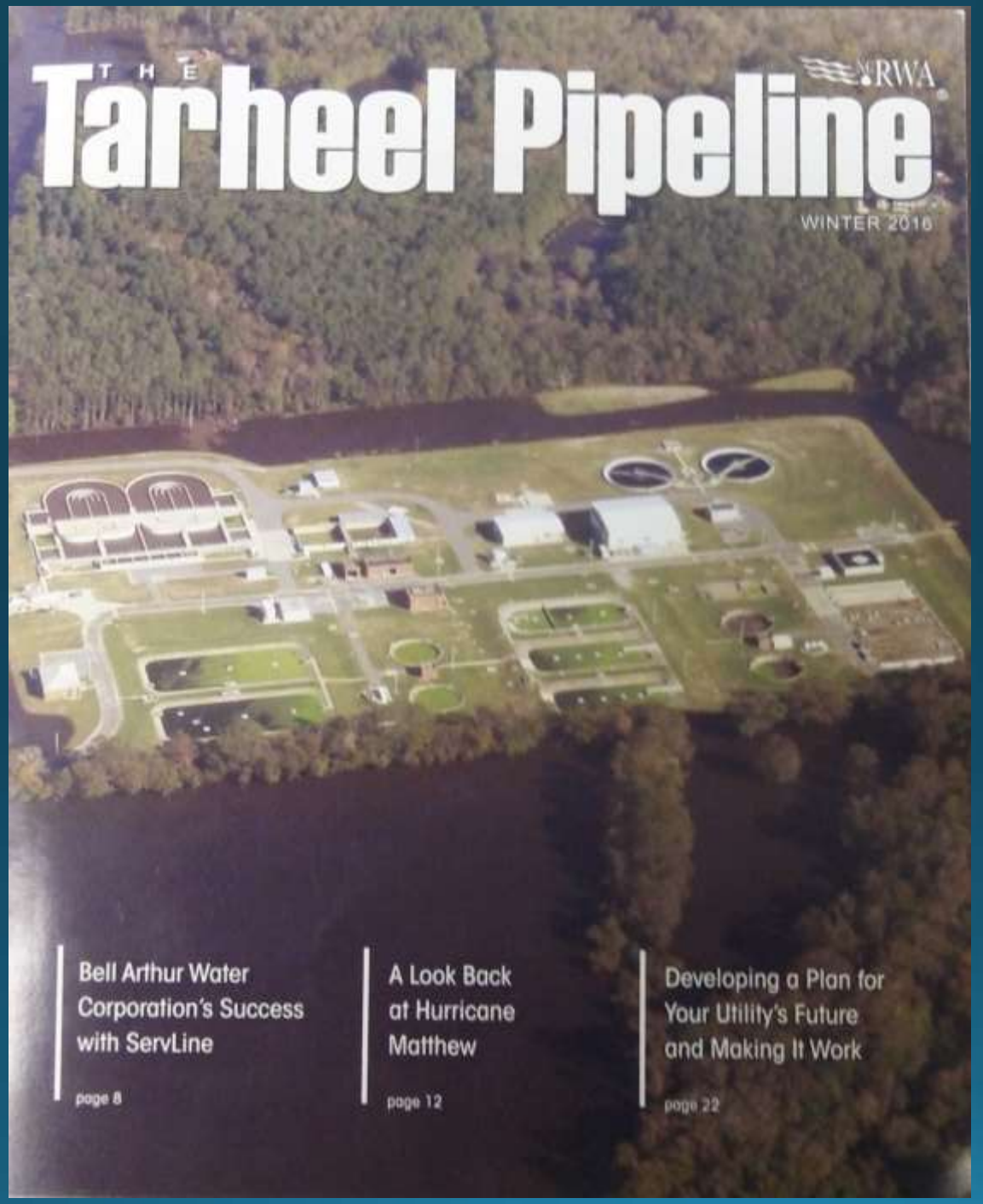
Contentnea Metropolitan Sewerage District

Hurricane Matthew
October 8, 2016

Chuck Smithwick
District Manager, CMSD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Overview of CMSD

