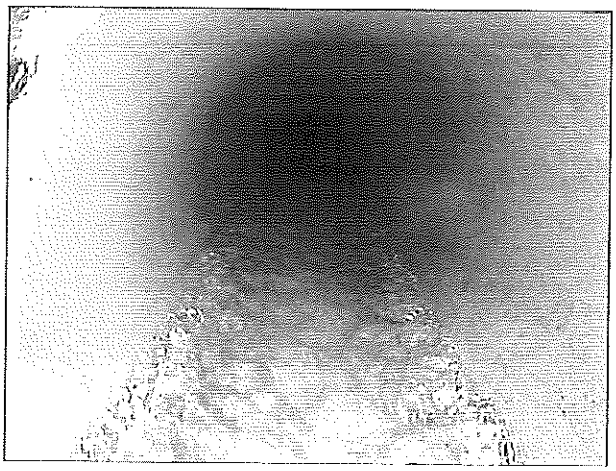
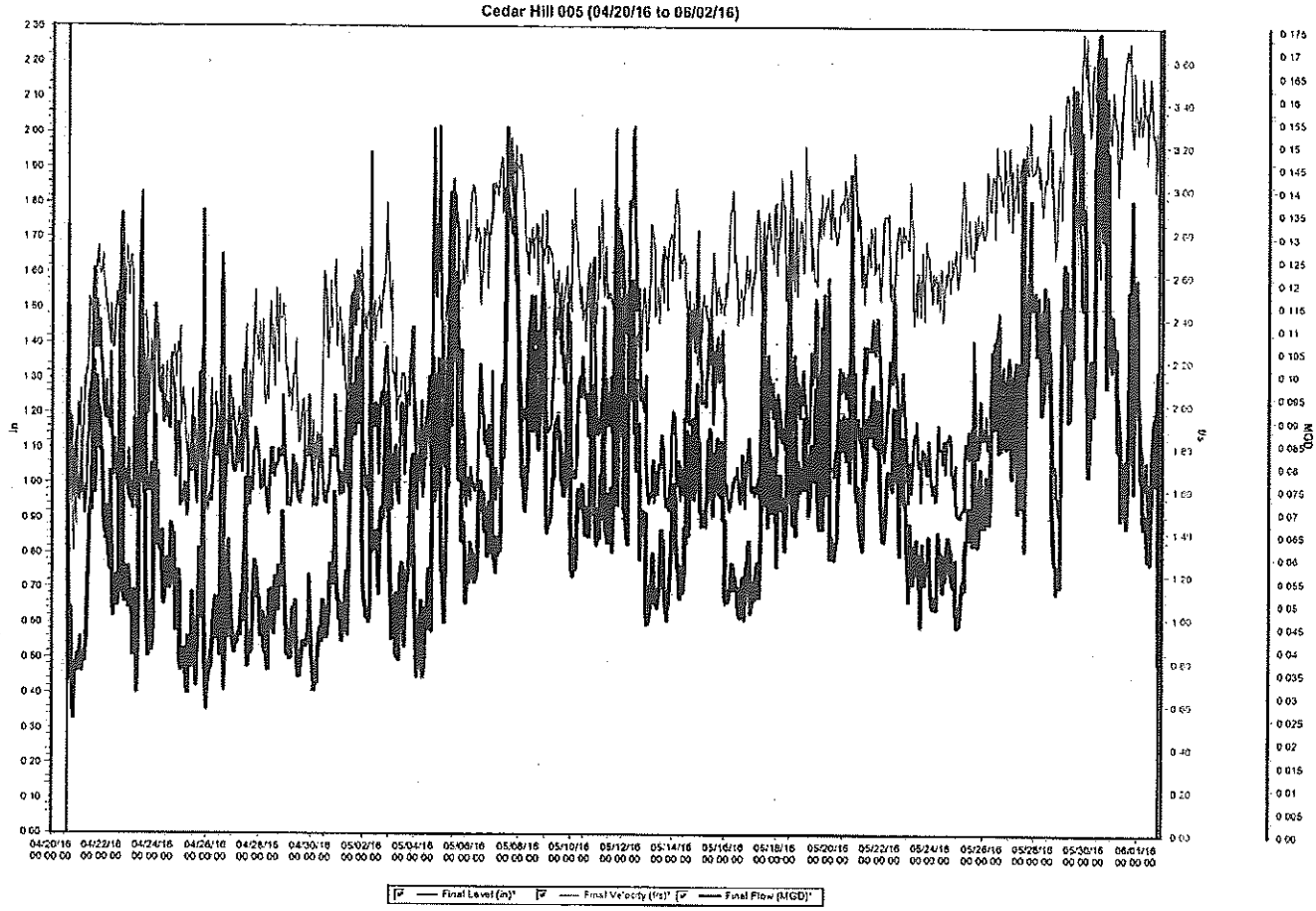
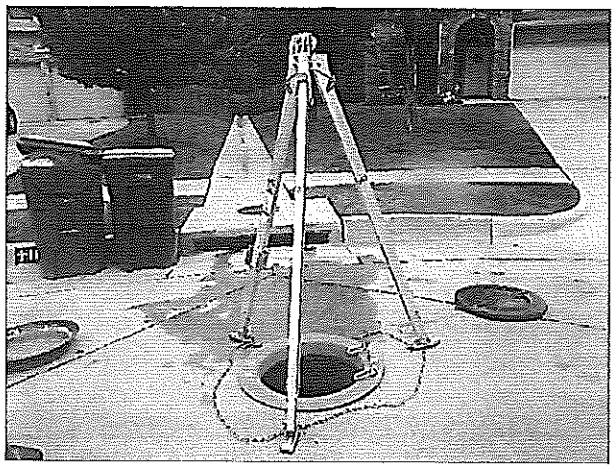


