



Technical Customer Advisory Committee

AGENDA

Members

Melissa Armijo	Erwin Melis
Janie Chermak	Amy Miller
Deborah Dixon	Ron Schwarzwaldner
Robert Fowlie	Paul van Gulick
Tess Houle	

In response to the Governor's declaration of a Public Health Emergency and ban on large public gatherings, the Technical Customer Advisory Committee meeting on Thursday, October 1, will be held via video conference starting at 4:00 PM.

Members of the public have the ability to view the meeting by joining the video conference. To request login information for this meeting, contact Luz del Carmen Carreon at lcarreon@abcwua.org or 505-289-3100. Requests for login must be received before 2pm on Thursday, October 1, 2020. Public Comment must be submitted via email to Luz del Carmen Carreon at lcarreon@abcwua.org before 2pm on Thursday, October 1, 2020.

Thursday, October 1, 2020	4:00 PM	via video conference
1. Call to Order		4:00-4:05
2. Approval of Agenda		4:05-4:10
3. Approval of August 6, 2020 Action Summary		4:10-4:15
4. Presentation on the Wastewater System		4:15-5:55
5. Public Comment		5:55-6:00
6. Adjournment		6:00

NOTICE TO PERSONS WITH DISABILITIES: If you have a disability and require special assistance to participate in this meeting, please contact the Water Utility Authority Office, Suite 5012, Albuquerque/Bernalillo County Government Center, phone 289-3100, as soon as possible prior to the meeting date.



Technical Customer Advisory Committee

ACTION SUMMARY

August 6, 2020

Members Present:

Janie Chermak
Deborah Dixon
Robert Fowlie
Tess Houle
Erwin Melis
Ron Schwarzwaldner
Paul van Gulick
Melissa Armijo

Members Excused:

Amy Miller

Water Authority Staff Present:

Elizabeth Anderson, Chief Planning Officer
David Morris, Communications & Public Affairs Manager
Rick Shean, Water Rights Program Manager
Carlos Bustos, Water Conservation Program Manager
Luzdelcarmen Carreon, Executive Service Coordinator

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Item 1 – Call to Order - Note presence of quorum

The meeting was called to order at 4:09 pm by Vice Chair Ron Schwarzwaldner.

Item 2 – Approval of Agenda

Deborah Dixon made a motion to approve the agenda. Erwin Melis seconded the motion. The motion passed on an 8-0 vote.

For: 8 Chermak, Dixon, Fowlie, Houle, Melis, Schwarzwaldler, van Gulick, & Armijo
Against: 0
Excused: 1 Miller

Item 3 – Approval of June 11, 2020 Action Summary

Robert Fowlie made a motion to approve the action summary. Janie Chermak seconded the motion. The motion passed on an 8-0 vote.

For: 8 Chermak, Dixon, Fowlie, Houle, Melis, Schwarzwaldler, van Gulick, & Armijo
Against: 0
Abstain: 0
Excused: 1 Miller

Item 4 – Presentation on the Website Redesign

David Morris gave a presentation on the website redesign. During the presentation a tally was taken on what web design the members preferred. Below are the results:

Ron – Ghost & Interior A
Melissa - Ghost & Interior A
Tess – Ghost & Interior A
Erwin – Ghost & Interior A (the background on ghost is dark, seems like we are underwater)
Paul – Homepage – Ghost
Janie – Interior B
Deborah – Ghost & Interior A
Robert – Ghost & Interior A

Item 5 – Presentation on Status of Rio Grande Flows and Water Authority's San Juan Chama Operations

Rick Shean gave a presentation on the Rio Grande Flows, discussing issues that impact river operations and providing an update on San Juan Chama operations this year.

Item 6 – Presentation on Water Conservation Update

Carlos Bustos gave a presentation on the Water Authority's Water Conservation Program, describing its history, focus and current rebates. In 1994 customers used on average 250 gallons per capita per day (GPCD), which has been reduced by over 50 percent to date. Carlos also provided a brief overview of the Water Authority as a whole.

Item 7 – Public Comment

Public comments received were sent to the TCAC members via email before the meeting.

Item 8 – Adjournment

Vice Chair Ron Schwarzwaldler adjourned the meeting at 5:23 PM.

DRAFT

Wastewater System Overview

Mark Holstad, P.E.; Chief Engineer – Field Ops-Collection Section
and

Charlie Leder, P.E; Manager-Plant Operations Division



Wastewater System Overview

- **Collection System**
 - Drainage basins & interceptor trunks
 - Lift stations
 - CMOM program and how it reduced spills (SSOs)
 - Odor control program
 - Sewer renovation program
- **Treatment Systems at SWRP and at SAF**
 - Raw materials and products
 - Treatment system basics
 - Noteworthy features and components



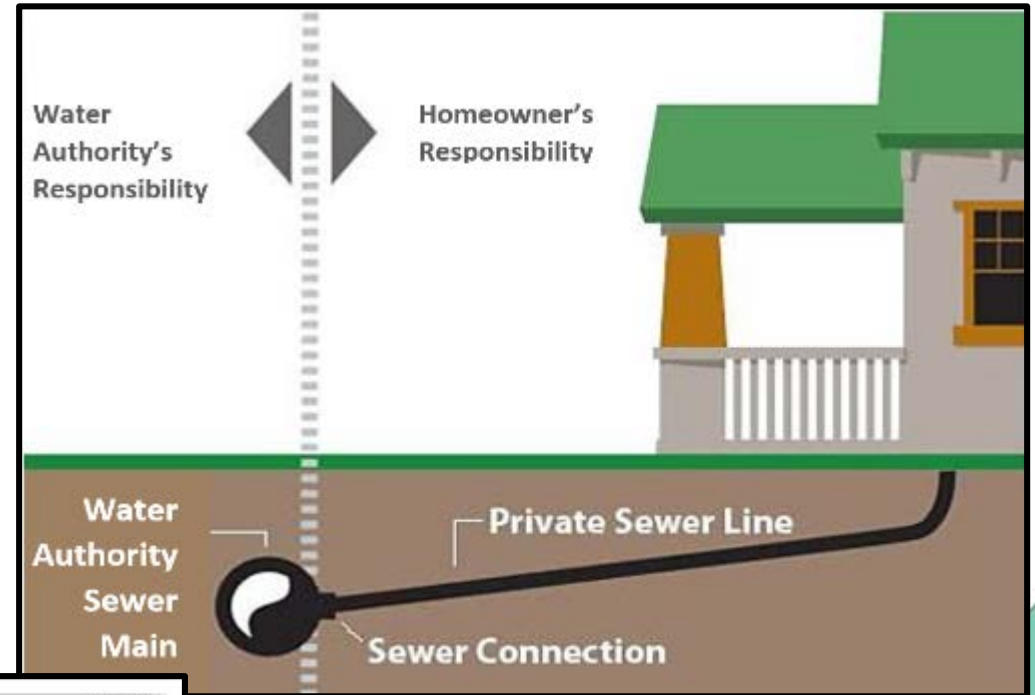
Collection System Overview

- What It Is
- What Is Different About Our System
- What Are Doing to Monitor Assets and Focus Resources
- What Are You Interested In?



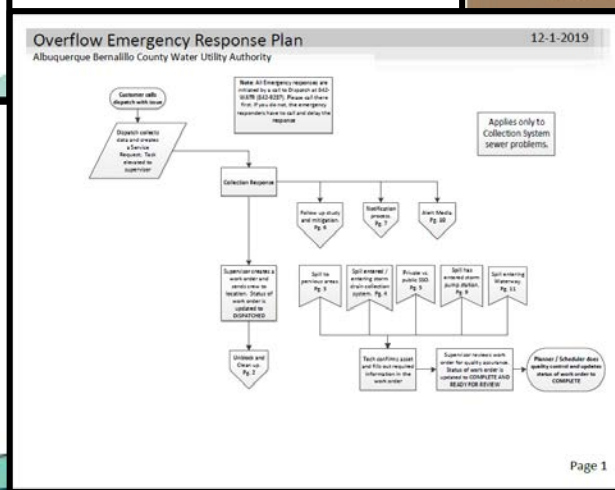
Collection System Overview

The screenshot shows the Water Utility Authority website's 'Sewer System' page. The navigation bar includes links for Home, Water Quality Report, Students & Teachers, Businesses, Sewer System, and View Your Account. A sidebar on the left lists various services like 'Avoid Sewer Backups', 'Cockroach Control', and 'Report Sewer Odor'. The main content area features a 'Sewer System' heading and a paragraph explaining that the authority maintains approximately 2,400 miles of sewer line that carries wastewater to the Southside Water Reclamation Plant for treatment before being released into the Rio Grande. It also mentions that about 200 employees are responsible for the infrastructure's operation and maintenance.



The cover of the 'CMOM ANNUAL REPORT CY2018' features four photographs showing various pieces of water infrastructure and maintenance equipment. The title is prominently displayed at the top, and the Albuquerque Bernalillo County Water Utility Authority logo is at the bottom.

The cover of the 'CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE (CMOM) PROGRAM SELF-ASSESSMENT CY 2018' includes two maps and two photographs of industrial or municipal sites. The title is centered at the top, and the Albuquerque Bernalillo County Water Utility Authority logo is at the bottom.



Collection System Overview

2/12/54







Miller Smith Boot –
used to relay 18" line
No. from Indian
School Rd. to Zickert
Rd.



Service Area and Basins

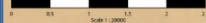
~2,400 miles pipe
~50,000 manholes
199 mi² + Satellites
~51 lift & vacuum

Legend

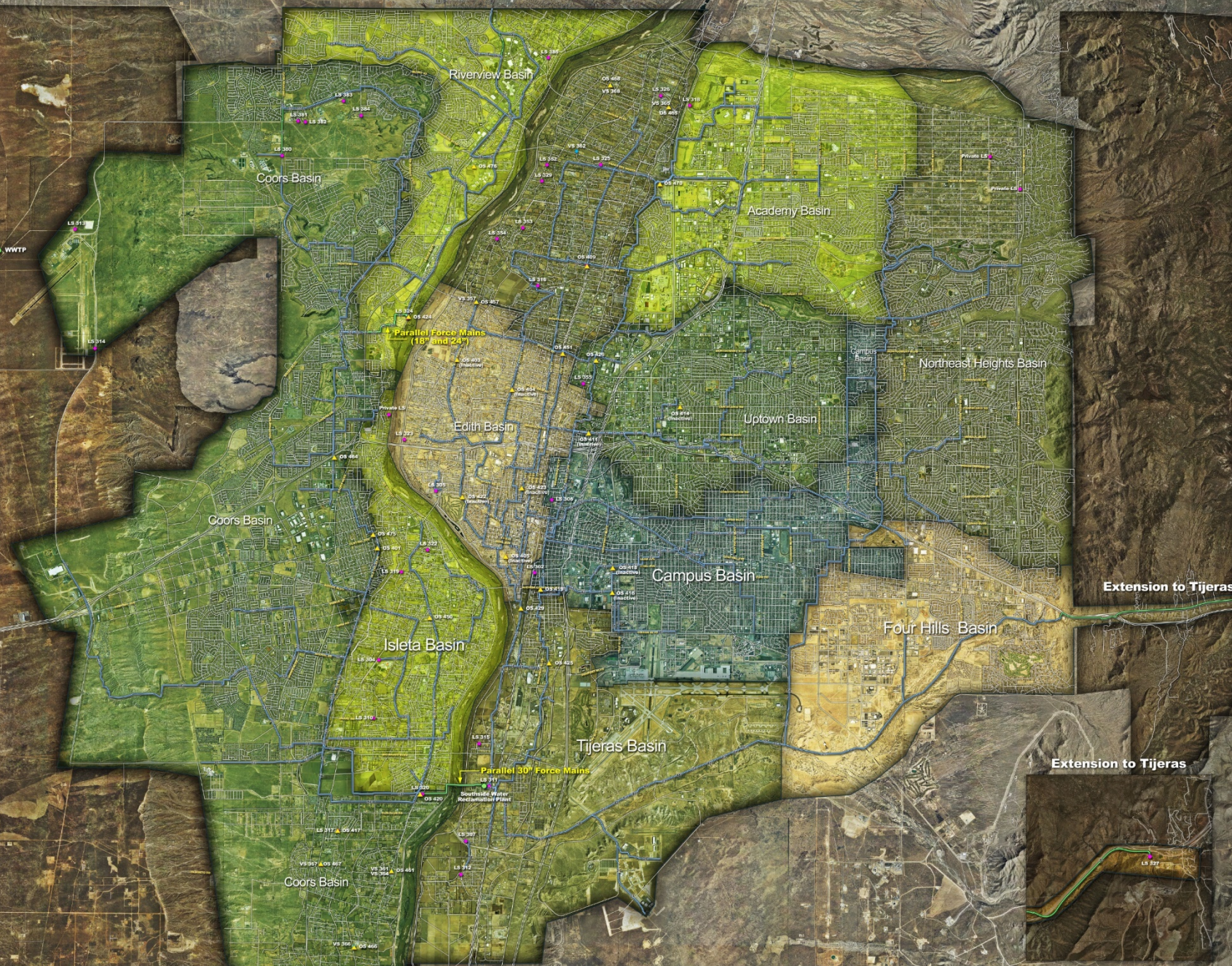
- Odor Control Stations 
- Wastewater Treatment Plant 
- Lift Stations 
- Vacuum Stations 
- Wastewater Interceptor 
- Force Main 

Note:
Pipe sections that have been lined are indicated with an "L" after the diameter.

Bohannon & Huston



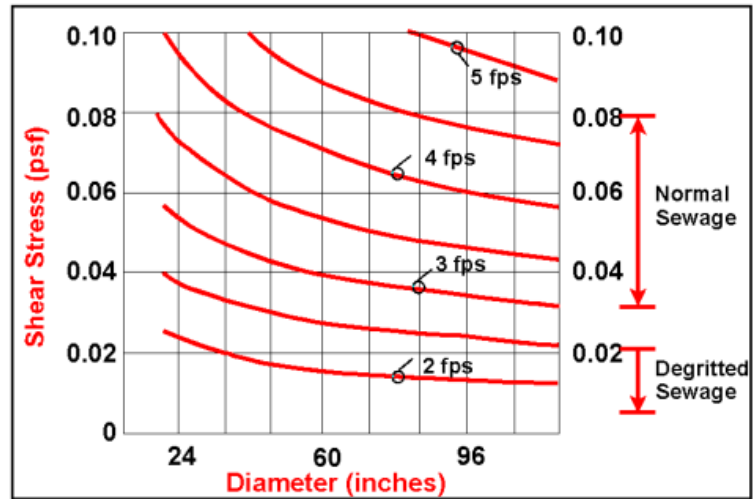
Scale: 1:2000



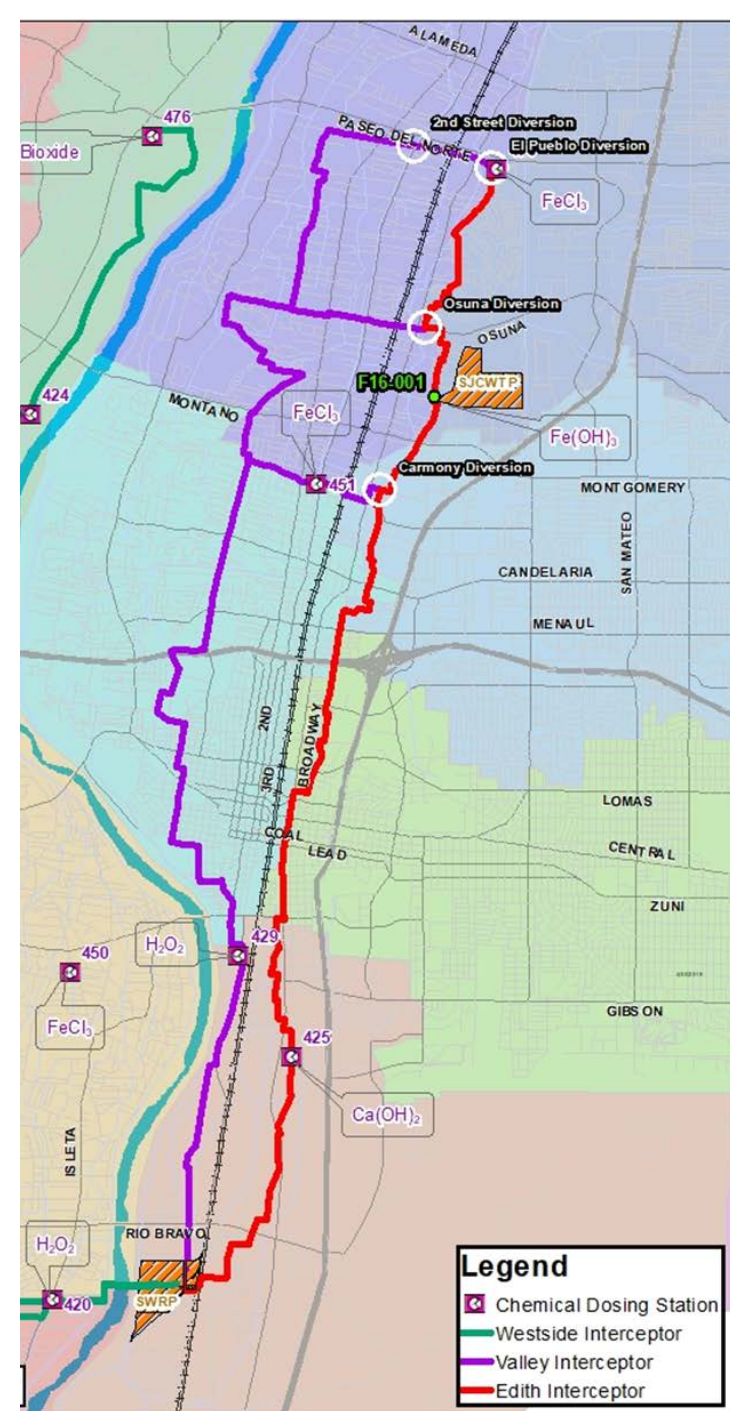
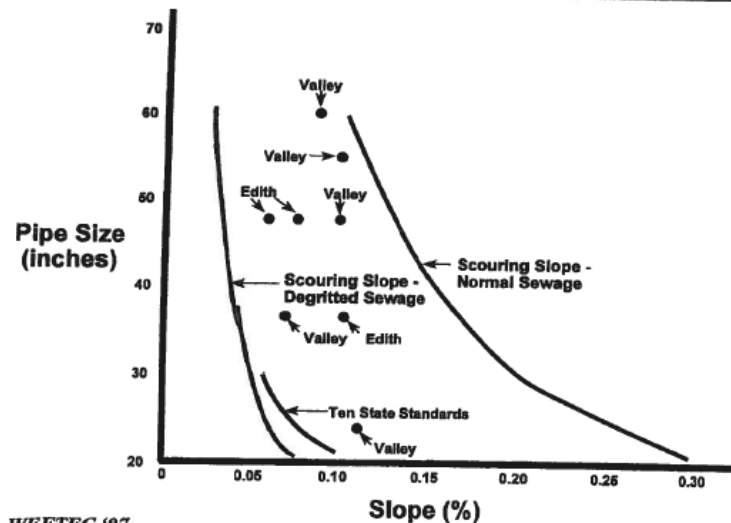
Unusual – Diversions & Grit Removal