- CMSD treats the wastewater for the towns of Winterville, Ayden and Grifton (Approx. population = 17,000)
- Permitted @ 3.5 MGD
- 5 stage Bardenpho BNR Process (Ovivo design)
- Average daily flows for 2016 = 2.14 MGD
- Each town owns, operates and maintains there individual collection systems
- Winterville and Ayden each have approx. 60 miles of gravity sewer and Grifton has approx. 40 miles of gravity sewer
- The CMSD owns approximately 17 miles of 24", 20" and 14" FM
- 10, 700 feet of 30"/36" gravity sewer line
- Four (4) pump stations- One (1) in each town and one @ Hwy 11

Continued

- Invested $30+ million in infrastructure and WWTP since 2004
- Completed Phase 1 Upgrades @ WWTP in 2010 ($8 million)
- Completed Phase 1A Upgrades @ Pump stations in 2012 ($3.5 million)
- Completed Phase 2 Upgrades/Expansion in 2014 ($14.8 million)
- Most recent CIP projects that Hwy 11 PS, 14” and 20” FMs may need to be expanded/enlarged by as early as 2022. ($?) due to growth of service area and Infiltration and Inflow

What does your facility do to prepare for a hurricane/storm/inclement weather conditions?

- Emergency contact information (power outages, SSO reporting)
- Emergency personnel (mechanics, electricians, supervisors, etc.)
- Emergency equipment, spare parts, etc.
- Vehicle preparation
- Secure buildings, doors, etc. from wind damage, freezing temps, etc.
- Employee work schedules (on-call person, backups)
- Generators-scheduled service, weekly exercise schedule, ample fuel supplies, fuel deliveries during emergencies and fuel quality

Fuel Quality Service Report Generator @ WWTP

Gregory Poole Power Systems CAT

Gregory Poole Power Systems
3201 Integrity Drive
Garner, NC 27529
www.gregorypoole.com

Fuel Quality Solutions

W/O#: SC2553lde Customer P/O#:
Facility Name: Centennel
Contact Name: Chuck Smithwick Contact No.: 252-524-5584
Tank ID: C015634-23 AGT ☐ UGT ☐ Belly ☐ Day ☑ Tank Size: 2000 (gal)
Tank Location: 900 Wiley Cradins Rd, Pelton

Tank Construction:	Fiberglass ☐ Poly ☐	Masonry ☐	Steel ☑
Number of Access Points:	3	Access Points Locked	Yes ☑ No ☐
Sump Area:	Dry ☑ Wet ☐	Construction Material: Fiberglass ☐	Poly ☐
Fill Containment:	Dry ☑ Wet ☐	Construction Material: Steel ☐	Poly ☐
Anti-Siphon:	Yes ☐ No ☑ Size Pipe:	Vents Clear:	Yes ☑ No ☐
Fill Cap Condition:	Good ☑ Bad ☐	Drop Tube Present:	Yes ☐ No ☐

Problems Found: *(if any)* Good

☑ Camera Inspection ☑ Site Analysis ☑ Lab Analysis (optional for fee) (1) DFA Bottle

	Bottom Sample: ☑	Core Sample: ☑
Water	Yes ☐ No ☑	Yes ☐ No ☑
Sludge	Yes ☐ No ☑	Yes ☐ No ☑
Rust	Yes ☐ No ☑	Yes ☐ No ☑
Sediment	Yes ☐ No ☑	Yes ☐ No ☑
Microbes	Yes ☐ No ☑	Yes ☐ No ☑
Left with Customer	Yes ☐ No ☑	Yes ☐ No ☑

Appearance of fuel: Clear + Bright
3/4 : Capacity 2000 gallons

Contaminates Found:	Yes ☐	No ☑
Fuel Gauge Condition:	OK ☑	BAD ☐
Float Condition:	OK ☑	BAD ☐
Fuel Lines Condition	OK ☑	BAD ☐

Appearance: Good.

Technician Recommendations: Recomend DFA in 2017. Fuel tank very clean.