SITE005PIPE.JPG


Cedar Hill 005 (04/20/16 to 06/02/16)
Final Level (in)*
Final Velocity (fps)*
Final Flow (MGD)*

FM Site 006



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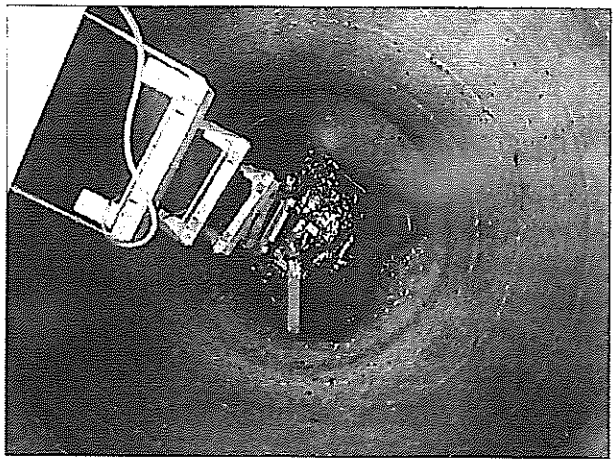

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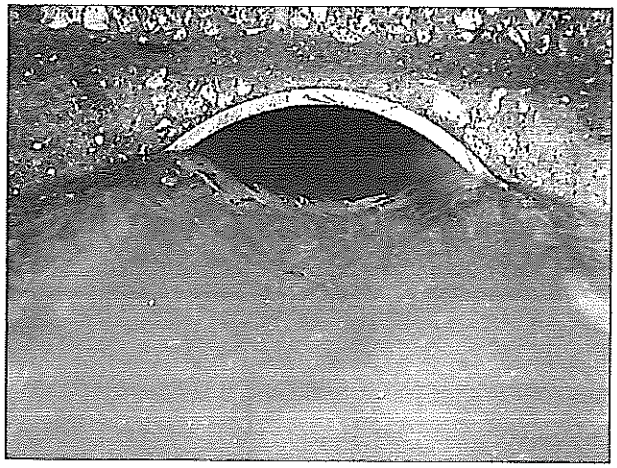
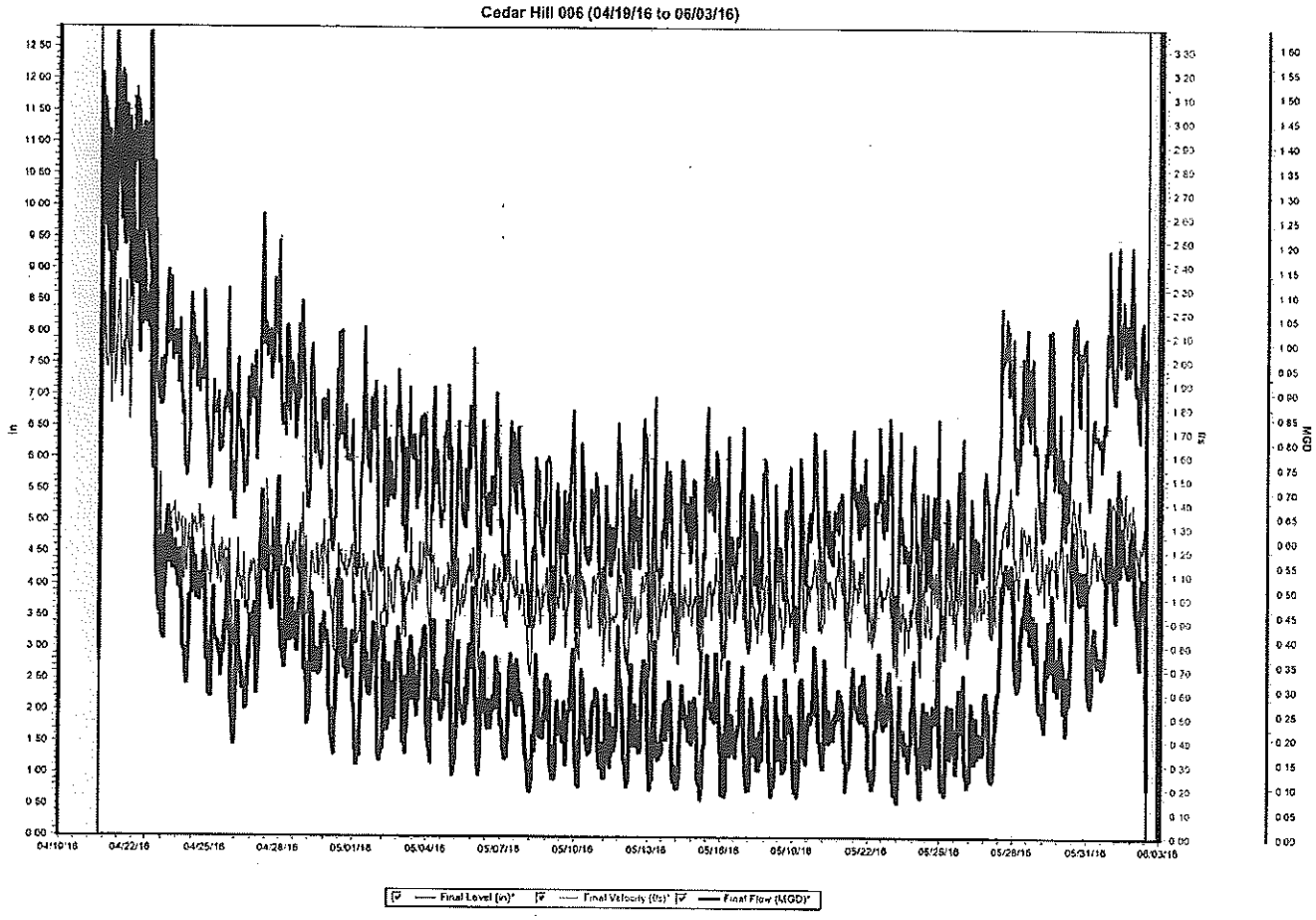
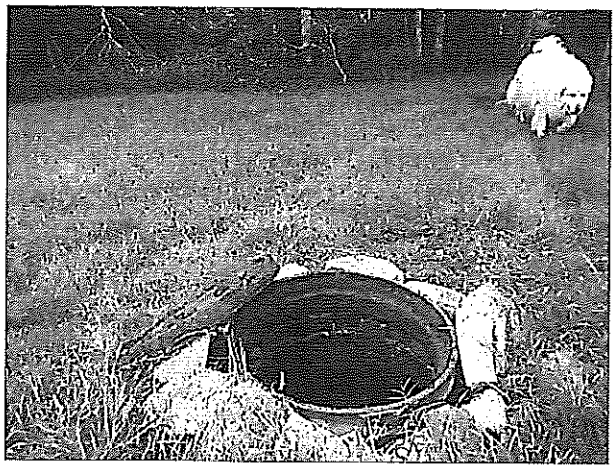