SHEAR CRITERIA - 21" & LARGER

Scouring Velocities (MOP 69)

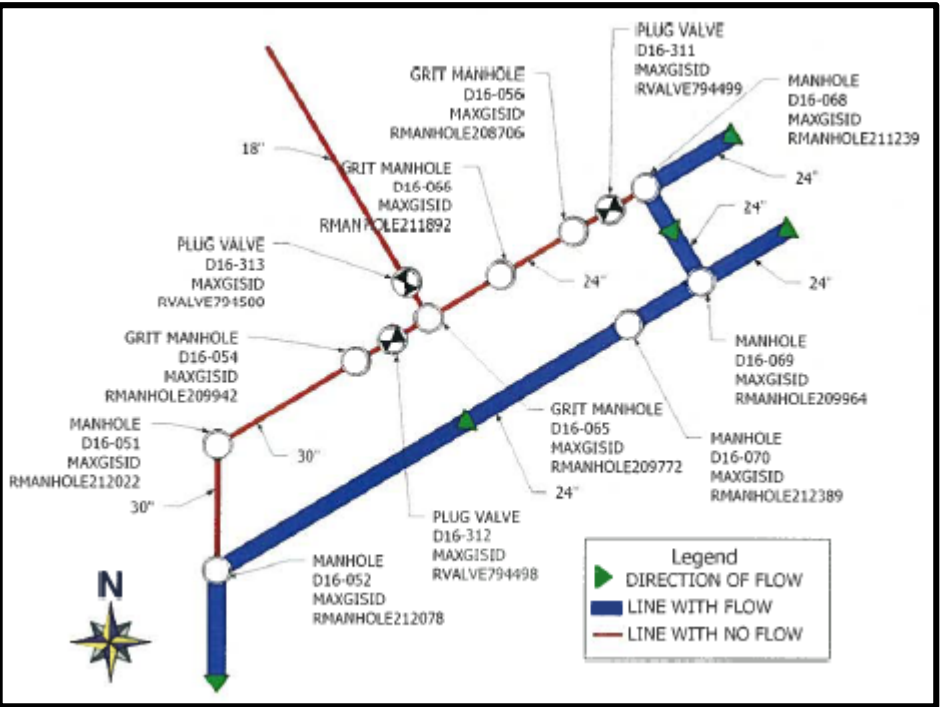


Slopes vs. MOP 69 Requirements

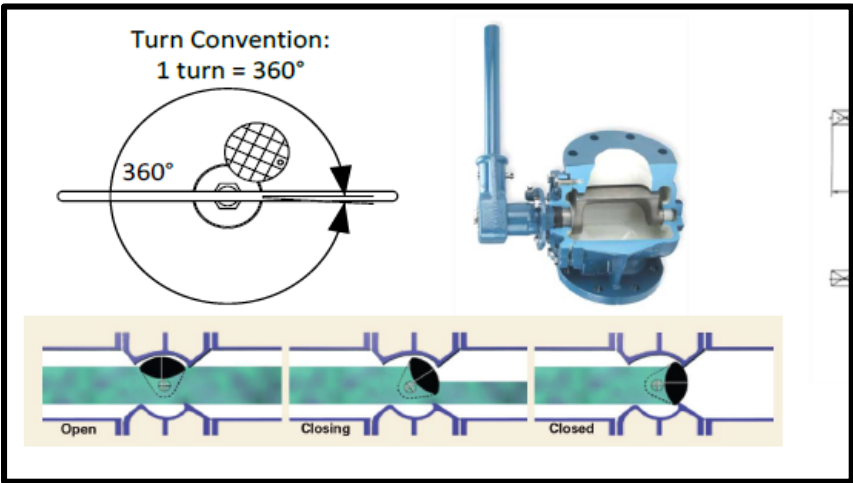
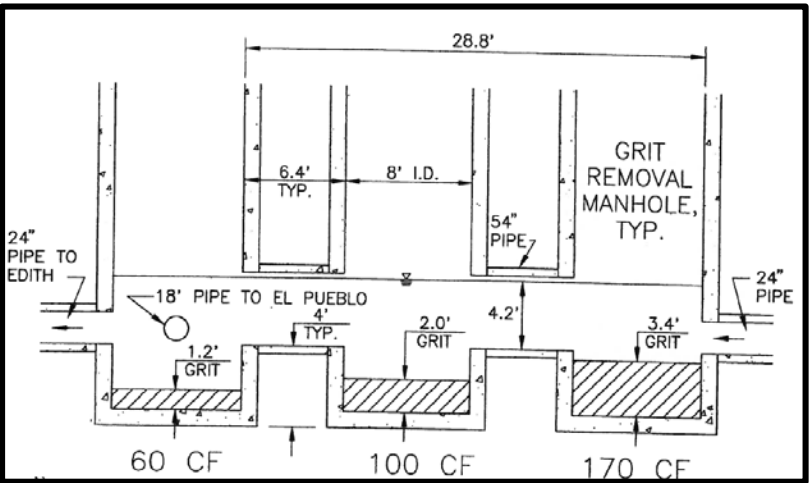


- Legend**
- Chemical Dosing Station
 - Westside Interceptor
 - Valley Interceptor
 - Edith Interceptor

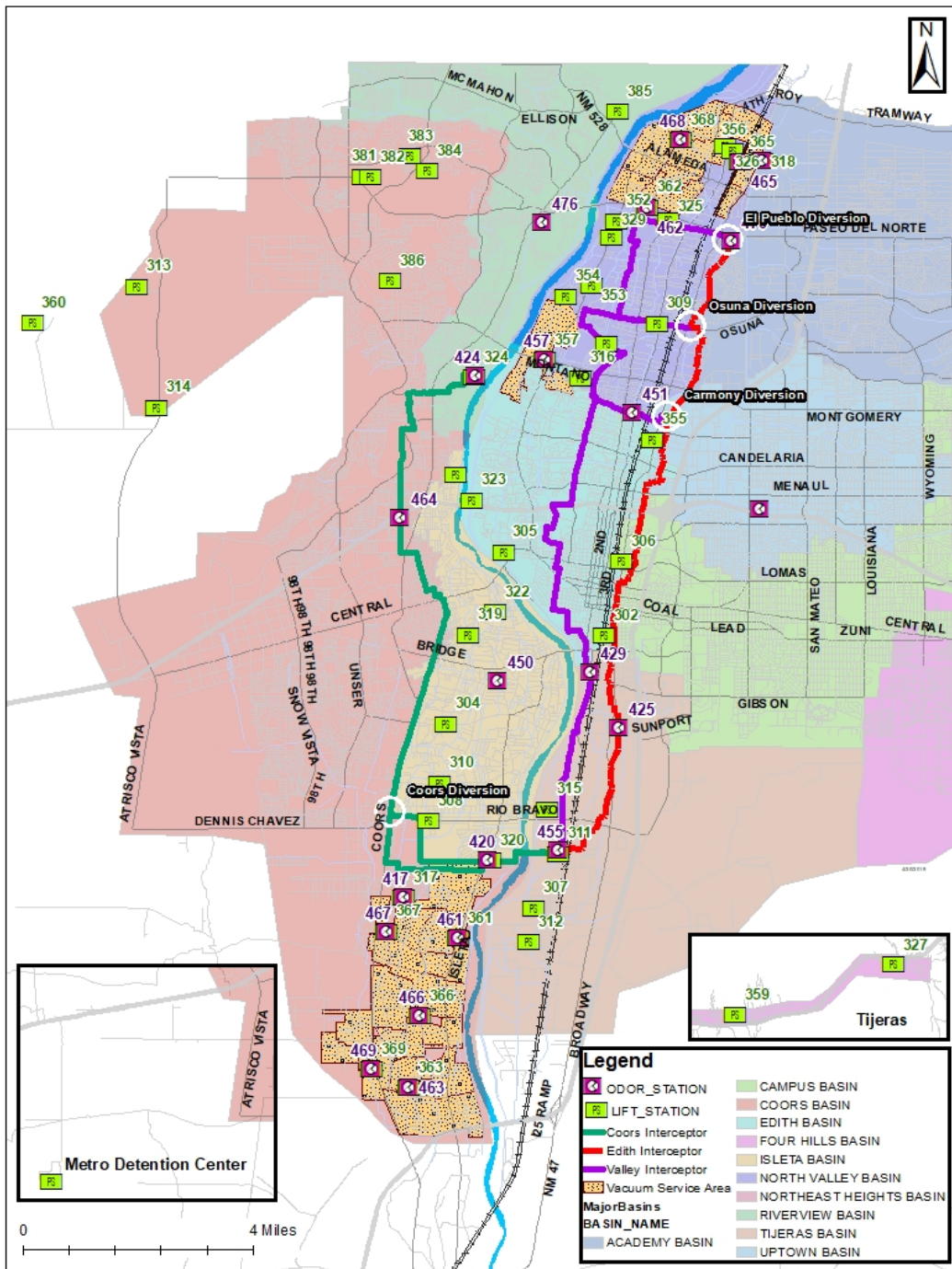
Unusual – Diversions & Grit Removal



	Average \$/hr	Average \$/Ton
Grit Chamber	\$ 127	\$ 188
Bucket Machines	\$ 124	\$ 633
Vector In-Line	\$ 92	\$ 677