2 gal. "INH"

Tech. Signature: [signature] Date 9-14-16

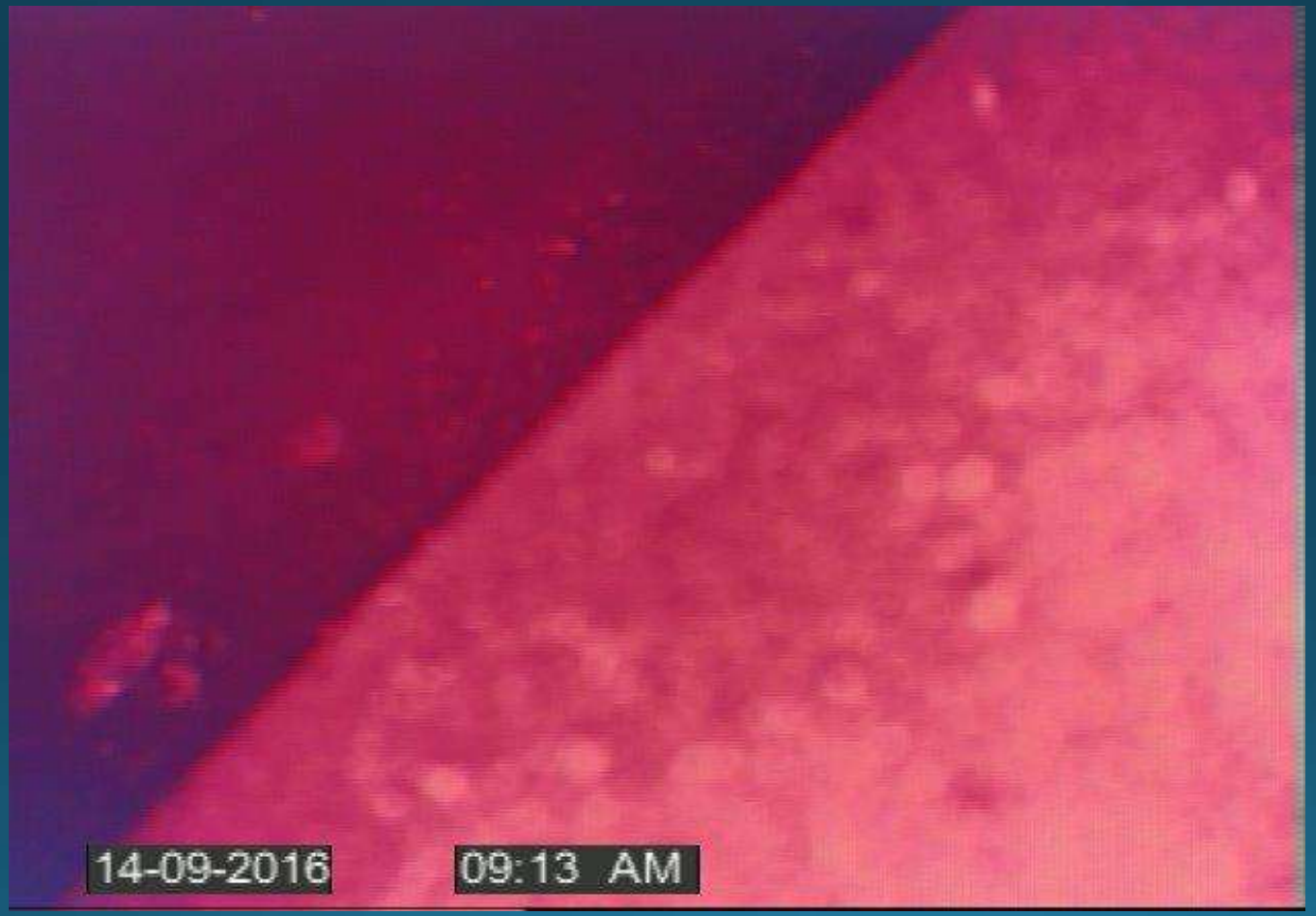
Customer Input

☐ I do not wish to address these repairs at this time
☐ I would like a quote on these repairs
☐ Please complete this work as soon as possible

Customer Signature [signature]
Print Name

PSD-018 (08/10)

2,000 gal belly tank @ WWTP



2,000 gal belly tank @ WWTP

2,000 gal belly tank @ WWTP

Fuel Quality Service Report Generator @ Grifton PS

Gregory Poole Power Systems CAT

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3201 Integrity Drive
Garner, NC 27529
www.gregorypoole.com