SITE006PIPE.JPG


Cedar Hill 006 (04/19/16 to 06/03/16)
In
fps
MGD
04/19/16
04/22/16
04/25/16
04/28/16
05/01/16
05/04/16
05/07/16
05/10/16
05/13/16
05/16/16
05/19/16
05/22/16
05/25/16
05/28/16
05/31/16
06/03/16
Final Level (in)*
Final Velocity (fps)*
Final Flow (MGD)*

FM Site 007



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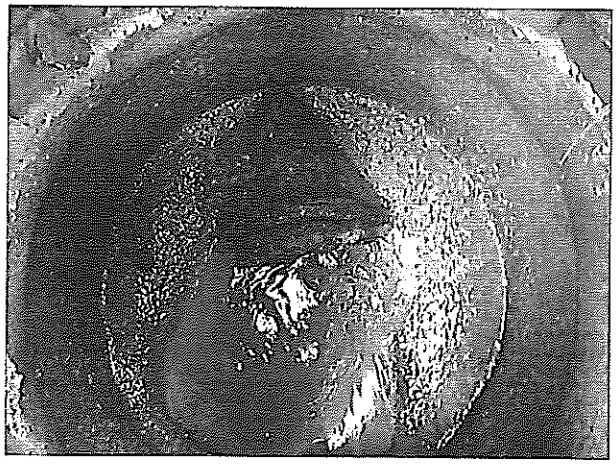

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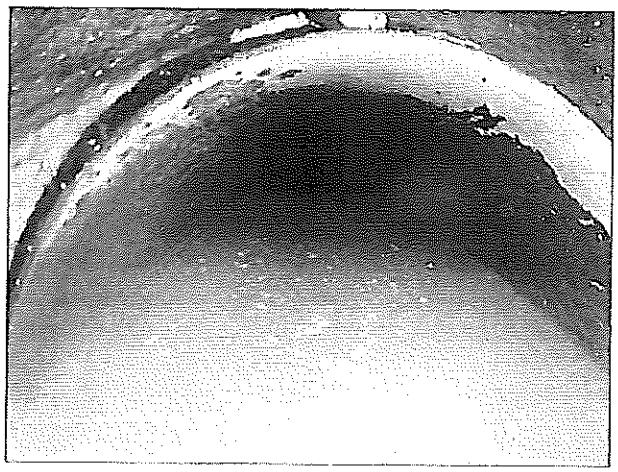