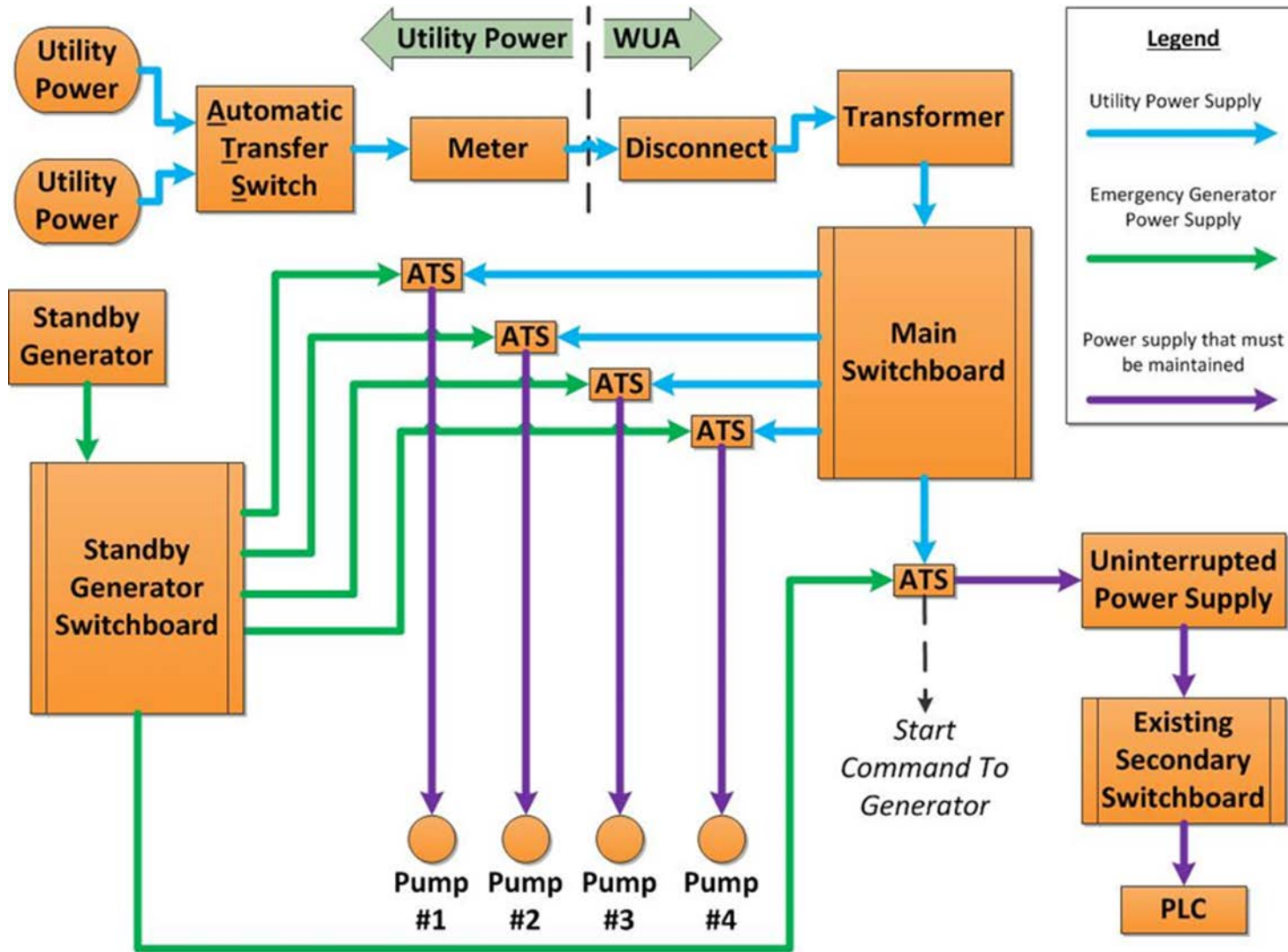


Lift & Vacuum Stations



Unusual – Get Dependable or Get Wet

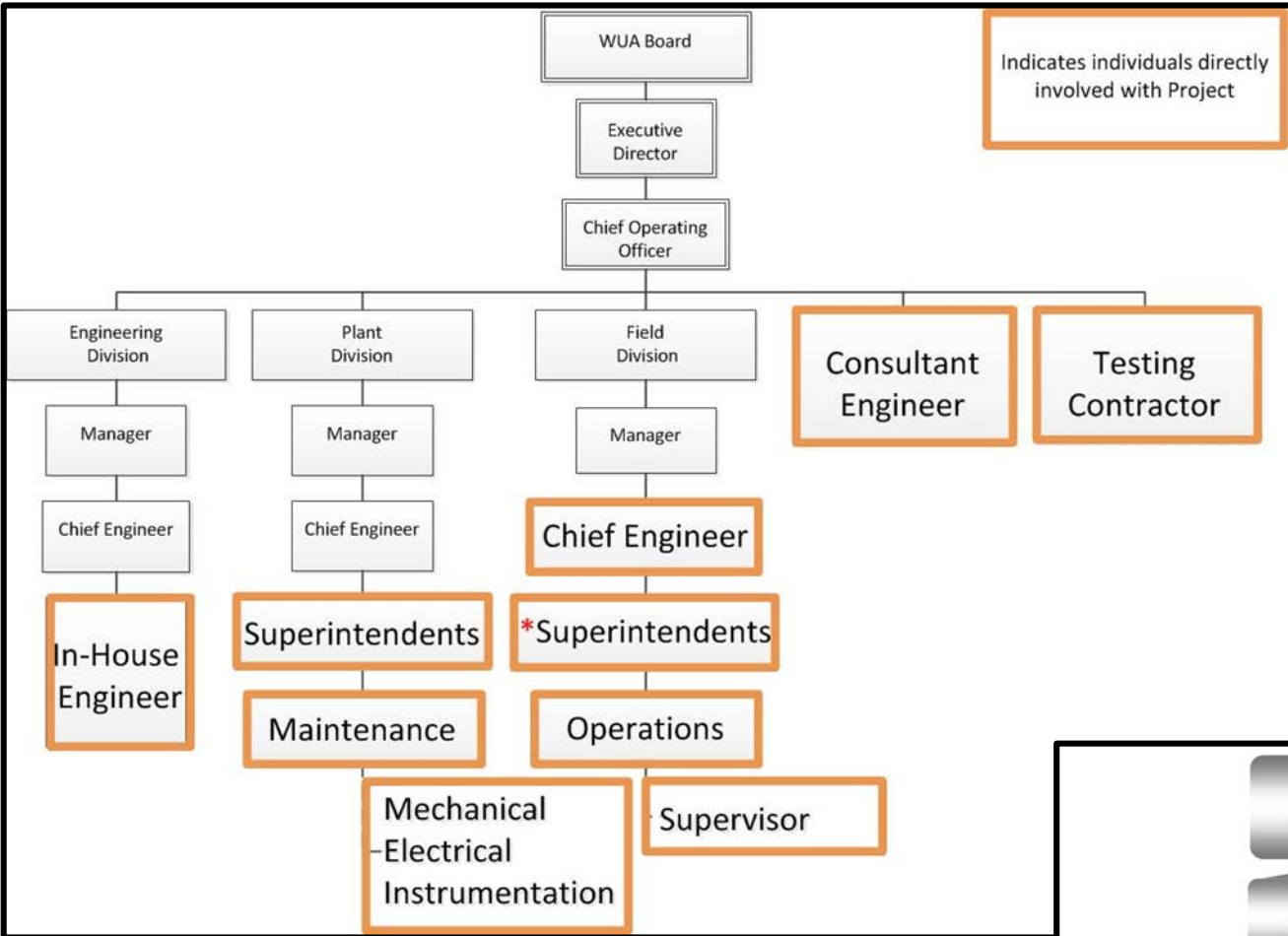




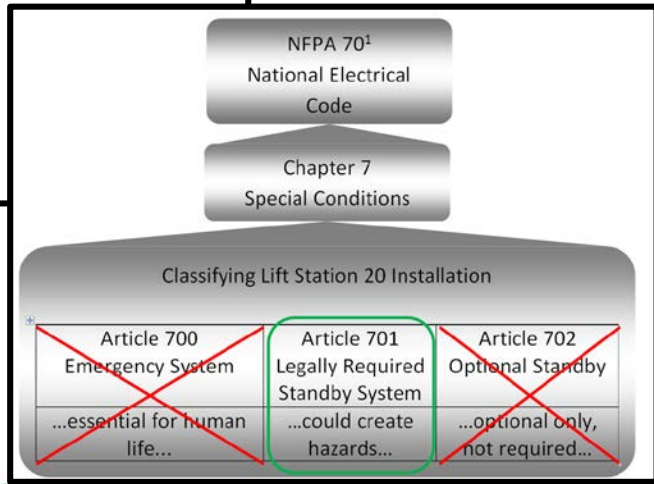
Unusual - Get Dependable or Get Wet








Unusual – Get Dependable or Get Wet



Indicates individuals directly involved with Project

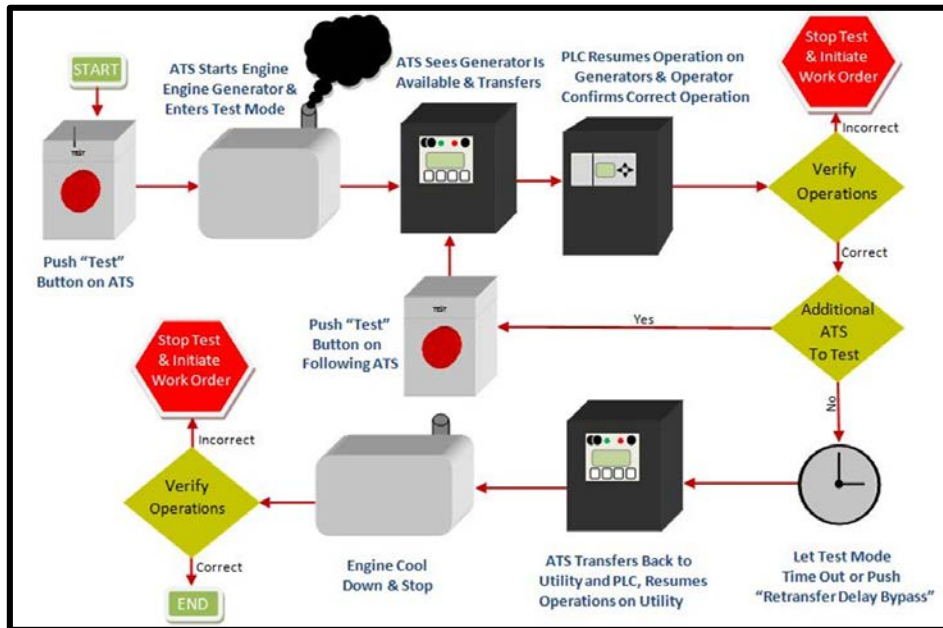


Hazard Level 0	Hazard Level 1	Hazard Level 2	Hazard Level 3	Hazard Level 4
				
Garment description: Non melting, flammable material (i.e. untreated cotton, wool, rayon, or silk, or blends of these materials) with a fabrics weight at least 4.5oz.	Garment description: FR Shirt and FR pant or FR Coverall.	Garment description: Cotton underwear, FR Shirt and FR pant.	Garment description: Cotton underwear, FR shirt, pant or cotton underwear plus two FR coveralls.	Garment description: Cotton underwear, FR shirt, FR pant, Multilayer arc flash suit.
ATPV: 0 cal/cm ²	ATPV: 4-8 cal/cm ²	ATPV: 8-25 cal/cm ²	ATPV: 25-40 cal/cm ²	ATPV: >40 cal/cm ²

cal/cm² ----- Thermal Units
 1 cal ----- 1 gram of water temperature rises to 10C.
 1cal/cm² ----- Equivalent to put a finger on the energy released by burning a cigarette for 1 second.
 1-2cal/cm² energy can cause second degree burns.

ATPV (Arc Thermal Performance Value) -----used to characterize materials arc protection capability. Energy is less than the ATPV is usually the case when the arc accident, material can effectively protect and reduce the energy to avoid the human body second degree and above burns.

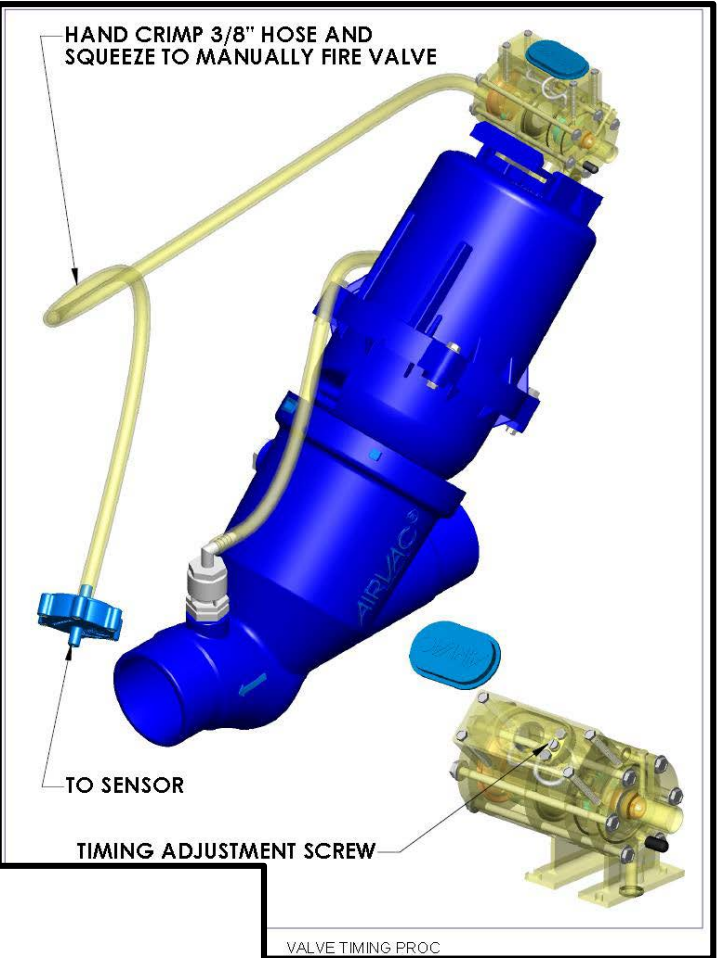
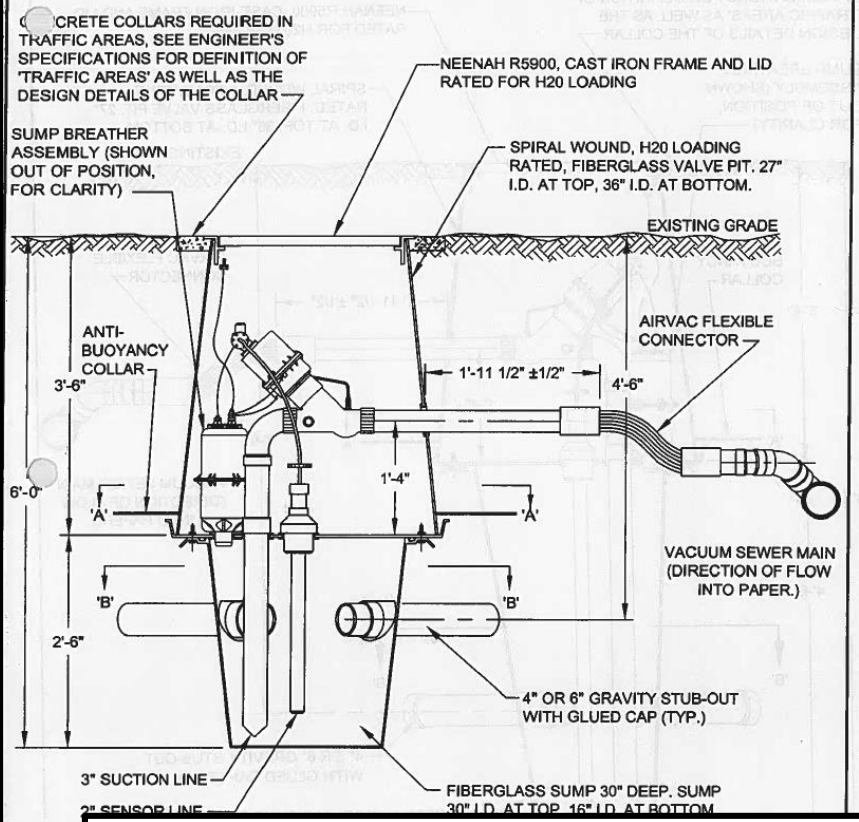
Unusual – Get Dependable or Get Wet





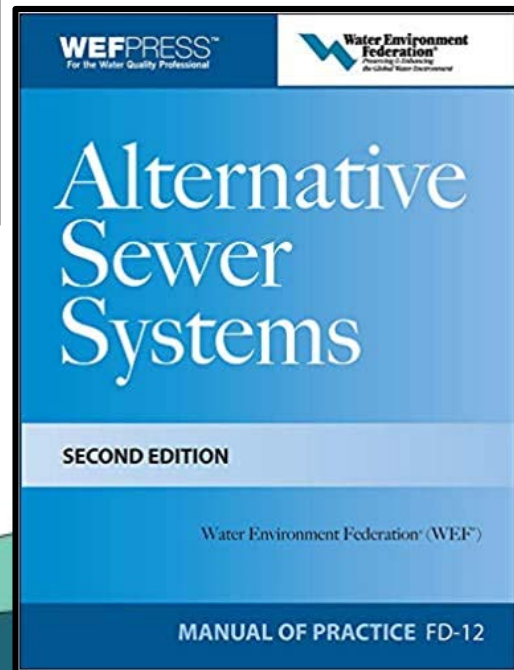
**Unusual –
Get
Dependable
or Get Wet**

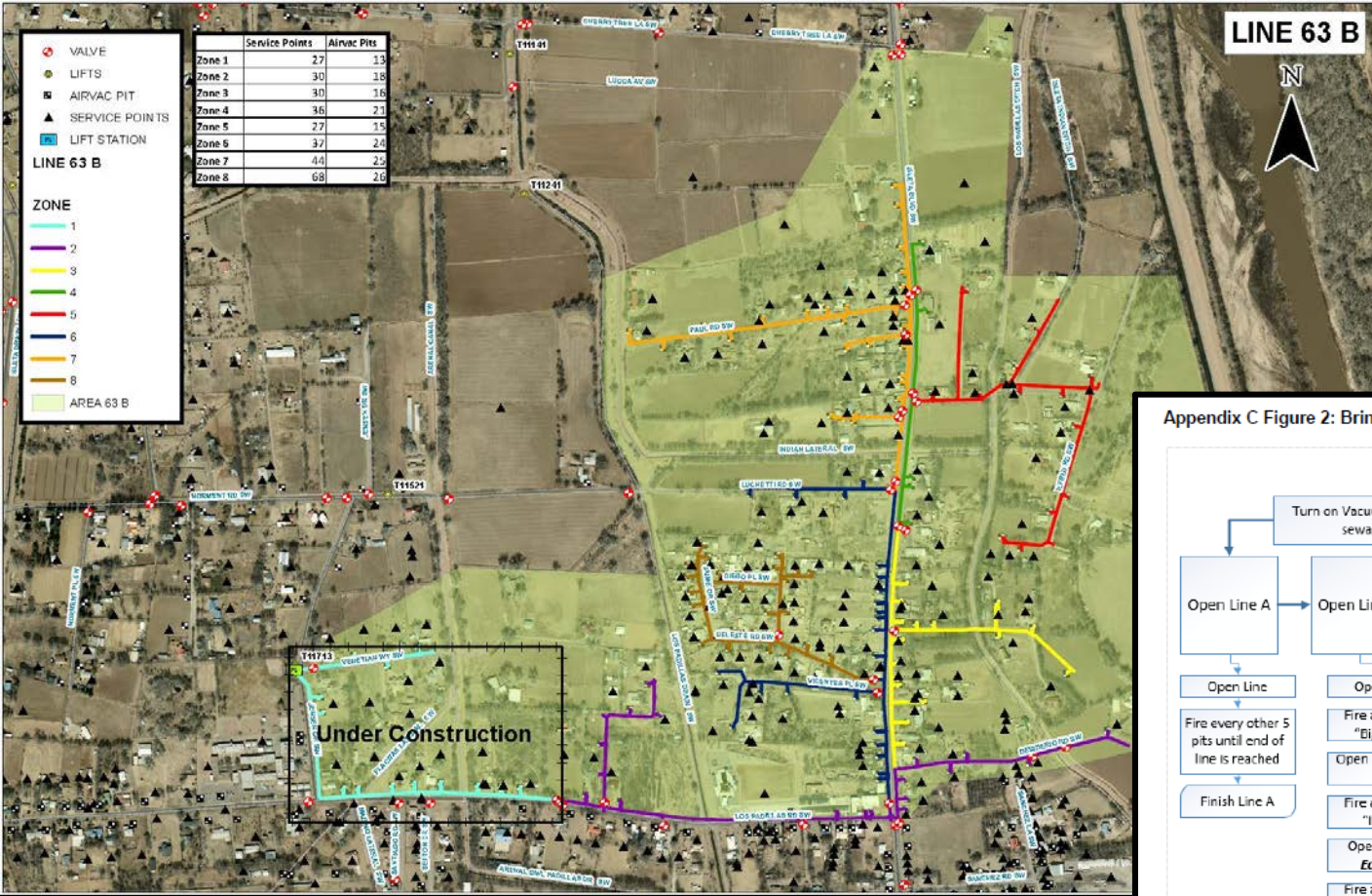




Unusual - Vacuum Systems

ABCWUA
COLLECTION SECTION - FIELD DIVISION
WWW III JOURNEYMAN TRAINING PROGRAM
STANDARD OPERATING JOB PROCEDURE
VACUUM STATION 63 OPERATION, MAINTENANCE, & RESTORATION





LINE 63 B



Summary Tables:

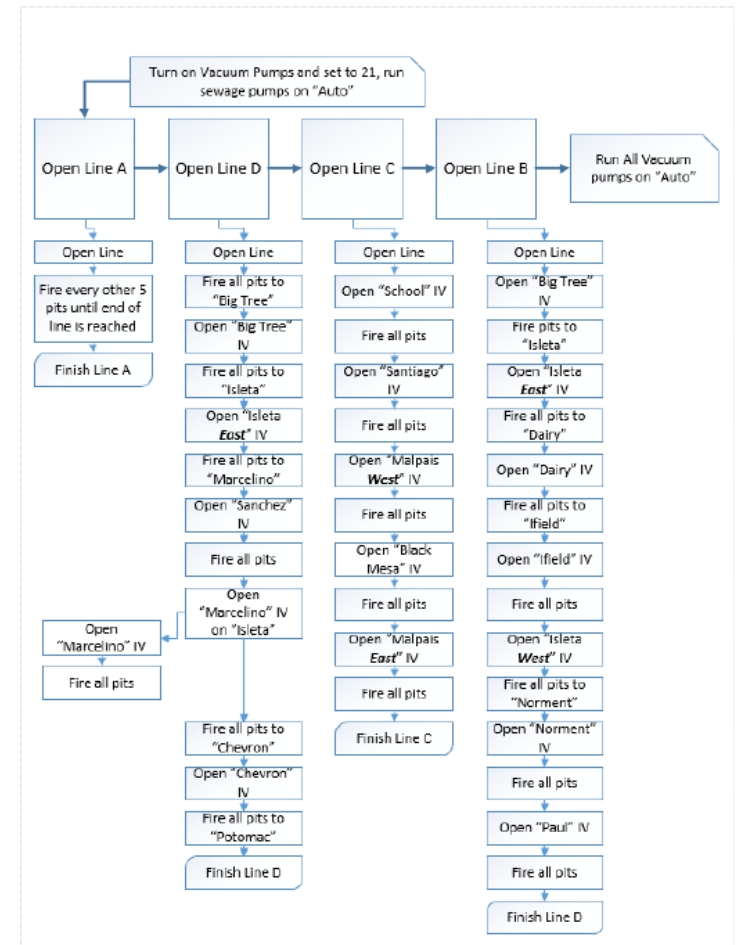
• Totals:

Total	Services	Pits
A	88	40
B	299	158
C	196	113
D	380	176
VS63	963	487

• Remaining Clients:

Line	Zone	Services		Pits	
		In Zone	Remaining	In Zone	Remaining
A	1	88	88	40	40
	Total	88		40	
B	1	27	299	13	158
	2	30	272	18	145
	3	30	242	16	127
	4	36	212	21	111
	5	27	176	15	90
	6	37	149	24	75
	7	44	112	25	51
	8	68	68	26	26
Total		299		158	
C	1	49	196	25	113
	2	34	147	19	88
	3	48	113	24	69
	4	26	65	22	45
	5	39	39	23	23
Total		196		113	
D	1	67	380	25	176
	2	90	313	36	151
	3	63	223	31	115
	4	59	160	24	84
	5	31	101	19	60
	6	35	70	21	41
	7	35	35	20	20
Total		380		176	