Fuel Quality Solutions

W/O# SC255348 Customer P/O#
Facility Name: Contentnea
Contact Name: Chuck Smithwick Contact No.: 252-524-5584
Tank ID: CO15437-1 AGT ☐ UGT ☐ Belly ☑ Day ☐ Tank Size: 200 (gal)
Tank Location: 510 Water St. Grifton

Tank Construction: Fiberglass ☐ Poly ☐ Masonry ☐ Steel ☑
Number of Access Points: 3 Access Points Locked Yes ☑ No ☐
Sump Area: Dry ☐ Wet ☐ - N/A Construction Material: Fiberglass ☐ Poly ☐
Fill Containment: Dry ☐ Wet ☐ - N/A Construction Material: Steel ☐ Poly ☐
Anti-Siphon: Yes ☐ No ☑ Size Pipe: Vents Clear: Yes ☑ No ☐
Fill Cap Condition: Good ☑ Bad ☐ Drop Tube Present: Yes ☐ No ☐
Problems Found: *(if any)* Good

☑ Camera Inspection ☑ Site Analysis ☑ Lab Analysis (optional for fee) (1) DGA Bottle

Bottom Sample: ☑			**Core Sample:** ☑	
Water	Yes ☐	No ☑	Yes ☐	No ☑
Sludge	Yes ☐	No ☑	Yes ☐	No ☑
Rust	Yes ☐	No ☑	Yes ☐	No ☑
Sediment	Yes ☐	No ☑	Yes ☐	No ☑
Microbes	Yes ☐	No ☑	Yes ☐	No ☑
Left with Customer	Yes ☐	No ☑	Yes ☐	No ☑

Appearance of fuel: Clear Bright
: Capacity 200 gallons

Contaminates Found:	Yes ☐	No ☑
Fuel Gauge Condition:	OK ☐	BAD ☑ - Not Working
Float Condition:	OK ☐	BAD ☐ - N/A
Fuel Lines Condition	OK ☑	BAD ☐

Appearance: Good.

Technician Recommendations:
Recommend Cleaning,
Sediment Build-up,
Bottom Floating in Fuel.
Pictures 9-14-16
20 oz INH

Tech. Signature: [signature] Date 9-14-16

Customer Input

☐ I do not wish to address these repairs at this time
☑ I would like a quote on these repairs
☐ Please complete this work as soon as possible