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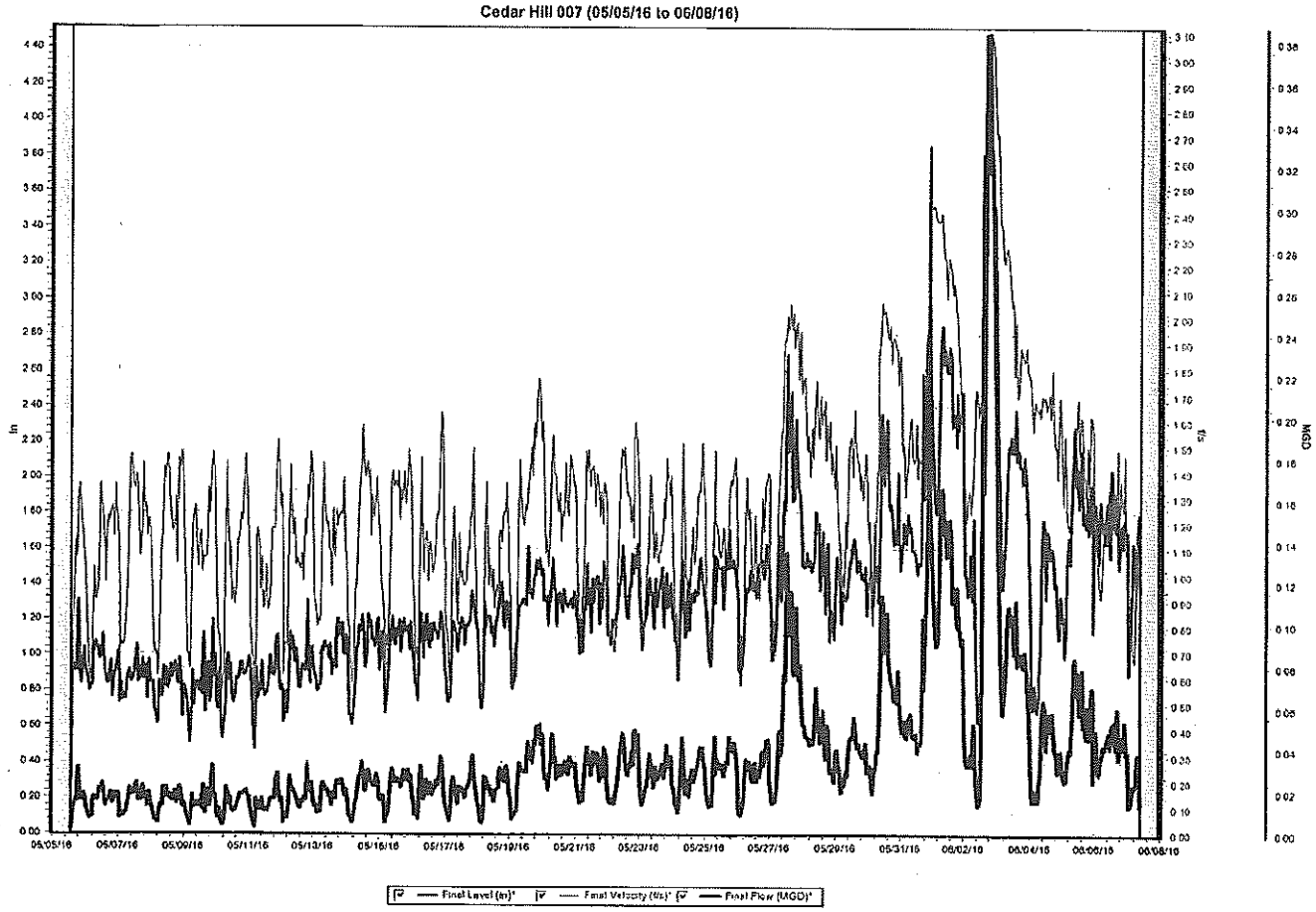
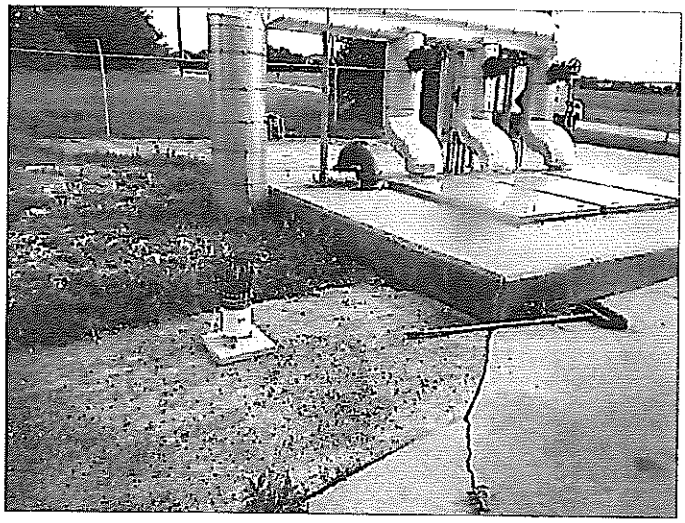

Cedar Hill 007 (05/05/16 to 06/08/16)
In
fps
MGD
05/05/16
05/07/16
05/09/16
05/11/16
05/13/16
05/15/16
05/17/16
05/19/16
05/21/16
05/23/16
05/25/16
05/27/16
05/29/16
05/31/16
06/02/16
06/04/16
06/06/16
06/08/16
Final Level (in)*
Final Velocity (fps)*
Final Flow (MGD)*