Appendix C Figure 2: Bring Up Procedure



Unusual – Vacuum Systems



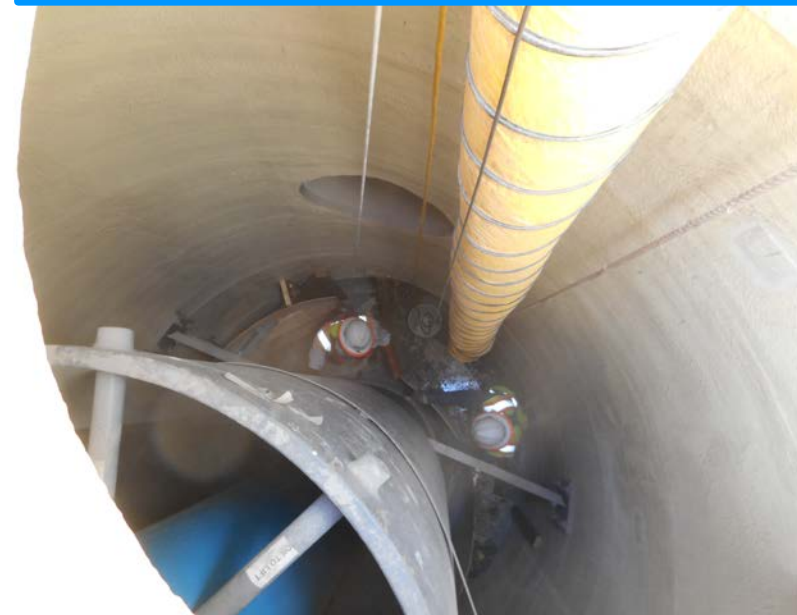
Unusual – Vortex Manholes



Immediate Success

2018

5 vortex manholes
22.7 mgd design peak flow
Severe, high profile odor
problem



Unusual – Vortex Manholes

Why a Problem? (1)
Flat to Steep = H₂S

Five Miles
48" at 0.06 to
0.09%

2,600' 36" at
2.7 to 5.1%

36" at 0.6%



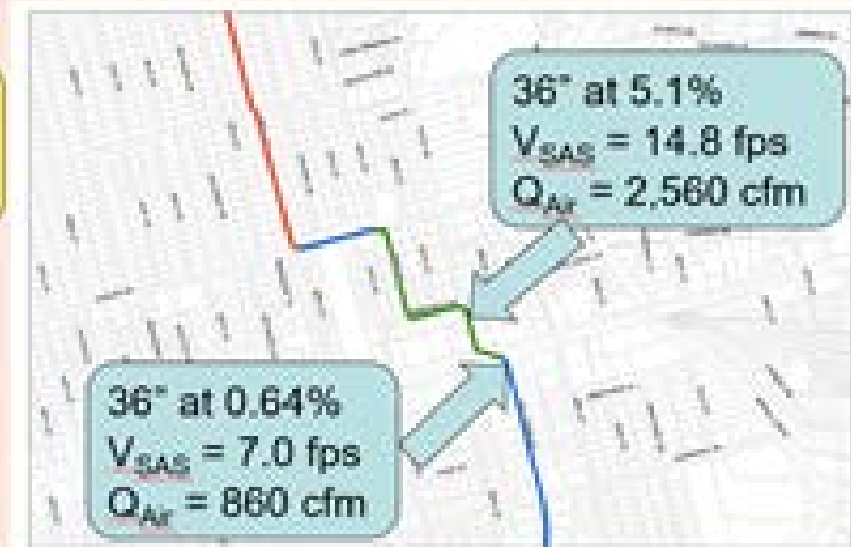
Collection Systems 2010

Collection System Priorities – Balancing Competing Needs
June 13 – 16, 2010 | Phoenix, Arizona

Why a Problem? (2)
Steep to Flat = Air Forced Out

$Q_{SAS} = 8.5 \text{ MGD}$
 $V_{AIR} = 0.5 V_{SAS}$

1,700 cfm
escaping
from system



Collection Systems 2010

Collection System Priorities – Balancing Competing Needs
June 13 – 16, 2010 | Phoenix, Arizona

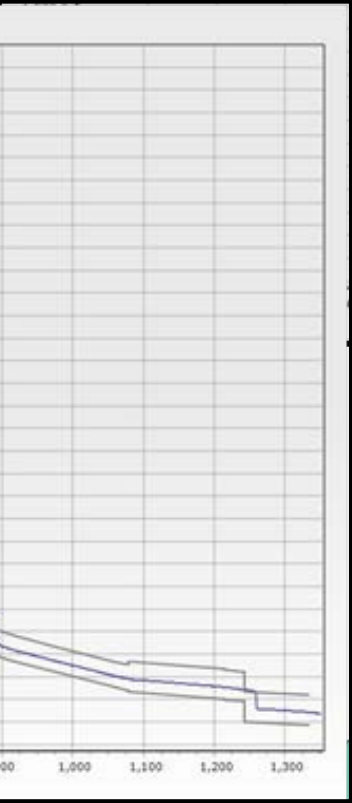


Yucca Central Solution

Before

After

- Legend**
- Birch Pipes
 - Vortex Interceptor
 - Abandoned Interceptor
 - Central & Yucca Interceptor
 - Vortex
 - Manholes Tested



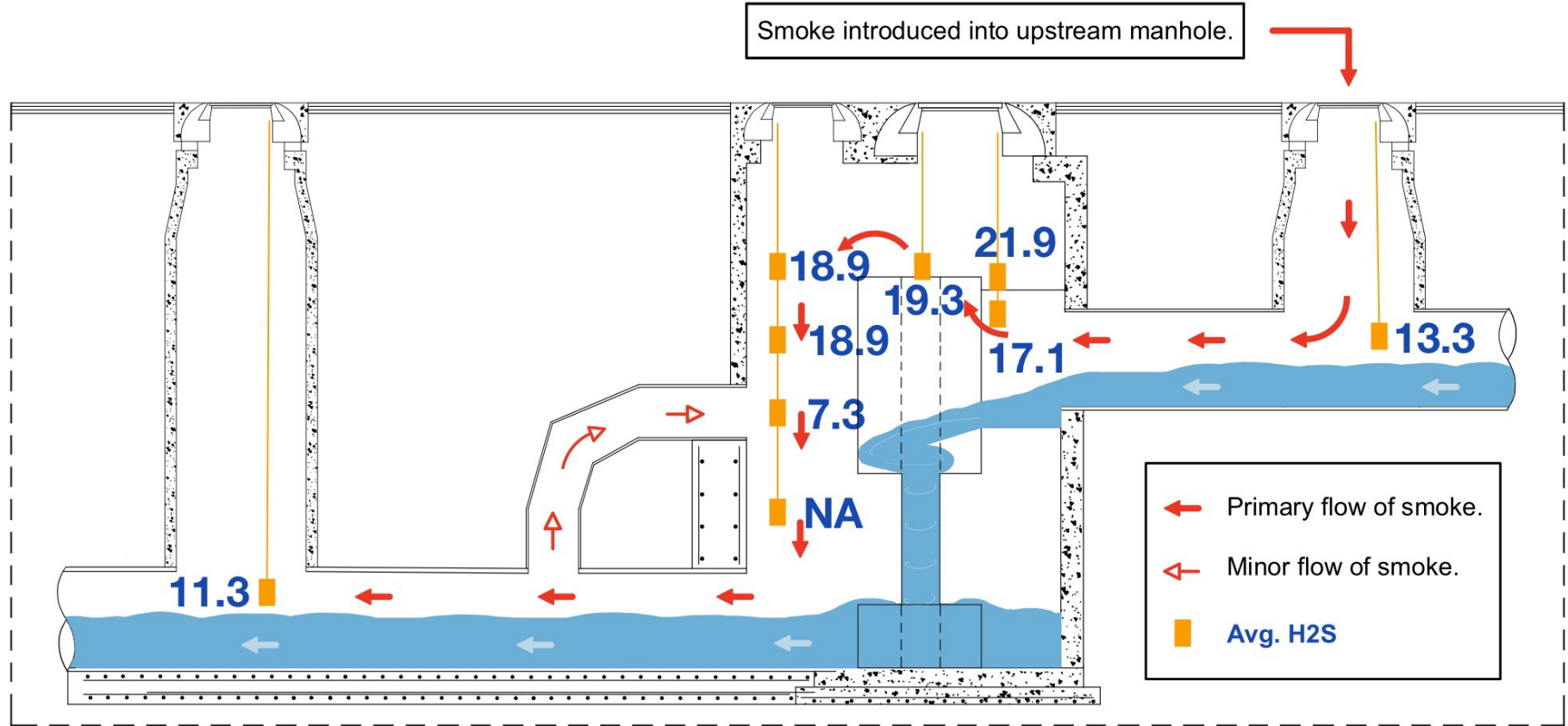
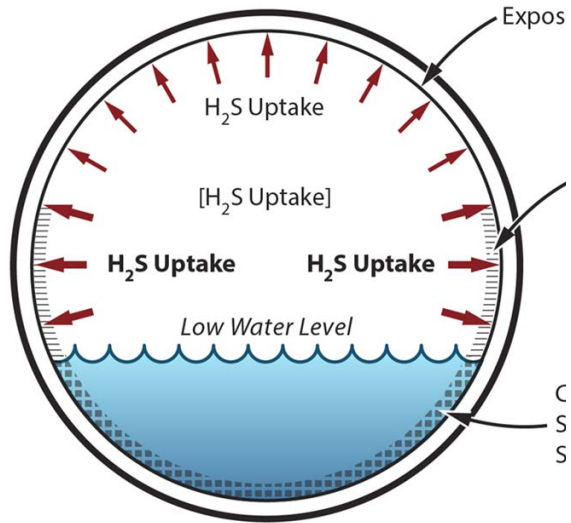
Before



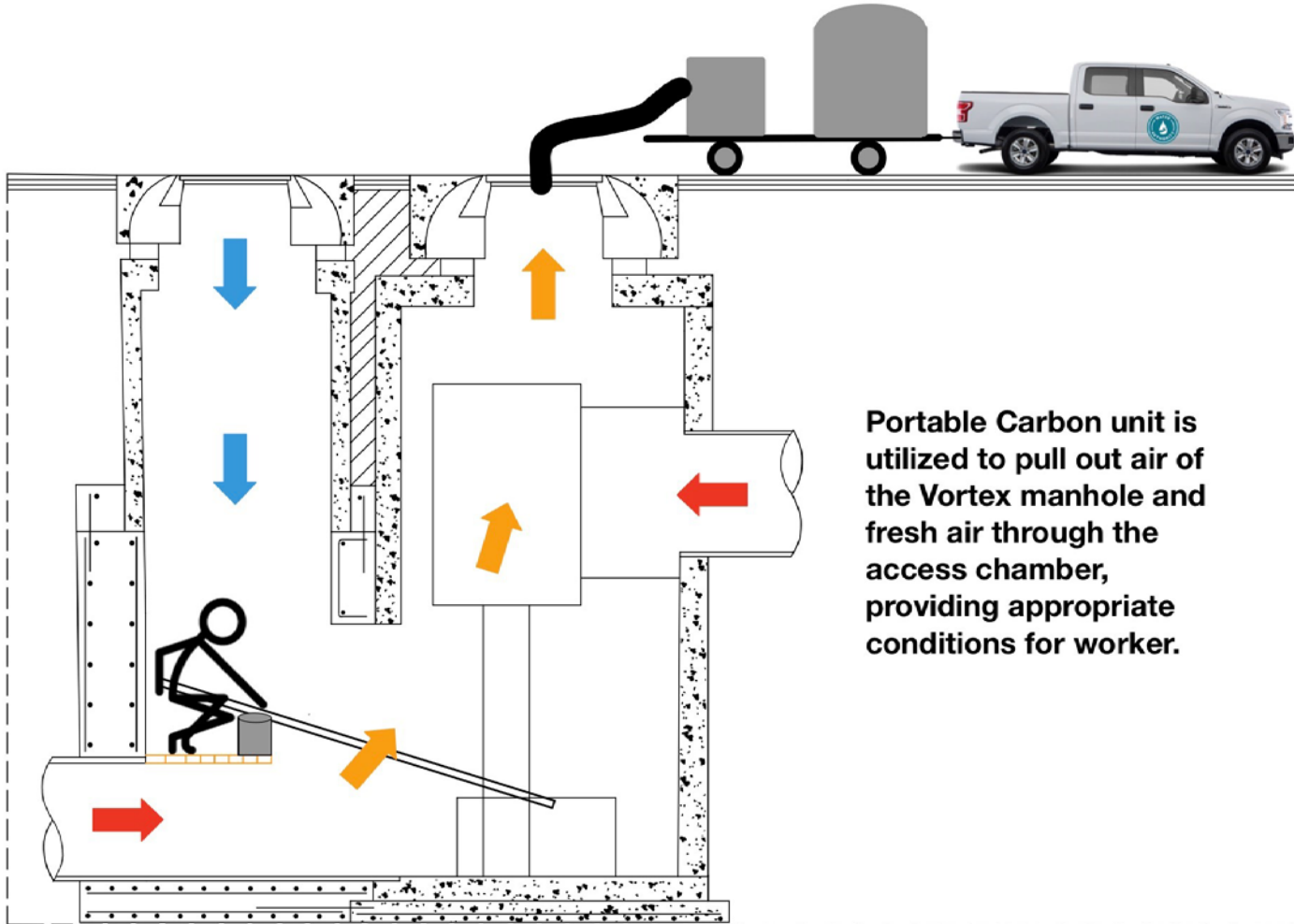
After



H₂S Uptake by Biofilm



Sustainable Cleaning



Portable Carbon unit is utilized to pull out air of the Vortex manhole and fresh air through the access chamber, providing appropriate conditions for worker.





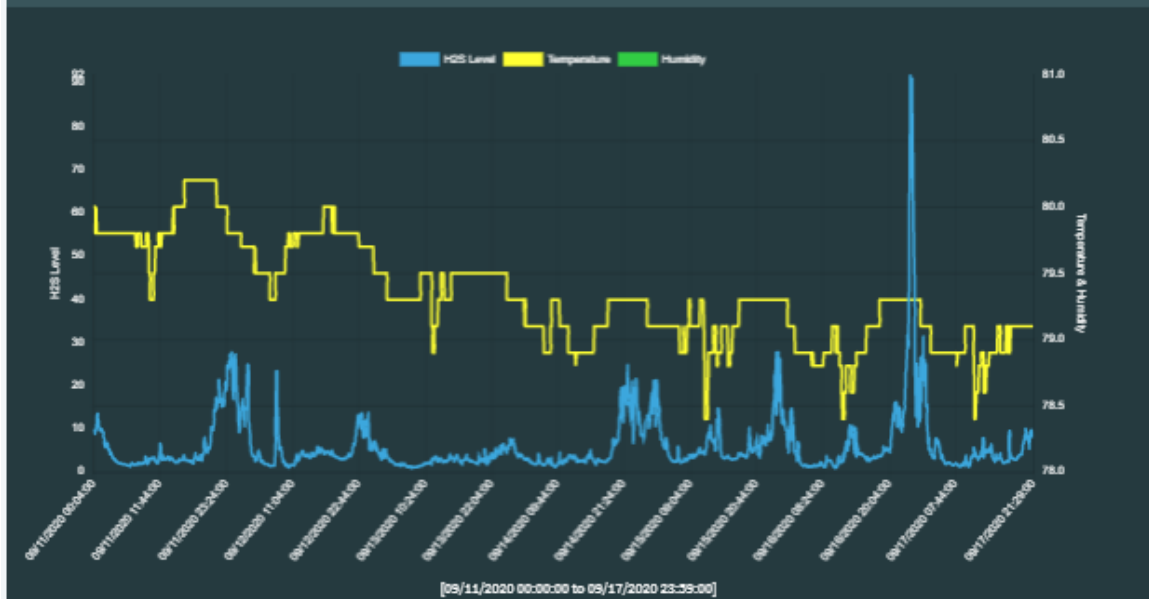
**Before &
After**
—
**From the
New Vault**



Current Events [Event Log](#)

There are no active events at this site.

System Overview



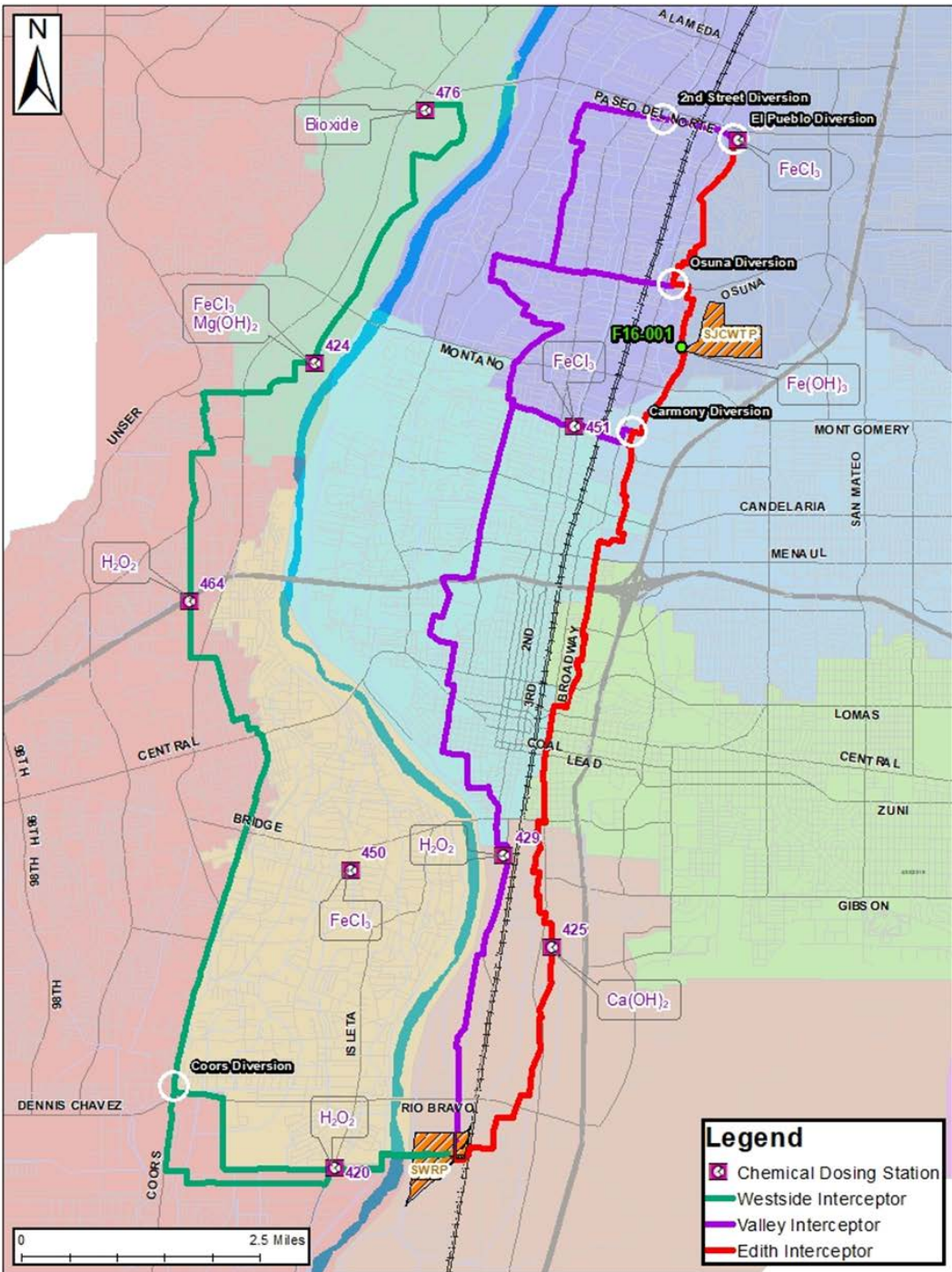
Minimum	Maximum	Average
H2S 0.9 [PPM]	H2S 91.6 [PPM]	H2S 6 [PPM]
Temperature 78.4 [F]	Temperature 80.2 [F]	Temperature 79.3 [F]
Humidity 100 [%]	Humidity 100 [%]	Humidity 100 [%]