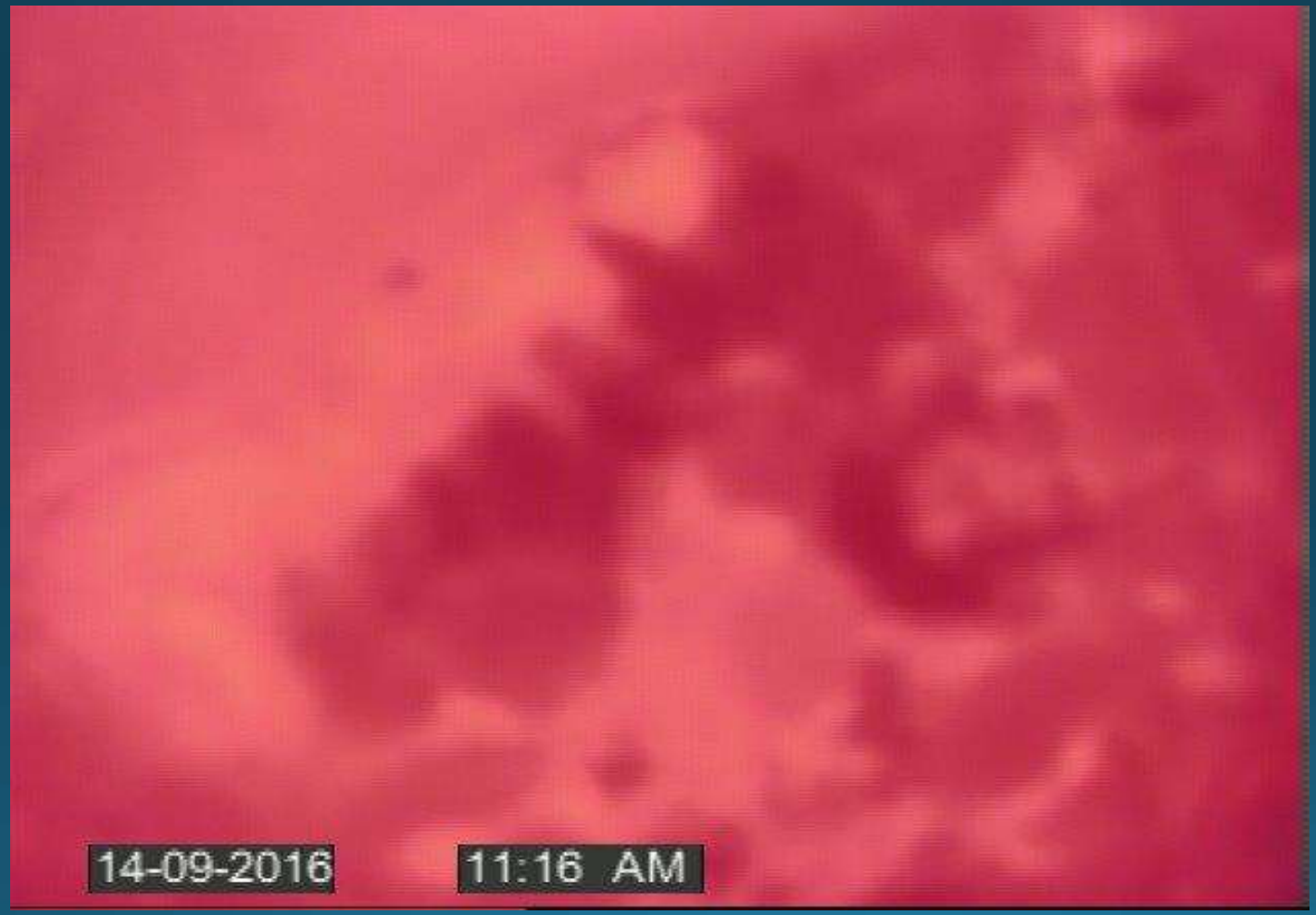
Customer Signature [signature]
Print Name

PSD-018 (08/10)

200 gal. belly tank @ Grifton PS

200 gal. belly tank @ Grifton PS

200 gal. belly tank @ Ayden PS



Fuel Quality Certificate of Inspection

FUEL QUALITY
SOLUTIONS

Annual E.P.S
Fuel Storage Tank Audit
And
Certificate of Inspection

Contentnea Metropolitan
Grifton, North Carolina

Unit #	(Size Tank)	(Location)	(Services Provided)	Date
Belly	200 Gallon	4428 South Edge Road	Cleaned & Treated	9-26-2016
Belly	200 Gallon	510 Water Street	Cleaned & Treated	9-26-2016

Gregory Poole
3201 Integrity Dr.

Signature

September 26, 2016
Date

Hurricane Floyd
1999

Hwy 11 Pump Station

Handles all of Winterville and Ayden WW flow

Hwy 11 South

Culvert at Hwy 11

750 Kw Caterpillar Generator
1300 gallon fuel cell
42.5 hrs.

Wet Well at Hwy 11 Pump Station


27/03/2017

Sandbags, sump pump and discharge hose

3-250 Hp Fairbanks Morse Pumps

Firm Capacity 5210 gpm (7.5 MGD)