Rain Gauges

RAIN0001.JPG



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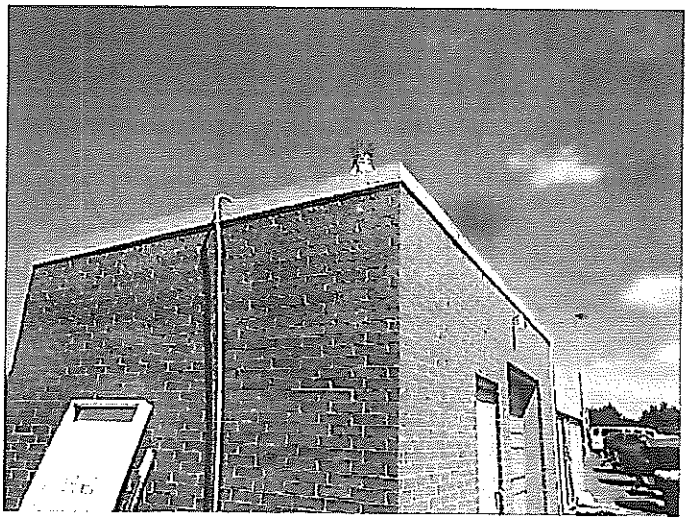

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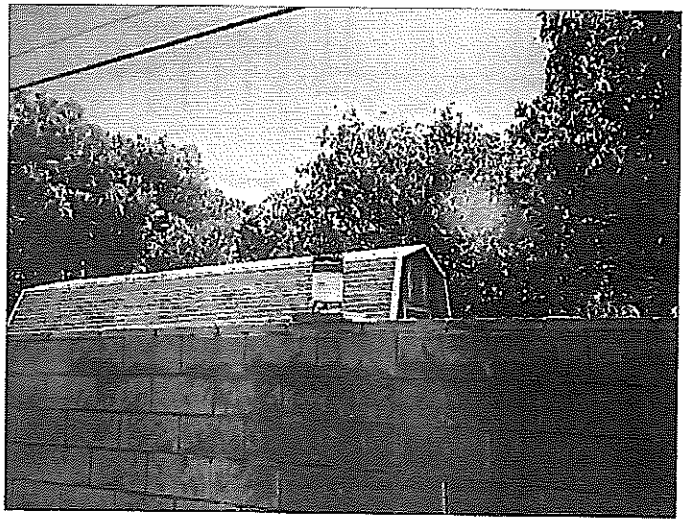

RAIN0004.JPG

Appendix 8

Cedar Hill Capital Improvement Budget – update May 10, 2017

CITY OF CEDAR HILL

FY2018 CIP WORKSHOP **(UPDATED AS OF MAY 10, 2017)**

WATER AND WASTEWATER CIP

PROJECTS PRESENTED IN YEAR THE PROJECT STARTS

	PROJECT NAME	GRADE	CURRENT BUDGET	PROPOSED REVISIONS	PROPOSED BUDGET	EXPEND. TO DATE	ACTIVE-REMAINING BALANCE*	FYE 17 (Oct 1, 2016) BOND SALES	FYE18 (Oct 1, 2017)	FYE19 (Oct 1, 2018	FYE20 (Oct 1, 2019)	FYE21 (Oct 1, 2020)	FUTURE YEAR PROJECTS	TOTAL
47	Parkerville EST Drain Improvements								$50,000	$150,000				$ 200,000
	SEWER:													
	~~CURRENT PROPOSED~~ PLAN:													
48	Miscellaneous I & I Rehabilitation ($28,556 prorata)	3	1,371,950	150,000	1,521,950	1,263,853	408,097		150,000		150,000			$ 300,000
49	Little Creek Lift Station rehabilitation	3	20,000	-	20,000	9,000	366,000							
50	Old Town West: Belt Line to Cedar View 8" SS (Pipe bursting)		360,000	(7,937)	352,063	352,063	-							
51	8/10-inch gravity line and decommission of Mt. Lebanon Lift Station (Lorch	1	50,000	-			150,000	300,000						$ 300,000
52	8-inch gravity connecting existing gravity lines in TCS-2												200,000	$ 200,000
53	12/15/18-inch gravity line in Basin TM-3												2,000,000	$ 2,000,000
54	Hollings Lift Station Expansion part A												379,500	$ 379,500
55	10-inch gravity line and 12/10/8-inch gravity lines in TCS-4 Basin												1,800,000	$ 1,800,000
56	10/18/21-inch gravity line in RO-1 (Master Plan #6) Vinyard Development (Impact fees to pay for difference of pipe size)										400,000		1,800,000	$ 2,200,000
57	Lake Ridge Lift Station I Expansion												844,700	$ 844,700
58	Mansfield Road sewer line improvements (Baggett Branch Force Main & La	1	900,000		900,000	6,956	893,044						565,880	$ 565,880
59	Baggett Branch impact fees-Mansfield Road Improvements	1	(874,410)		(874,410)	-	(874,410)							$ -
60	8/10/12-inch gravity lines in RO-2												2,003,660	$ 2,003,660
61	10/12-inch gravity line and decommission High Meadows Lift Station												1,038,080	$ 1,038,080
62	10/12-inch gravity lines in TM-1												883,140	$ 883,140
63	24-inch gravity line between RO-3 and RO-2												1,027,710	$ 1,027,710
64	10/12/15-inch gravity lines in TM-4 and decommission the Windsor Park Lift Station												1,340,260	$ 1,340,260
65	10/12/18-inch gravity lines and Springfield Lift Station decommission												2,018,700	$ 2,018,700
66	10/15-inch gravity lines and decommission the Highlands Lift Station												980,220	$ 980,220
67	12-inch gravity line and decommission the American Lift Station RO-7 (Master Plan #16) In partnership with EDC									1,000,000			895,490	$ 1,895,490
68	10-inch gravity line in the TCN-1 Basin												707,360	$ 707,360
69	8/10/12-inch gravity lines in TCS-3 and decommission the Lake Ridge II Lift Station												875,120	$ 875,120
70	TRA Lift Station #7 Expansion												2,070,000	$ 2,070,000
71	Hollings Lift Station Expansion Part B												970,200	$ 970,200
72	24-inch gravity line between RO-5 and RO-3												983,580	$ 983,580
73	12-inch gravity line and decommission the existing lift station on Little Creek												1,101,010	$ 1,101,010
74	Beltline Road Lift Station Expansion and 15-inch gravity line												980,030	$ 980,030
75	10/12/15-inch gravity lines in RO-2 Basin												2,341,130	$ 2,341,130
76	8-inch gravity lines and new lift station in RO-8												2,242,460	$ 2,242,460
77	10-inch gravity line and 0.5 MGD Lift Station in TCN-3												1,409,720	$ 1,409,720
78	10/12-inch gravity line and new 0.25 MGD Lift Station in RO-2												1,581,190	$ 1,581,190
79	10-inch gravity lines in TCN-1												951,950	$ 951,950
80	8-inch gravity line and Sleepy Hollow II Lift Station Decommission												252,710	$ 252,710
81	FM 1382 Lift Station Expansion												448,500	$ 448,500
82	10-inch gravity line in TCS-5												658,250	$ 658,250
83	Lake Ridge Lift Station I Expansion												1,327,940	$ 1,327,940
84	Baggett Branch Lift Station Upgrade												500,000	$ 500,000
85	Sanitary Sewer Line Infill	1							50,000	250,000		300,000		$ 600,000
	= Impact Fee Eligible													
	Total Ongoing & ProposedProjects		$ 12,372,898	$ 483,464	$ 12,806,362	$ 12,668,872	$ 2,326,773	$ 2,500,000	$ 1,975,000	$ 3,630,000	$ 3,650,000		$ 99,945,410	$ 112,000,410