Start Date: End Date:

Serial Number: 191002089 Last Calibration Date: 08/19/2020 Time Left To Change Monitor: 15 Days

Unusual – Internet Monitoring

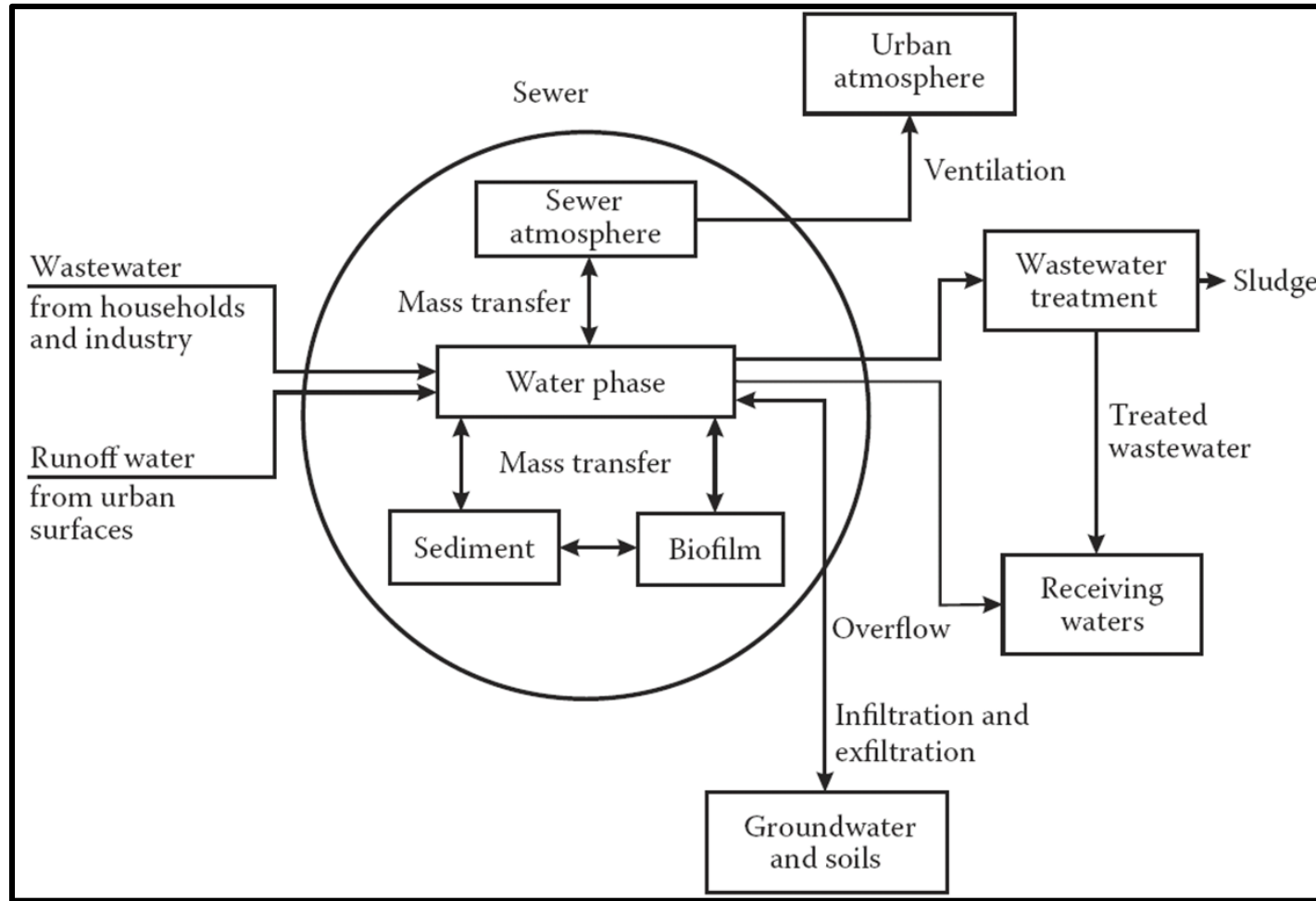




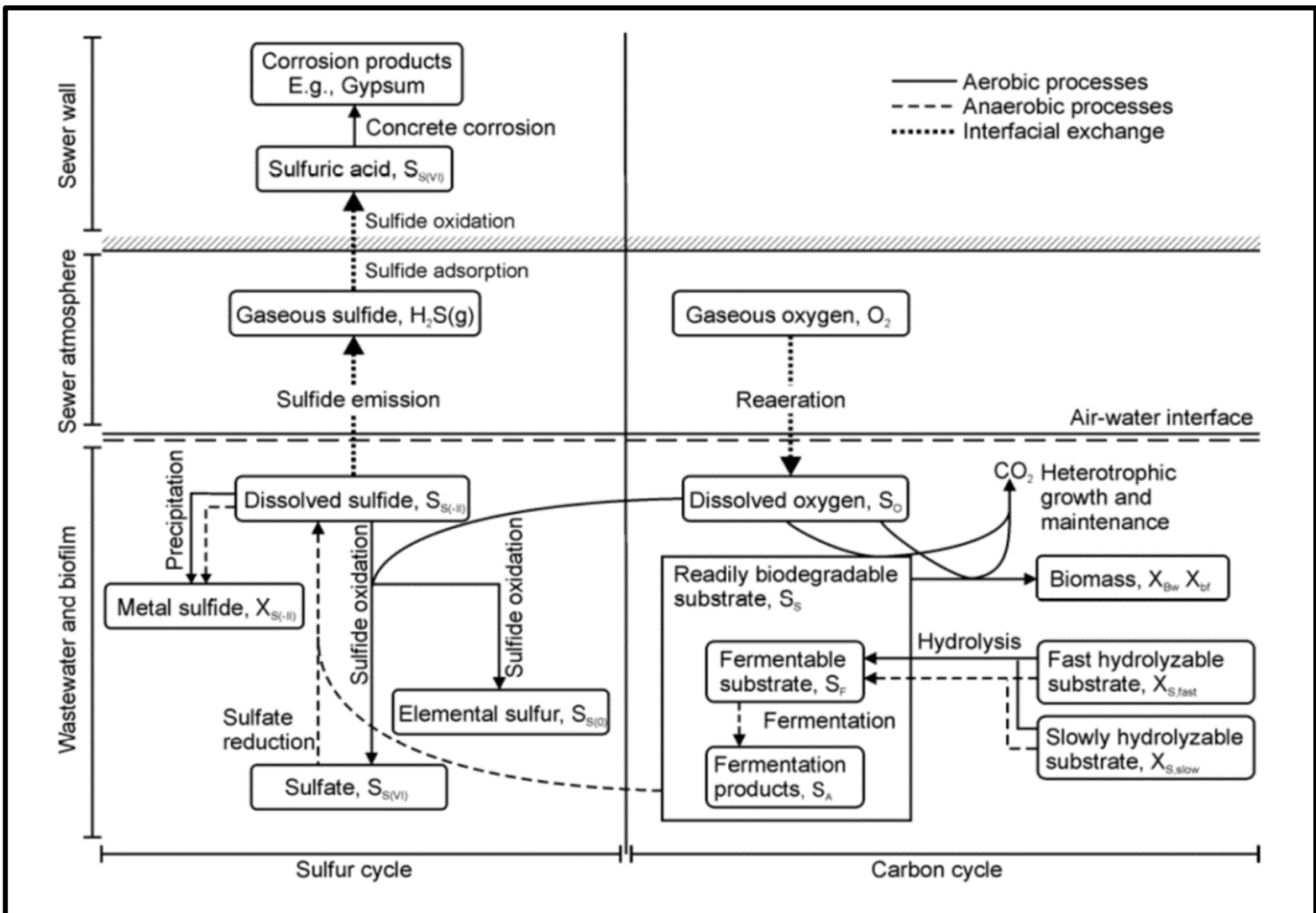
Chemical Odor / Corrosion Control / Benefit SWRP



Wastewater Aerobic/Anaerobic Transformation in Sewers - WATS



Wastewater Aerobic/Anaerobic Transformation in Sewers - WATS



Wastewater Aerobic/Anaerobic Transformation in Sewers - WATS

WATS 2.4

File Input Output Tools

Project in use: Bayside.wfp

1000-28669	10026-132593	10039-10083
100058-18468	10027-36061	1004-30429
10007-98107	10028-176534	10043-36094
10015-10016	10029-10030	10044-241451
10016-36050	10030-10027	10045-36461
10017-36523	10031-12612	10047-10044
10018-10017	10032-10035	10049-300508
10020-10032	1003-29416	10051-86158
10020-36050	10033-10037	1005-29678
1002-1003	10034-36054	10056-99020
10021-16876	10035-36052	10057-10058
10022-10021	10036-10095	10058-10062
10023-10026	10037-36051	10059-10061

Flow and quality Network layout

Output variation along the length of pipe

- Water flow in pipe [L/s]
- Water velocity in pipe [m/s]
- Water depth in pipe [m]
- Concrete corrosion rate [mm/year]
- H2S in the sewer gas phase [ppm]
- Free H2S in the water phase [g/m3]
- Oxygen in the water phase [g/m3]
- Precipitated H2S in the water [g/m3]
- Sulfate in the water phase [g/m3]
- Nitrate+Nitrite in the water phase [g/m3]
- CO2 in gas phase [ppm]
- Carbonate in water phase [mM]
- Free Fe in the water phase [g/m3]
- Hydrogen peroxide [mg/L]
- Hypochlorite [mg/L]
- Gas velocity in pipe [m/s]
- Gas intake at upstream node [L/s]
- H2S offgas at upstream node [ppm]
- SA in the water phase [g/m3]
- SF in the water phase [g/m3]
- XBw in the water phase [g/m3]
- XSi in the water phase [g/m3]
- XSm in the water phase [g/m3]
- XSs in the water phase [g/m3]
- Total COD [g/m3]
- Wastewater pH
- Wastewater methyl mercaptane [ir]
- Gas phase methyl mercaptane [pp]

If checked show upst. else downst.

Pipe name: 1000-28669
 Upstream Node: 1000
 Downstream Node: 28669
 Pipe type: Gravity sewer
 Pipe material: VC
 Pipe material is corrosion resistant
 Pipe shape: CIRC
 Pipe length: 36.3 m
 Pipe diameter: 0.203 m
 Pipe slope: 0.05398 m/m
 Upstream invert: 53.503 m
 Dwnstream invert: 51.542 m
 Water flow: 0.000158 m3/s
 Water velocity: 0.458 m/s

Mean water depth: 0.007 m
 Relative water depth: 3 %
 Water residence time: 0.022 h
 Gas velocity: 0.0682 m/s
 Gas residence time: 0.148 h
 Gas intake upstream node: 0.000146 m3/s
 H2S offgas concentration: 0.00 ppm
 Methyl mercaptane offgas conc.: 0.000 ppm

Dose to: 1000-28669

23869a-23869b recieves 10 g/m3 of Fe(II)

Time passed: 77.4

Informations Copy to clipboard Plot what is on graph Auto cal

Abot Run stochastic Run once

Gravity pipes
 Force mains
 Full flowing gravity pipes
 Nodes
 Node names
 Pipe names
 Flow in pipes
 Indicate flow direction
 Highlight chosen pipe
 H2S off-gas at nodes
 Off-gas label [gS/day]

Scale off-gas values with: 1

Max off-gas flux to show: 100

Show H2S in wastewater [mg/L]

0 1.0 10

Show H2S in sewer gas [ppm]

0 10 100

View only H2S for pipes with flows larger than: 0.0005 m3/s

Pipes with backwater
 Pipes with zero or negative slope
 Pipes which are flowing full

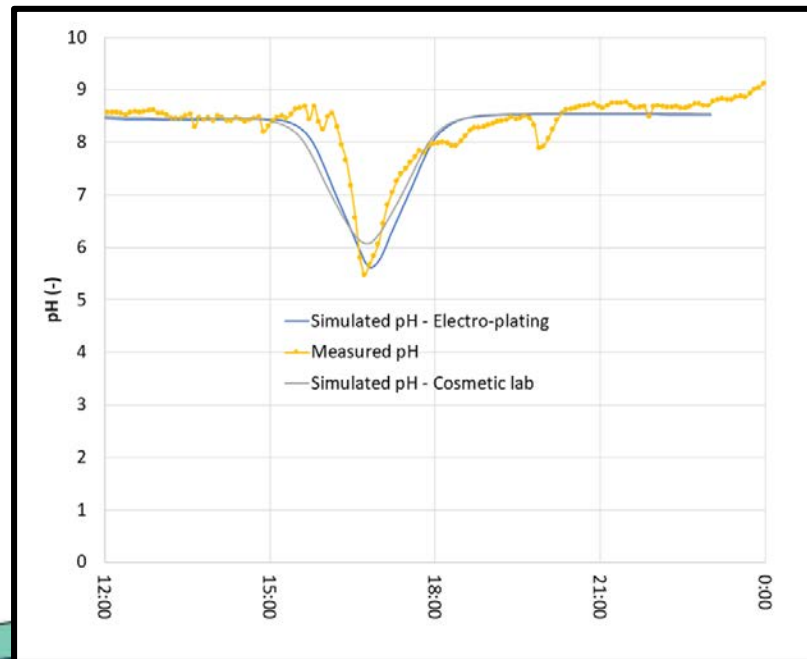
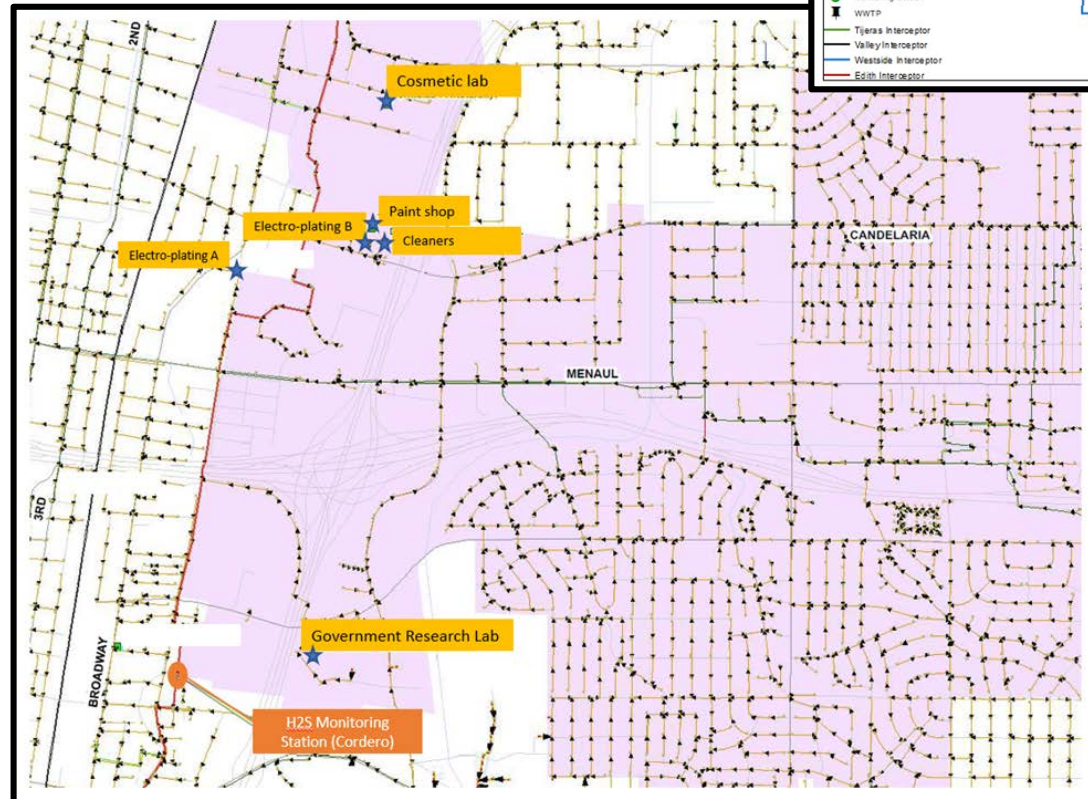
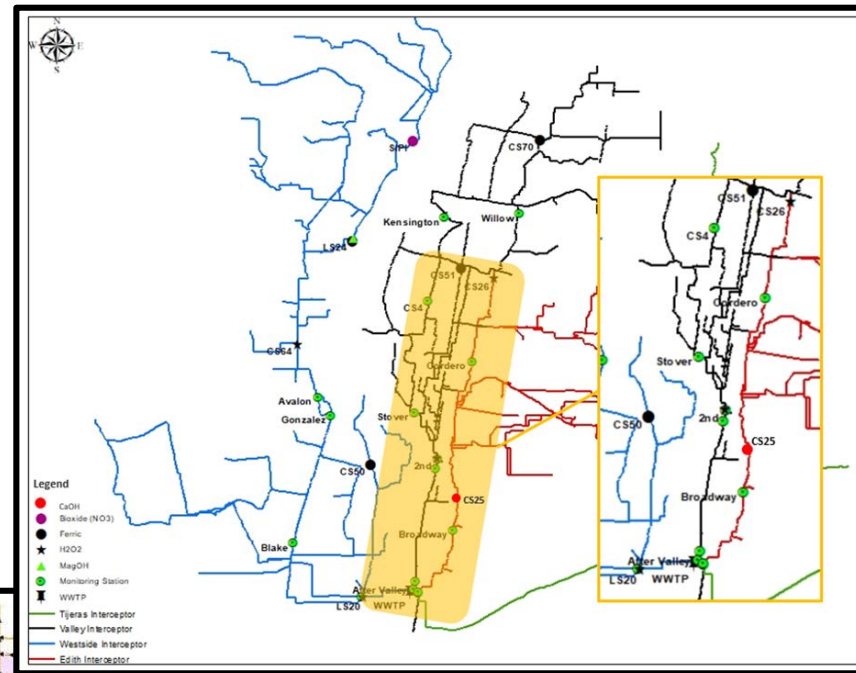
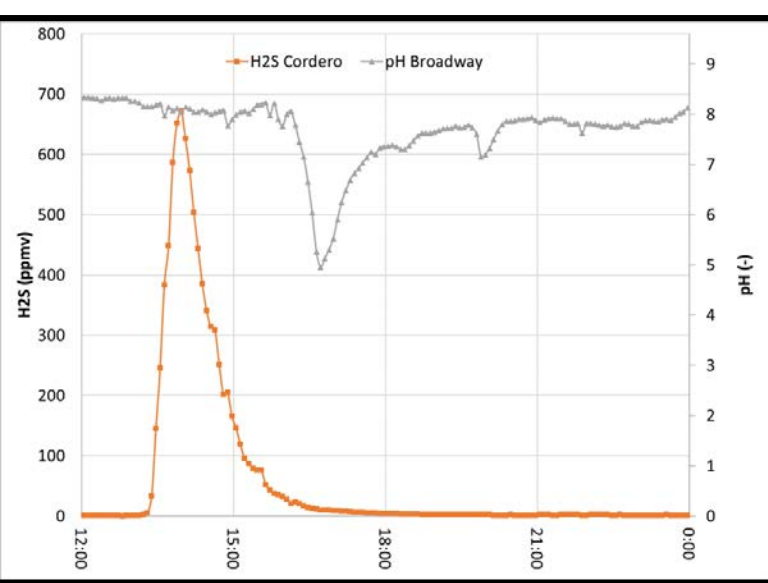
Calc. accumulated offgas

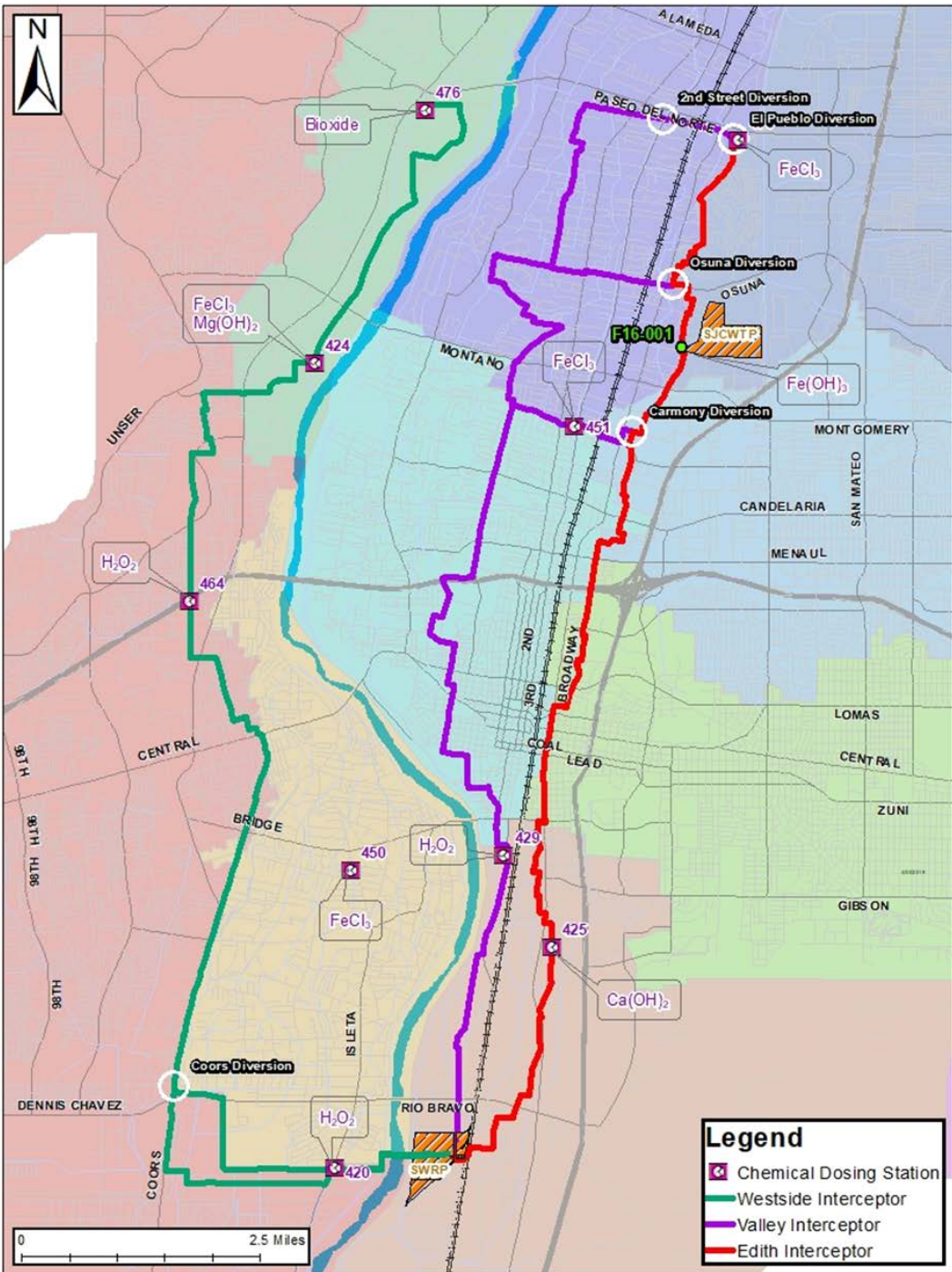
Distance from xy: 100

Accumulated offgas [gS/d]:
 Accumulated offgas [gS/d]:



Chemical Optimization / Catching Industrial Violators

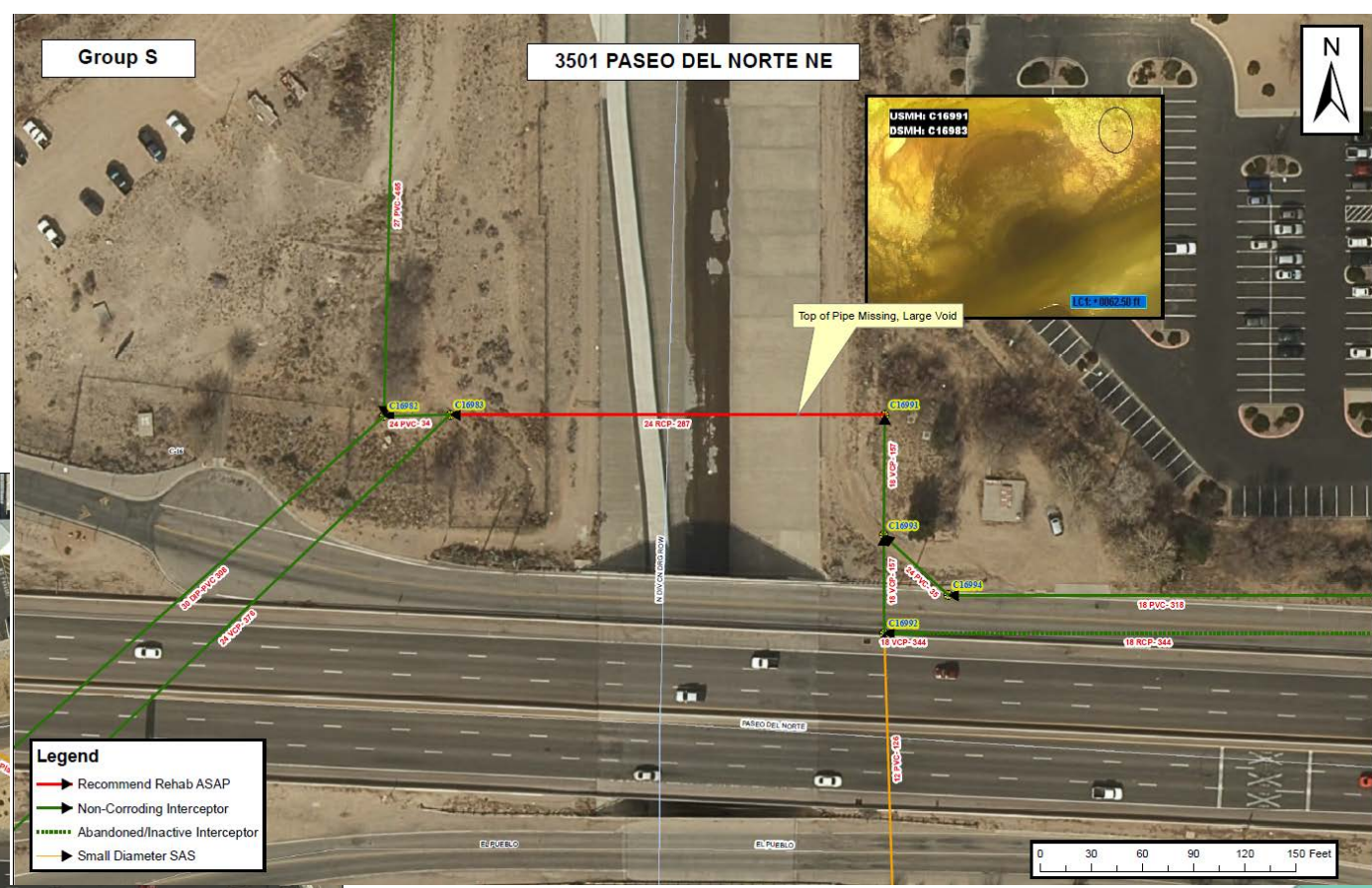




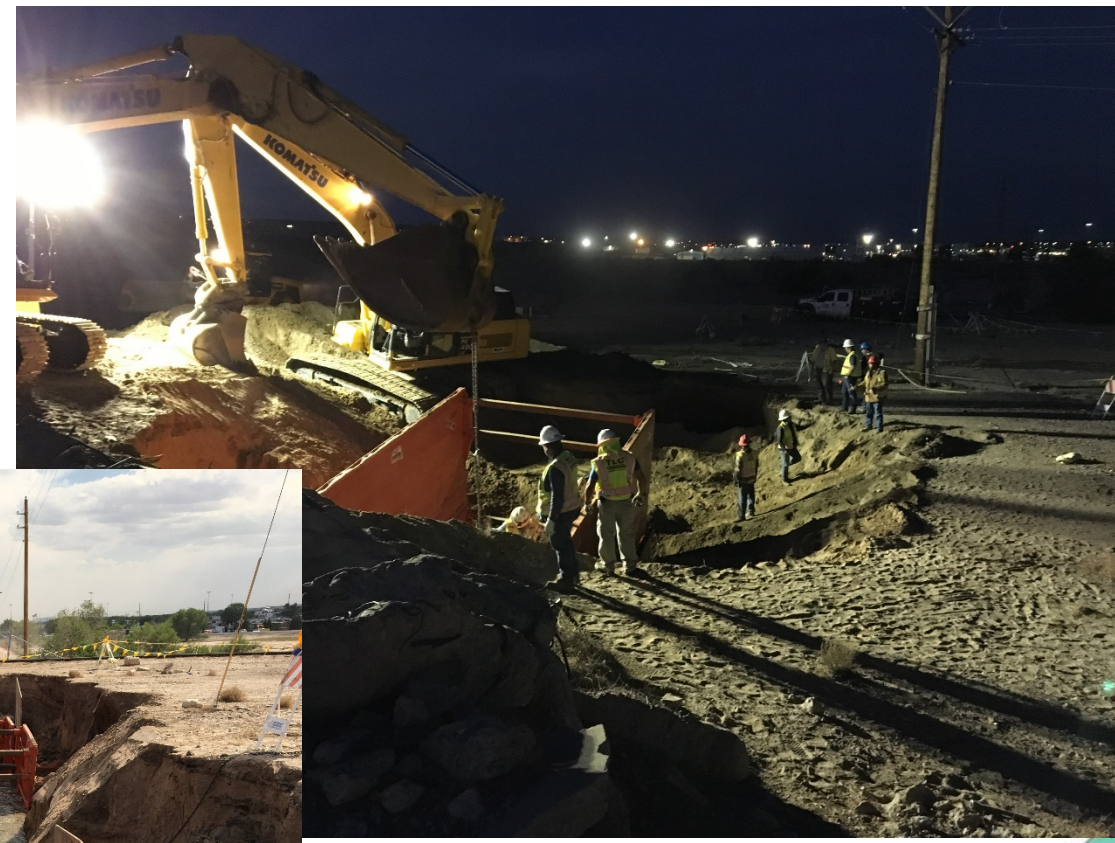
SJCWTP Residual Iron



Interceptor Rehab

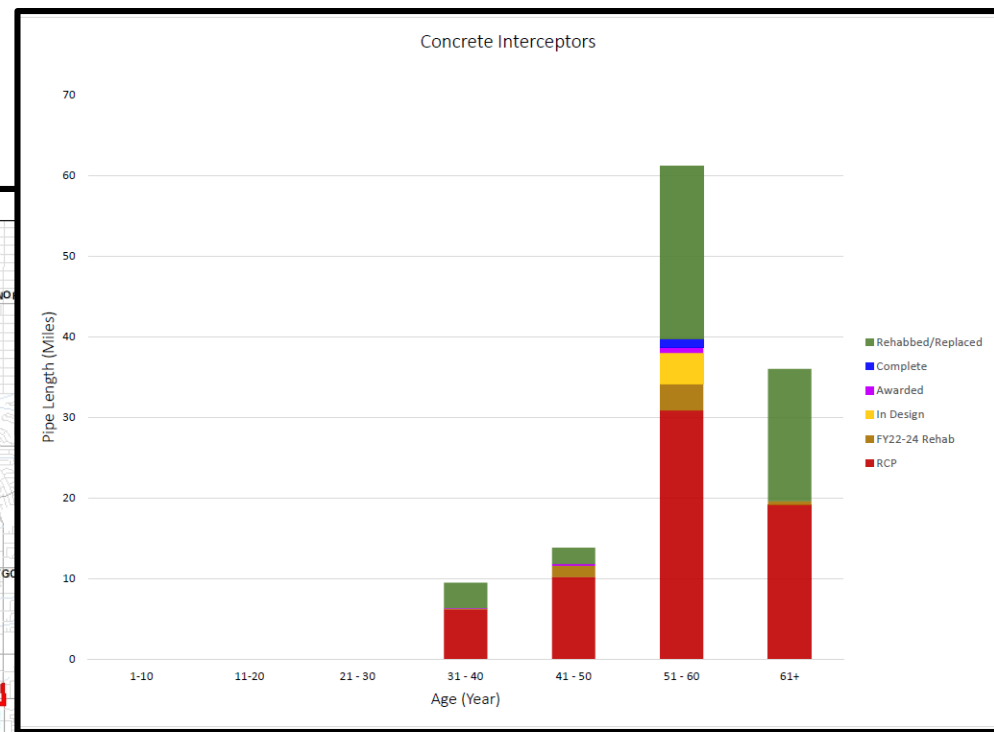
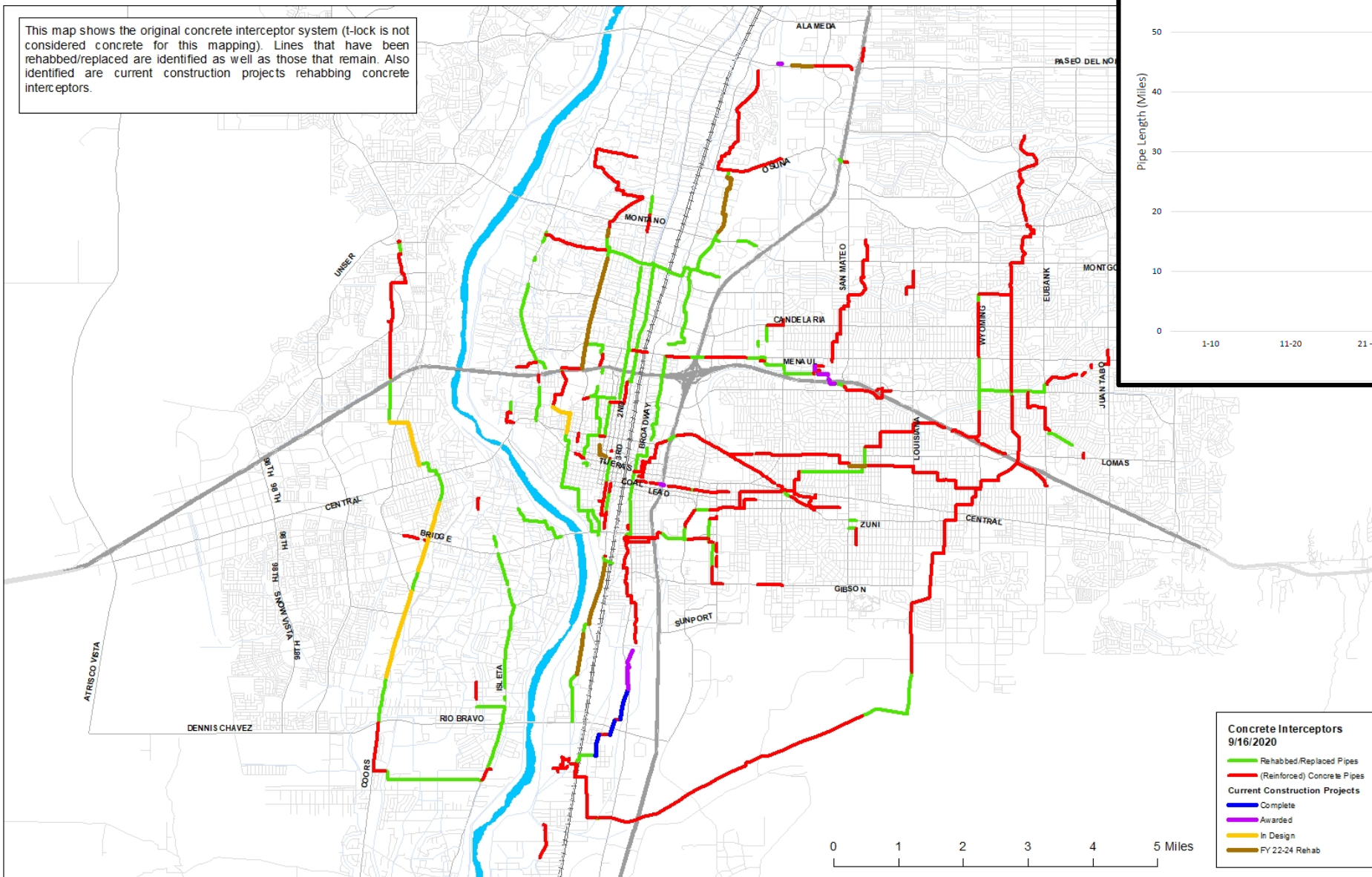


How Bad It Can Get?