CITY OF CEDAR HILL

FY2018 CIP WORKSHOP ***(UPDATED AS OF MAY 10, 2017)***

WATER AND WASTEWATER CIP

PROJECTS PRESENTED IN YEAR THE PROJECT STARTS

	PROJECT NAME	GRADE	CURRENT BUDGET	PROPOSED REVISIONS	PROPOSED BUDGET	EXPEND. TO DATE	ACTIVE-REMAINING BALANCE*	FYE 17 (Oct 1, 2016) BOND SALES	FYE18 (Oct 1, 2017)	FYE19 (Oct 1, 2018	FYE20 (Oct 1, 2019)	FYE21 (Oct 1, 2020)	FUTURE YEAR PROJECTS	TOTAL
	WATER PROJECTS:													
	CURRENT/PROPOSED PLAN:													
1	12-inch water line along Mansfield Road	1	1,800,000		1,800,000	1,662,639	137,361							$ -
2	12-inch water line along Mansfield Rd (funds on hand, impact fees up to $2.4m see table 3		(1,325,000)		(1,325,000)	-	-							$ -
3	Substandard Water Line Replacement Program	3	622,358		622,358	-	331,641	200,000	350,000		400,000		400,000	$ 1,350,000
4	Lakeridge Pkwy Ground Storage Tank Site Acquisition /Partial Design	1	300,000		300,000	104,736	195,264							$ -
5	Water System Controls Upgrade (SCADA)	3	280,000		280,000	264,830	115,170							$ -
6	Automatic Meter Reading System Phase I		9,000,000	354,618	9,354,618	8,950,012.61	404,605							$ -
7	Automatic Meter Reading System Phase I-Grant Funding		(300,000)		(300,000)									$ -
8	Summit Tank Repair & Painting (with Duncanville)	3						500,000						$ 500,000
9	Lake Ridge/Valley Ridge Park 8" Water Line used internal labor		48,000	(10,917)	37,083	37,083	0							$ -
10	16/20-inch water line along Mount Lebanon Road	1								30,000	1,500,000			$ 1,530,000
11	8/12-inch water lines parallel to Texas Plume Road, new water line through	1					100,000	1,500,000		-				$ 1,500,000
12	16-inch Texas Plume water line									900,000				$ 900,000
13	Lake Ridge Parkway Ground Storage Tank Construction (Related to Line Ite	1									200,000		2,500,000	$ 2,700,000
14	16-inch water line along Duncanville to Parkerville Road												1,000,000	$ 1,000,000
15	16/20-inch water line west of US 67 along Valley View Drive												1,170,160	$ 1,170,160
16	16-inch waterline along Wintergreen and Duncanville Road												1,881,530	$ 1,881,530
17	12-inch water lines and PRV near Cedar Hill State Park												2,041,300	$ 2,041,300
18	12/16-inch water line along Belt Line Road and Duncanville Road												3,742,730	$ 3,742,730
19	12-inch water line in southwest portion of the City												1,367,860	$ 1,367,860
20	Meadowcrest 6.0 MG Ground Storage Tank												5,727,000	$ 5,727,000
21	20-inch water line along Cedar Hill Road												2,637,050	$ 2,637,050
22	20-inch water line east of US 67 at Lake Ridge Drive												1,273,610	$ 1,273,610
23	16-inch water line along Clark Road												1,263,290	$ 1,263,290
24	12-inch water line along Wooded Creek Drive												1,380,480	$ 1,380,480
25	12/16-inch water line along Clark Road south of Parkerville and along Rocky Acres Road												2,565,740	$ 2,565,740
26	12-inch water line east of Weaver Street and south of Shadywood												627,740	$ 627,740
27	16-inch water line along Joe Wilson Road												1,269,330	$ 1,269,330
28	12-inch water line along Little Creek Road												1,171,740	$ 1,171,740
29	12-inch water line along Bear Creek Road												1,941,500	$ 1,941,500
30	12-inch water line along FM 1382												2,135,690	$ 2,135,690
31	20/24-inch water line along Belt Line Road between Broad Street and Joe Wilson Road												2,726,840	$ 2,726,840
32	12-inch water line parallel to Sunset Ridge												506,970	$ 506,970
33	24-inch water line along Parkerville between US 67 and the Parkerville EST												2,345,070	$ 2,345,070
34	1.5 MG Valley View Elevated Storage Tank												4,236,050	$ 4,236,050
35	12-inch water line along southern City Limits east of US 67												2,632,220	$ 2,632,220
36	Midlothian supply line, ground storage tank, and pump station												8,617,830	$ 8,617,830
37	Flameleaf Pump Station Expansion												552,000	$ 552,000
38	12-inch water lines on the eastern boundary of the City												2,545,890	$ 2,545,890
39	12-inch water line along the southeastern border of the City Limits												2,507,300	$ 2,507,300
40	Hwy 67 Elevated Storage Tank (EST) Tank repair & painting (Maintenance	3	$20,000	($6,000)	$14,000	$14,000	$0			$1,300,000				$ 1,300,000
41	New Master Plan	3		$3,700	$3,700	$3,700	$0				$200,000			$ 200,000
42	Parkerville EST waterline replacement	3	$100,000		$100,000	$0	$100,000							$ -
43	Parkerville EST Repair & Painting (Maintenance Item, exterior & interior)	3			$0	$0	$0				$800,000			$ 800,000
44	Flameleaf Pump Station Generators	3			$0	$0	$0		$1,000,000					$ 1,000,000
46	Kingswood Ground Storage Tank Rehab (Maintenance Item, painting & cooling system reconfigure)								$375,000					$ 375,000