Interceptor Rehab

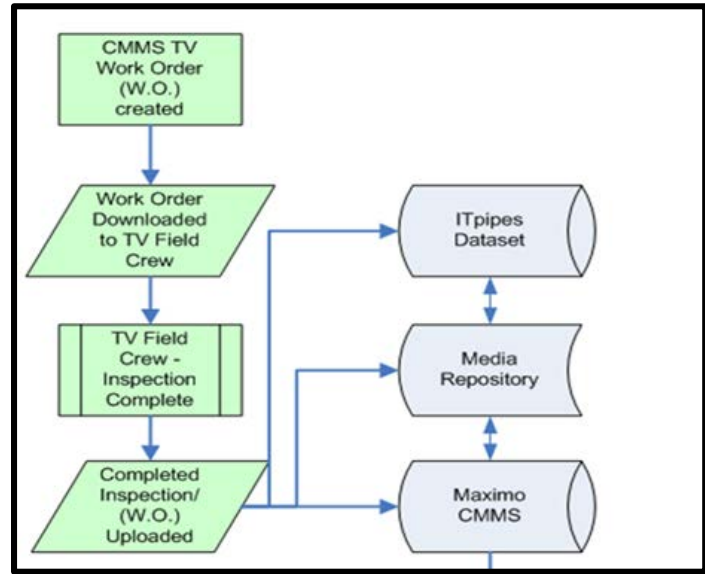
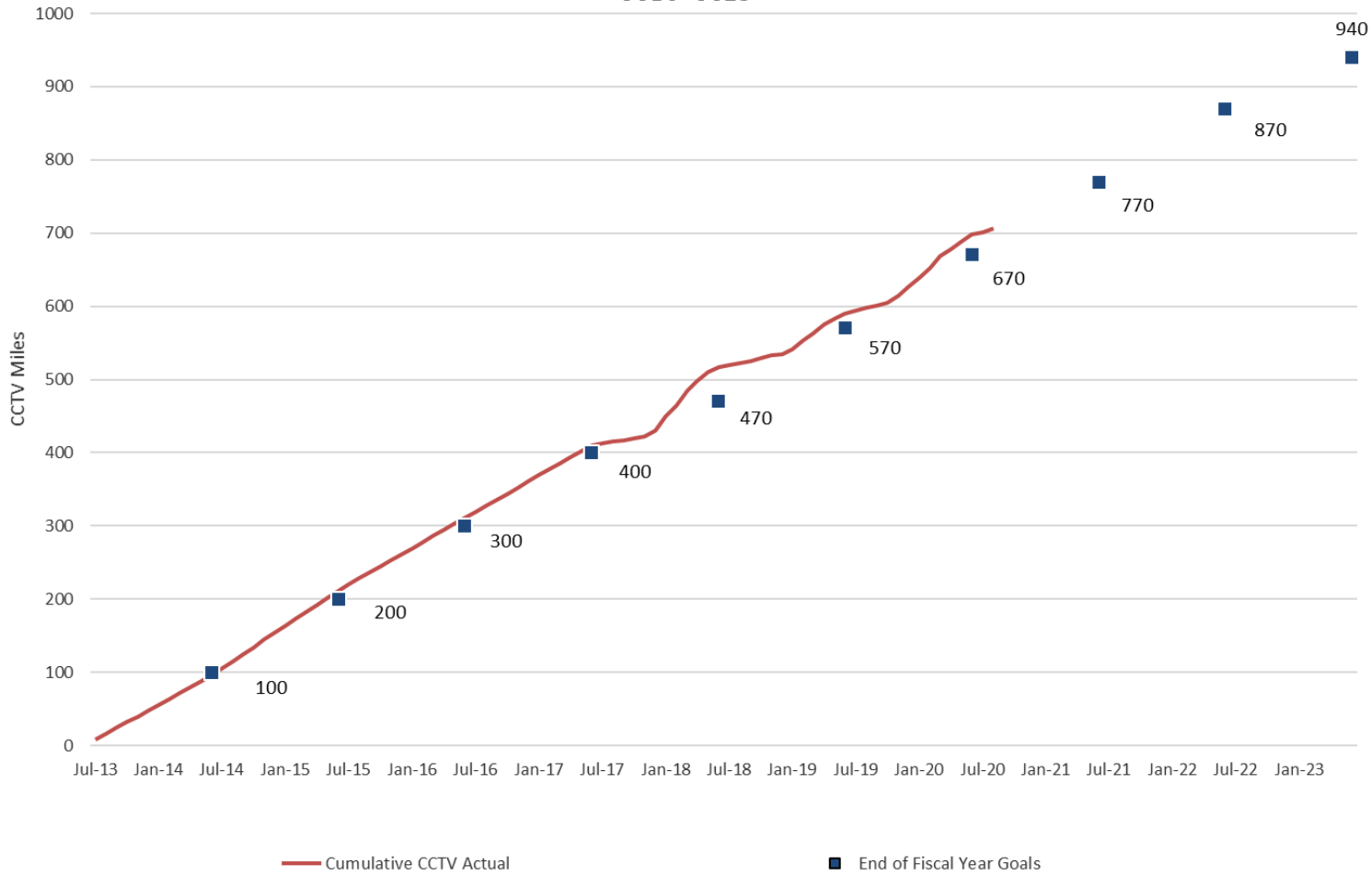
This map shows the original concrete interceptor system (t-lock is not considered concrete for this mapping). Lines that have been rehabbed/replaced are identified as well as those that remain. Also identified are current construction projects rehabbing concrete interceptors.



CCTV



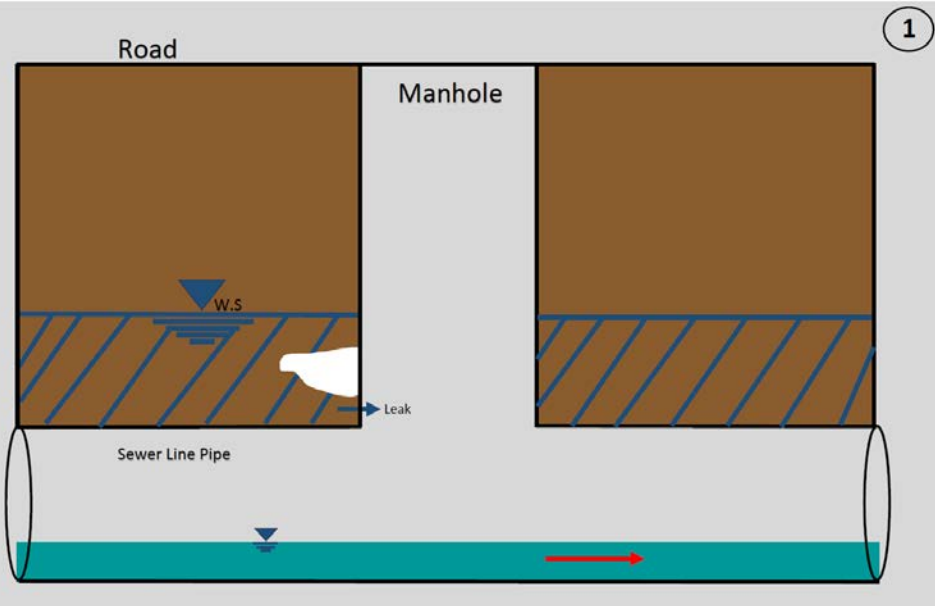
Cumulative 10-Year CCTV Goal vs. Actual
Large and Small Diameter
FY14 - FY23



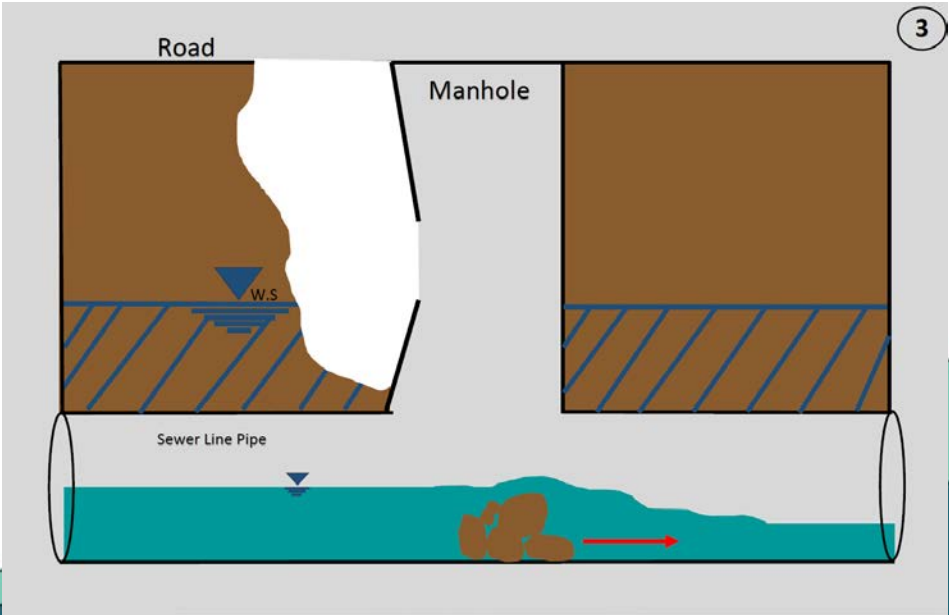
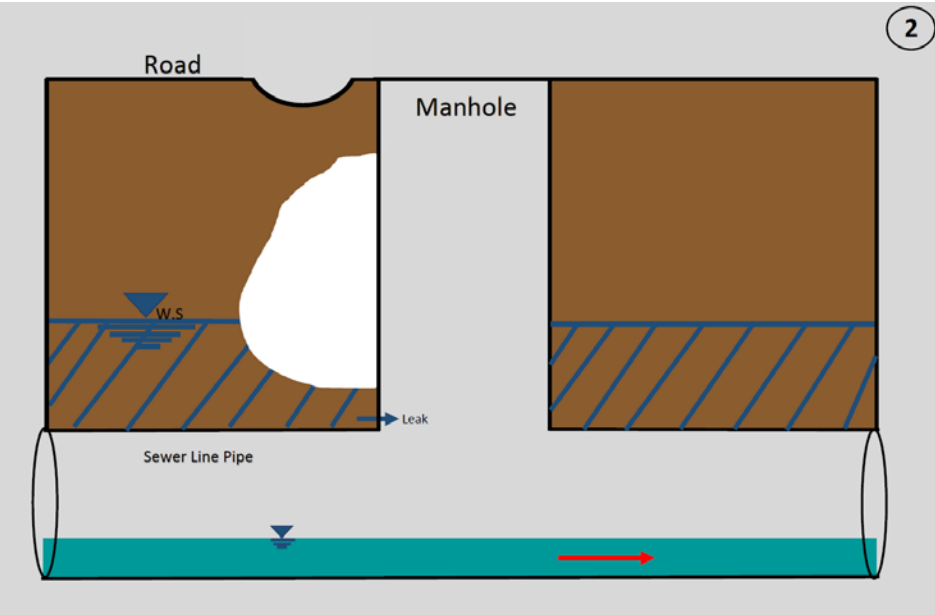
Manhole Issues



Manhole Issues



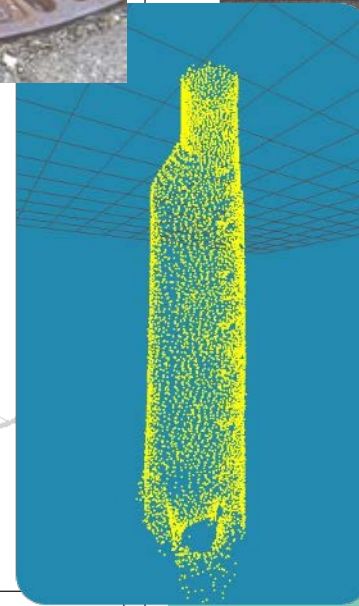
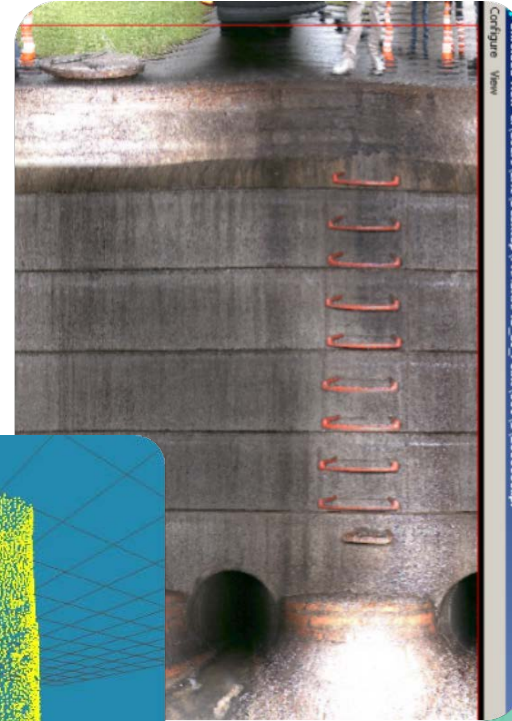
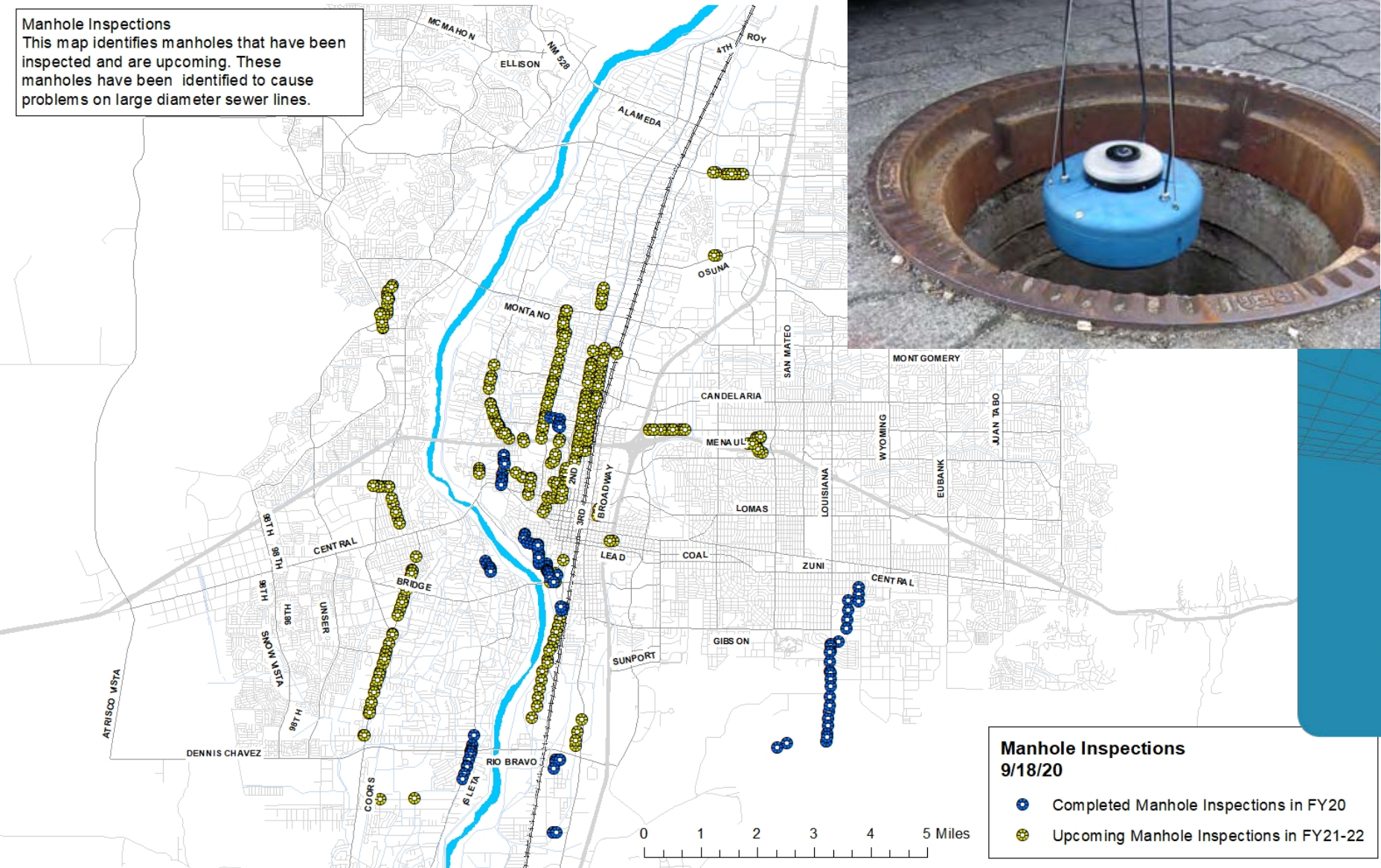
These panels describe the observations by Superintendent Carlos Romero for the Southern Ave. MH L14313 collapsed on April 2016.



Manhole Inspection

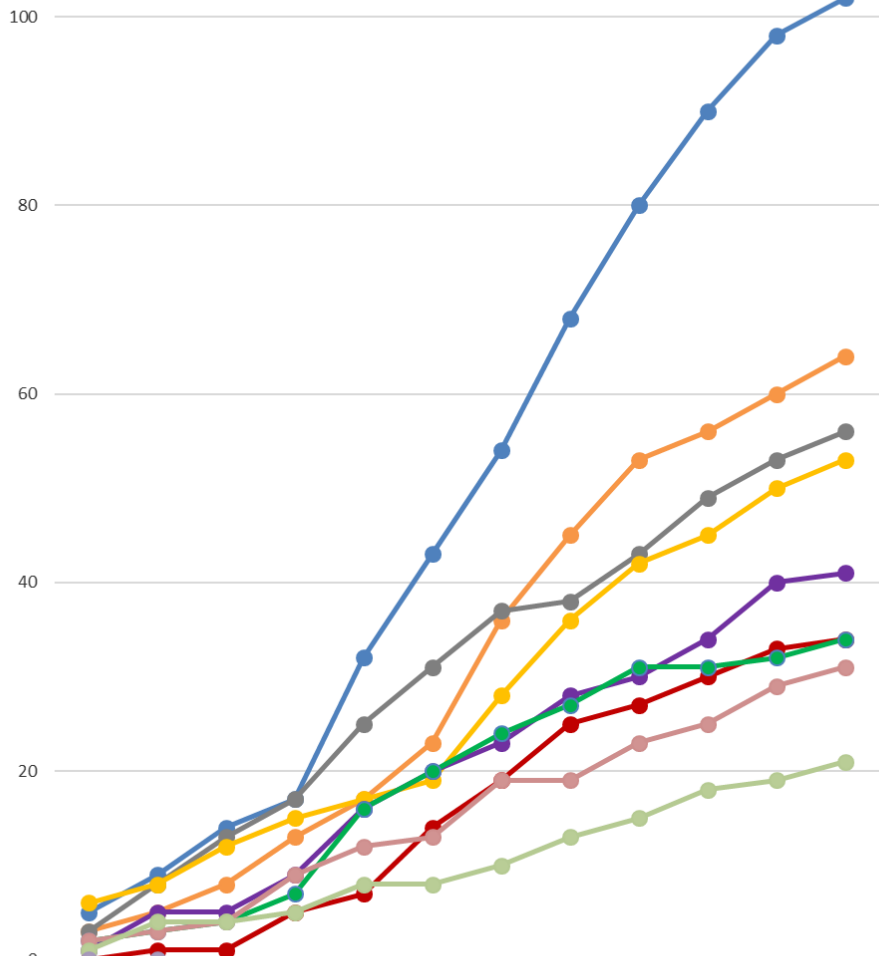
Panoramo SI – 3D Digital Scanner

Manhole Inspections
This map identifies manholes that have been inspected and are upcoming. These manholes have been identified to cause problems on large diameter sewer lines.