Appendix 9

Cedar Hill Example SSO Report to TCEQ

FAX TO:817.588.5701

Water Quality Noncompliance Notification

See back of Form for Guidance for Completion

☒ Unauthorized Discharge ☐ Reportable Effluent Violation ☐ Other

General Information

Entity Name: City of Cedar Hill Telephone No: ( ) 972 291-5126 Ext 2806

☐ Permittee ☐ Subscriber

TCEQ Region: 4 County: Dallas *Permit Number:

Noncompliance Summary

Description of Noncompliance (include location, discharge route, and estimated volume of unauthorized discharge):
350 FM 1382, Cedar Hill TX, The Sewer ran out of manhole, ~~and~~ down the Hill and into the storm drain. about 200 gallons discharged

Cause of Noncompliance:
Blockage in the main line

Duration: Start Date and Time: 3/10/17, 330 pm
End Date and Time: 3/10/17, 400 pm Or Date Expected to be Corrected:

Potential Danger to Human Health and Safety or the Environment:
No

Actions Taken

Monitoring Data: Data should be attached or submitted to TCEQ when available.

☐ Yes ☒ No Field Measurements
☒ Yes ☐ No Laboratory Samples
☐ Yes ☒ No Fish Kill If yes, estimated number killed:

Actions Taken to Mitigate Adverse Effects:
Put manhole on Monthly cleaning list

Actions Taken to Correct the Problem and Prevent Recurrence:
Same as above

Verification Information

Information Reported By (Name/Title): Jeremy Glaab / Crew chief

Date Reported: 3/10/17 Signature: Jeremy Glaab

Note: If this form is being used for a 5-day written report, a copy of the form should be sent to the TCEQ Region Office, and the original to: TCEQ, Compliance Monitoring Team (MC224), Enforcement Division, P.O. Box 13087, Austin, TX 78711-3087.

* If the noncompliance is an unauthorized discharge from a wastewater collection system, use the permit number of the treatment plant to which the collection system is tied. If you are uncertain of this permit number, you may call the TCEQ Regional Office for assistance.

Appendix 10

Cedar Hill SSO Checklist

EPA
SSO Inspection Checklist

Name of Municipality Cedar Hill

Collection System Description

1. Describe the collection system. 213 miles of pipe line, 20 lift stations within 3 basins which flows to 3 different TRA plants. Most of the system was constructed from the 1980s to the present.

2. What is the population of the service area:
   - Number of residents 49,500
   - Commercial connections 714
   - Any septic systems? Yes If yes, how many? 146

3. How many miles of sanitary sewer mains are in the collection system? 213

4. What is the age of collection system? 80-90 years old. However, over 80% was built from early 80's to the present.

   %VC ≈ 13.5%
   %DI ≈ 1.3%
   %PVC ≈ 83.8%
   %Other ≈ 1.3%

5. Does the collection system experience problems during dry weather? No
   Describe or provide documentation:

6. Does the collection system experience problems during wet weather? yes
   Describe or provide documentation: The system has surcharged in areas near the connection to the Trinity River Authority system. TRA is currently in process of rehabilitating a lift station to help one area of concern.