Unfiled new C:\Users\Eric\Desktop\PANORAMO_SI_Point_001_512903959.dwg
Configure View

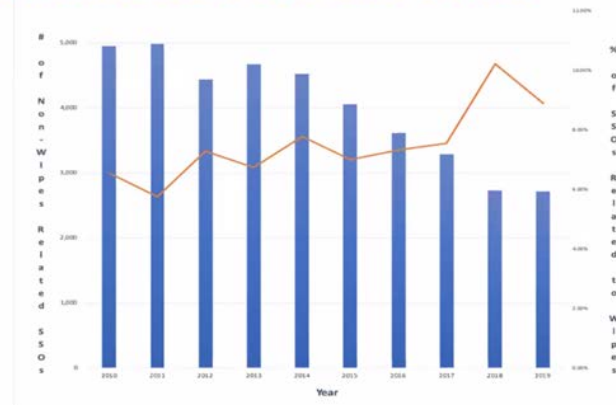
10-42 SSOs Cumulative in the Collection System



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY 12	5	9	14	17	32	43	54	68	80	90	98	102
FY 13	3	5	8	13	17	23	36	45	53	56	60	64
FY 14	3	8	13	17	25	31	37	38	43	49	53	56
FY 15	6	8	12	15	17	19	28	36	42	45	50	53
FY 16	1	5	5	9	16	20	23	28	30	34	40	41
FY 17	0	1	1	5	7	14	19	25	27	30	33	34
FY 18	2	3	4	7	16	20	24	27	31	31	32	34
FY 19	2	3	4	9	12	13	19	19	23	25	29	31
FY 20	1	4	4	5	8	8	10	13	15	18	19	21
FY 21	0	0										

CMOM (Capacity, Management, Operation & Maintenance)

Wet Wipes Related SSOs Over Last 10 Years



"In the last decade in California, the number of SSOs have decreased by over 55%, while the percent of spills related to wet wipes have increased 35% over the same time."



Thanks

Ole Bredeson
My Great-Grandfather
First Generation American
Lake Mills, Iowa

Mark Holstad, PE
Chief Engineer
Collection Section Manager
mholstad@abcwua.org



**BREAK
&
WATER QUALITY ACTIVITY**



Southside Water Reclamation Plant: *Your community facility for water and resource recycling*

Items we'll cover today:

- What we do at SWRP
- How we do it or...background on our treatment facility
- “Green things” we now do and are planning
- Current state of our assets and plans for renovation i.e., the “**RAMP**”



What we do at SWRP

- Largest water reclamation facility in NM (> 5x bigger than next largest facility)
- Transform wastewater collected in service area into effluent that can be safely returned to the environment or re-used
- Process waste solids generated by treatment into stable bio-solids for recycling to land
 - Solids processing generates methane-rich gas used for fuel



SWRP raw material & products

Raw Material



Clean effluent



Power from bio-gas



Compost & bio-solids

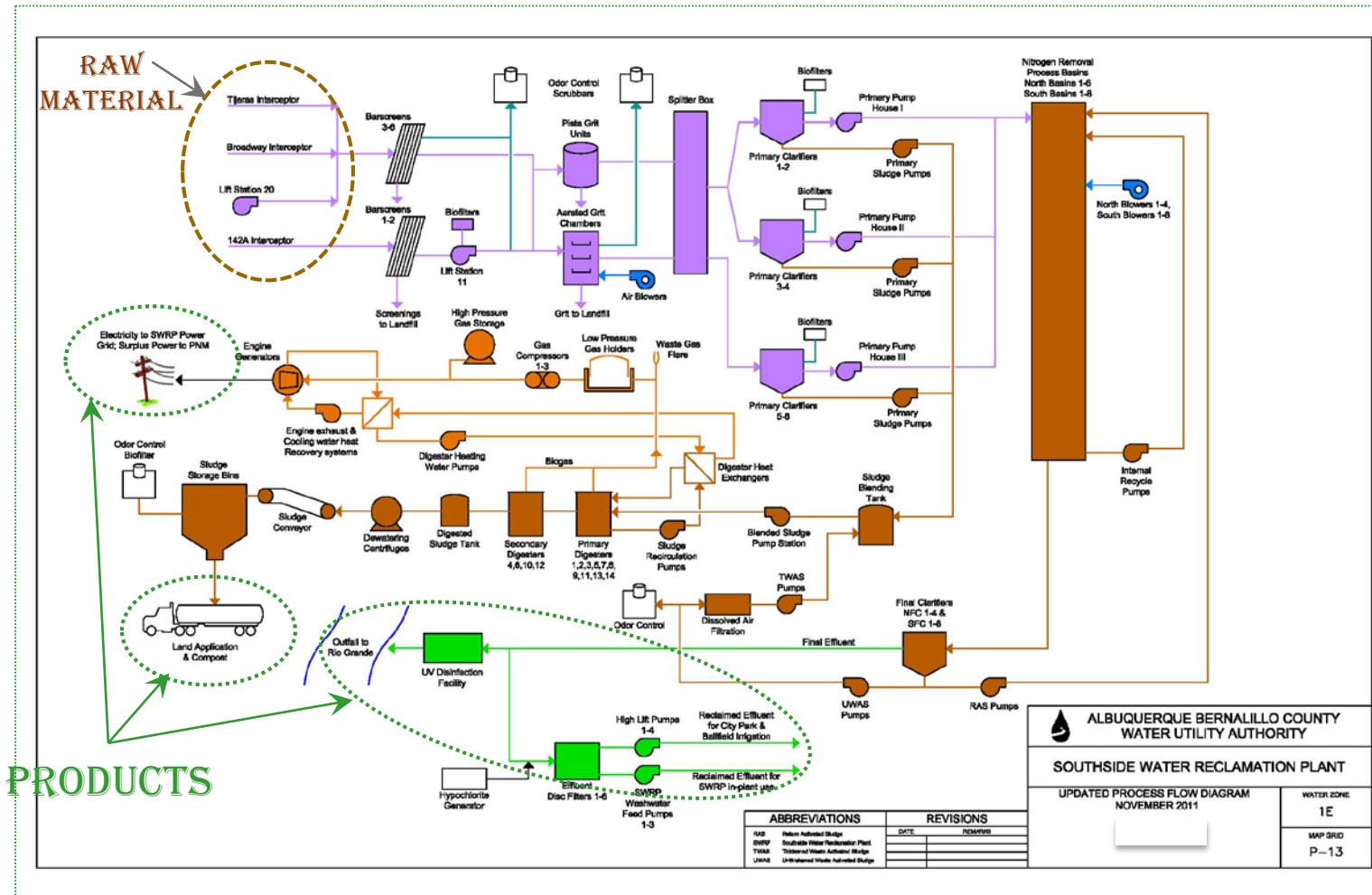


SWRP quick facts

- At this site since 1962
- 76 MGD flow (peak month) from service area
- 14 liquid stream processes & 7 solid stream/power generation processes
- 5.6 MW Combined Heat & Power cogeneration system



SWRP process overview



“Green Things” that we do each day

- Convert \approx 50 Million Gallons (153 acre feet) of raw sewage into clean effluent for discharge
- Re-claim 1.5 MG of effluent for industrial / irrigation use at SWRP and 2 MG of effluent for off-site park & landscape irrigation
- Process 31.2 dry tons per day of waste solids from treatment process into stable bio-solids for
 - Compost used on parks, ballfields, & gardens
 - Also recycles horse bedding, yard waste, & SJCWTP iron sludge



1ST step in treatment: The Headworks

- Remove grit and coarse debris from raw wastewater that could wear out / damage equipment or fill up treatment tanks



2nd step in treatment: Primary Clarifiers

- Remove stuff by simple gravity settling for \approx 2-1/2 hours
- Send settled sludge to anaerobic digesters



3rd step in treatment: Nitrogen Removal Process

- Use microorganisms to remove organic material and ammonia in an oxygen-rich environment (mostly)



+



=



4th step in treatment: Final Clarification

- Use gravity settling to collect microorganisms and return them to Nitrogen Removal Process
- Waste some of the microorganisms, thicken, and then anaerobic digestion

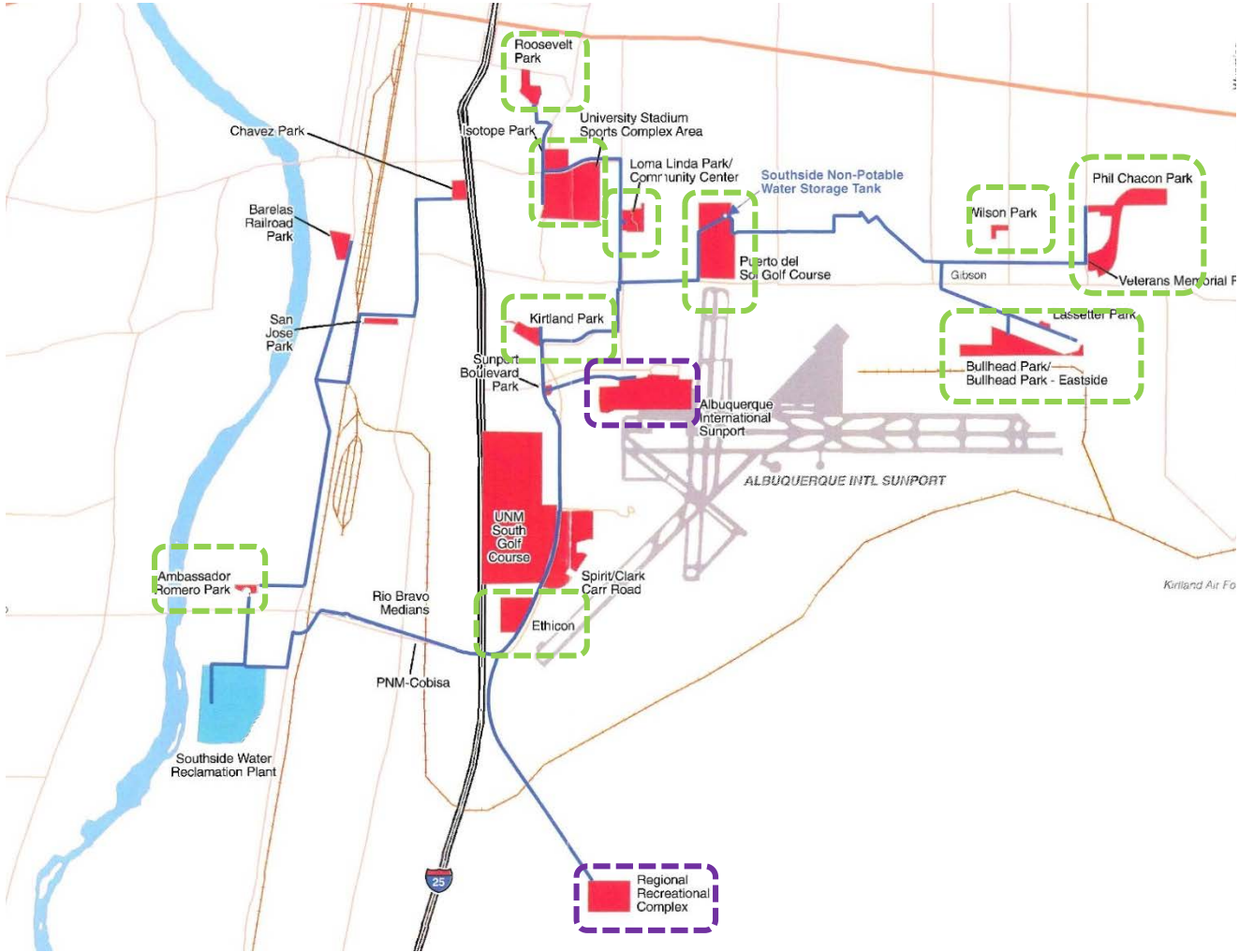


“Clean effluent for river discharge or re-use”; How “clean” is clean?

- Standard for “clean” set by EPA, State, & Pueblo of Isleta; River water used for livestock watering, warm water fishery, irrigation, public water supply, wildlife habitat, and primary contact
- For discharge to river, “clean” means:
 - Ammonia < 1.5 mg/L
 - Total Nitrogen < 15 mg/L
 - E.coli < 88 colonies / 100 ml
 - Total Suspended Solids < 30 mg/L
 - Dissolved oxygen > 5 mg/L
 - Mercury < 0.012 µg/L (got tooth fillings? Don’t breathe on the sample!)
- For landscape / park irrigation, “clean” means:
 - Turbidity < 3 NTU
 - E.coli < 15 colonies / 100 ml
 - Chlorine residual
 - Get there by filtering

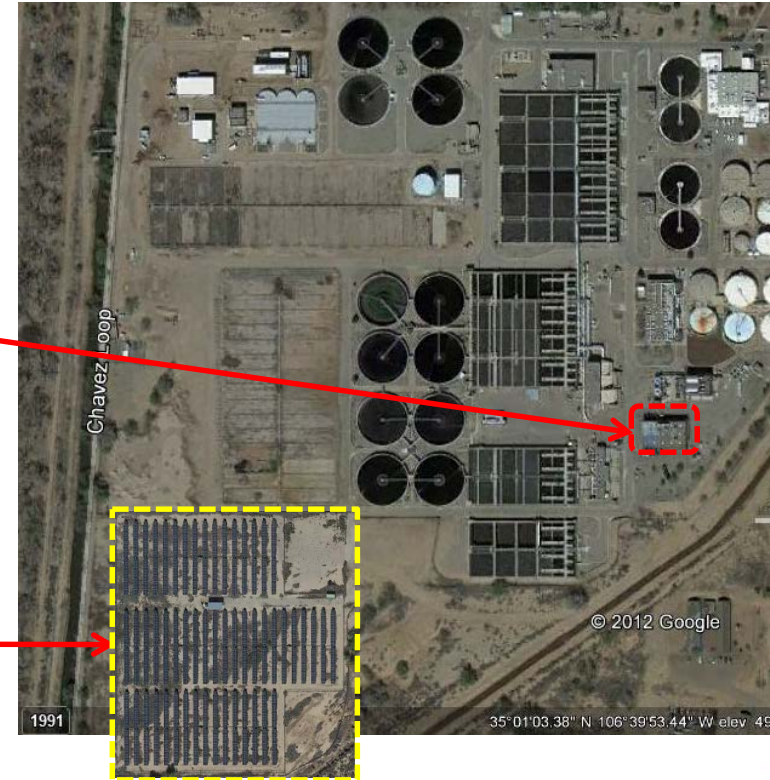


Re-claim 2 MGD of effluent for off-site park & landscape irrigation



Other “Green Things” that we do at SWRP

- Produce 500,000 scf per day of methane-rich bio-gas (from anaerobic digestion)
- Convert bio-gas into 2.2 MW of power and hot water for heating
 - SWRP is 23% energy self-sufficient
 - Recovered hot water used to heat sludge digesters and buildings
- Produce 1 MW of power from solar array
(when sun shines)
- UV light for effluent disinfection



Available assets for SWRP mission

- > \$800,000,000 cumulative investment to date
- Assets work in an environment that is “harsh”
 - Corrosive fumes, fluids, and gases
 - Abrasive grit that accelerates equipment wear
- Approach from 1998 – 2009 for asset renewal
 - \$\$ very scarce while building SJCWTP project
 - Plug “biggest holes in the dike” to prolong facility life



Asset Management – *the path forward for all Water Authority CIP Investments*

- **Define current state of assets;** *Where, what condition, remaining useful life, economic value*
- **Set required Level of Service (LOS);** *consider actual performance vs demands of stakeholders and regulators*
- **Identify assets critical to sustained performance**
 - Failure modes & likelihood of failure
 - Cost to repair
 - Consequences of failure; social, environmental, economic
- **Establish best life cycle cost CIP and O&M strategies;** *“Run to failure” may be the right approach for some assets*
- **Develop long-term funding strategy**



The **RAMP** – *a special tactical plan for SWRP assets*

- **RAMP** = **R**eclamation **A**sset **M**anagement **P**lan
- Began with in-house asset inventory
- Examined probability of asset failure; *age, condition, repair history*
- Consequences of failure
 - Social ranking = health/safety, Board policy, public image
 - Economic ranking = LOS, damage, high O&M
 - Environmental = regulatory compliance, eco-system, aesthetics
- Do the assets give us the capacity to treat a maximum month flow of 76 MGD??



According to the RAMP, the most urgent CIP needs at SWRP are/were:

1. Bar screening & grit removal
2. Sludge dewatering & support facilities
3. Sludge digestion capacity ?
4. Process aeration
 - Blower supply capacity; interim
 - Air distribution system improvements
 - Blower supply capacity; long term ?
5. Power distribution system upgrades for safety & reliability



“Green Things” planned for RAMP projects

- Optimize energy use in process aeration
 - Fix leaky piping & diffusers (“low hanging fruit”)
 - Re-configure diffuser layout for optimal process results
- All HVAC for new SWRP bldgs to meet State energy code
- LED lighting in new facilities
- Grants being pursued for 1 MW of more solar power capacity
- Engine exhaust treatment systems for cogeneration facilities
 - Will no longer need a federal CAA permit to operate cogen system!!
 - Major cuts in CO, NOx, and HAP emissions!
 - 231 tons per year of CO
 - 89 tons per year of NOx
 - 16 tons per year of HAPs



QUESTIONS?