7. What is your sanitary sewer overflow (SSO) notification procedure? we fax TCEQ a water quality noncompliance notification within 24 hours. Normally it is sent the same day.

   What is reported? A discription of the discharge- address, estimated volume, cause of noncompliance. Durations. Whether it is a potential danger to human health and safety or the environment. Actions taken- whether samples were taken. Actions taken to mitigate adverse effects. Action taken to correct the problem and prevent re-occurrence.

8. Are all SSOs reported, regardless of size? Yes. If no, why not?

EPA
SSO Inspection Checklist

Lift/Pump Stations

1. How many lift stations are in the system? 20
   - How many have backup power sources? 6
   - Describe: two have dedicated generators onsite. the other have plugs for portable emergency generator.

2. Describe how pump/lift stations are inspected and monitored? Lift stations are monitored via SCADA. They are inspected on a weekly basis and are inspected for cleaning on a monthly basis.

3. Is a SCADA system used? Yes If so, what parameters are monitored? Level, pump status, pump run hours, power status, and communication status

4. What provisions have been made for emergencies? back up generator for high flow lift stations. Combination truck on stand by. Contractor with vacuum trucks are on stand by in case of long term outage.
   - Emergency Power? two lift stations have permanent generators on site. two high flow lift stations have plugs for portable generators.
   - Critical Processes? sites that lose communication are checked to ensure power is still on.
   - SCADA? lift stations are monitored closely during storms for power outages so timely response can be made.
   - Other?

5. Describe any automated emergency notification/response process. SCADA system has alarm notification via cell phone app. Mobile911. Also, technician has laptop that can be used to log in remotely to check system status.

Satellite Systems

1. Does the collection system receive flow from satellite systems? no
   If yes, continue with questions 2-4

2. Is flow from satellite systems monitored? _____
   If yes, how?

3. Describe any known problems with the satellite collection system (hydraulic flow, wastewater concentration, ordinances, etc.)?

4. Who is responsible for satellite systems, enforcement, and response?
   - Enforcement?
   - Response?

EPA
SSO Inspection Checklist

Performance Indicators

1. Summarize the Capacity, Management, Operations, and Maintenance (CMOM) components utilized by the facility and satellite systems, if applicable:. We are currently identifying and cataloging facilities to update GIS system. We will then integrate with asset management program to track assets. We are also looking at the possibility of instituting a CMOM program for our system.

2. Does the utility participate in the TCEQ Sanitary Sewer Overflow Initiative (SSOi)? Yes
   - If yes, please provide the latest SSOi Annual Report.
   - If no, why not? _____

3. What Standard Operational Procedures (SOP) are developed and used?
   - [✓] SCADA?
   - [✓] Routine Inspections/Maintenance?
   - [ ] Root Control?
   - [✓] Lift/Pump Stations?
   - [✓] Valve maintenance?
   - [✓] Fleet Management?
   - [✓] Clean-up?
   - [ ] Other? _____

4. Has an infiltration & inflow (I/I) analyses or sanitary system evaluation survey been performed? yes (partial)
   - If yes, describe (and provide a copy of any associated reports) The older sections of the city have had an initial assessment performed. We are currently in process of following that with CCTV and repair. An assessment was performed in 2016 to see the effectiveness of the repairs that have been made. Most recent report attached.
   - ___ Smoke Testing? _____
   - ___ Dye Testing? _____
   - [✓] CCTV? In progress
   - [✓] Peaking Factors? as part of both assessments
   - If not, why not? _____

5. Describe the sewer cleaning and inspection goals. Jet cleaning and CCTV is an ongoing process to identify trouble areas. We jet and clean trouble lines on at least a monthly basis to eliminate SSOs.
   - [✓] Hot Spots? cleaned and jetted on at least a monthly basis
   - [✓] Annual Goals? Eliminate all SSOs

6. Describe any training for receiving, documenting, and responding to sewer calls.
   - Discharge Estimates? All crew chiefs are responsible for documenting and estimating discharges
   - Safety/Confined Space? All employees are trained on the protocol for confined space entry. Regular safety meetings are conducted
   - Lockout/Tagout? is performed by qualified personnel only
   - Reporting? Reporting is performed by crew chiefs and/or supervisor
   - Treatment/Clean-up? is performed on an as needed basis. all certified operators are trained.
   - Other? _____

EPA
SSO Inspection Checklist

7. Describe any Asset Management process in place for the collection system. As part of the CCTV process, the assessment is transfered to the GIS system. The lines are categorized by condition. We are in the process of integrating GIS to our asset management/ work order software.

8. Describe the funding status. Funding is provided through Enterprise and CIP funds
   - Emergency Repairs: O&M funds or possible reserve funds
   - Operation & Maintenance: Enterprise fund based on rates
   - Rehabilitation: CIP funding
   - Rates: Rate studies performed on regular as-needed basis. Next study to be performed FY 2017
   - Other?

9. Describe any formal approach to target areas for Capital Improvement Projects. Lines are identified either by CCTV inspection process or by work order history. Once lines are identified for replacement/ rehab, they are submitted for inclusion in the CIP budget.

10. Please provide any other relevant information.

CERTIFICATION

I certify under penalty of law that I have examined and am familiar with the information provided and in any enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true, accurate, and complete.

Sep 6th, 2016
Date

Elias K. Sassoon
Signature

Elias K. Sassoon
Print name and Title Public Works Director