27/03/2017


27/03/2017

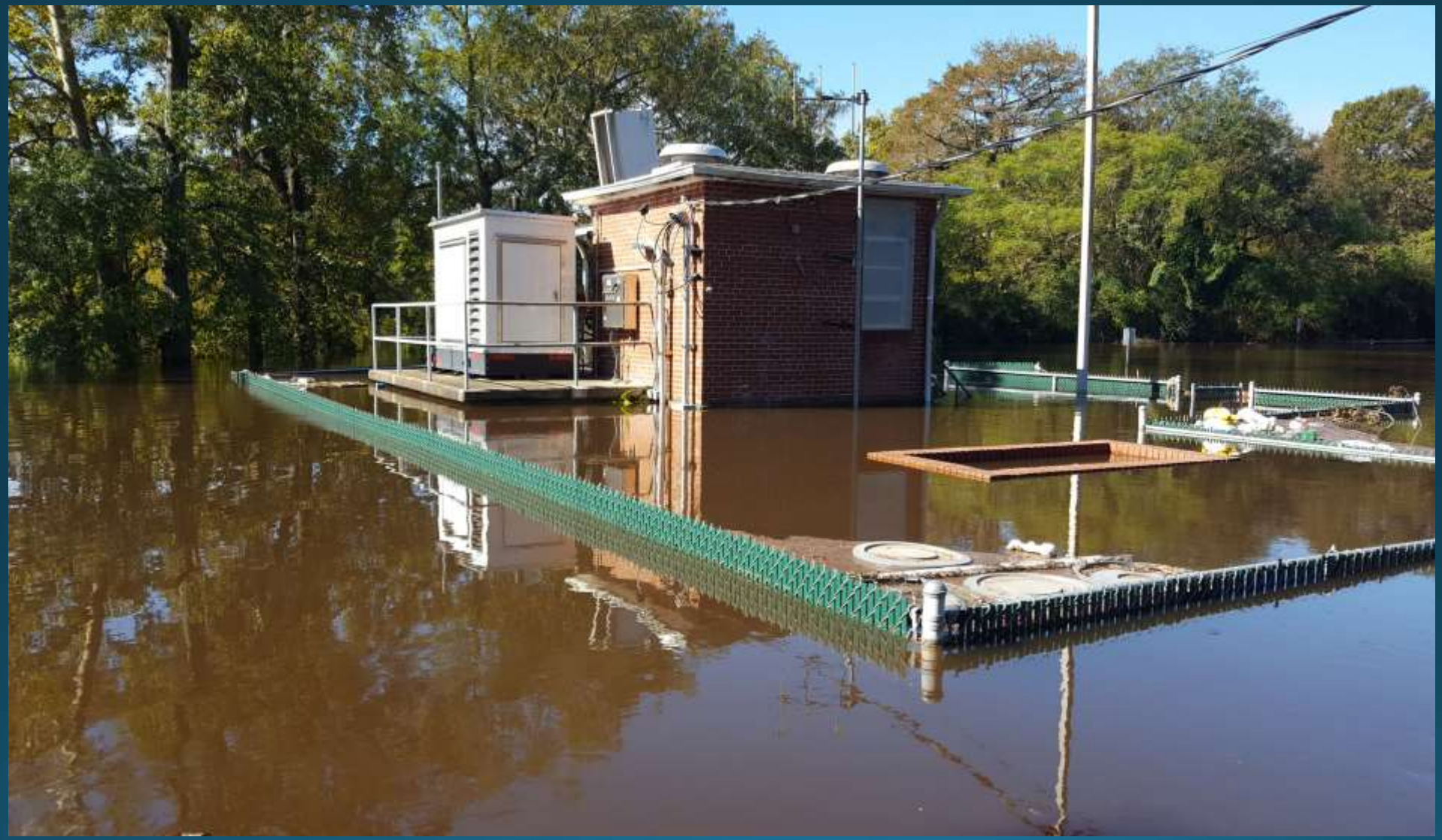

27/03/2017

Valve Vault

Grifton Pump Station

Grifton Pump Station

100 Kw Caterpillar Generator
200 gallon fuel cell
249.6 hrs.



Grifton Pump Station w/ Contentnea Creek at Normal Levels

Grifton PS on May 1, 2017
Rising Water from Rain on April 25, 2017

Preparing to transport sandbags to pump station

View from Pump station

“Big Boys”

Logan Thomas	Marc Mercer	James Proctor
Town of Ayden	Macro Companies	Town of Ayden

Moved parts and equipment to elevated areas to protect in the event of flooding at WWTP

Tractor and 100 gallon portable fuel tank

Godwin and Thompson Portable Pumps

East Entrance to WWTP

East Side Construction Entrance

3 days before crest

2 days before crest

River has crested

Aerial Photos of WWTP

View from the South

Northern Access to WWTP

The “Landing”


8572
ES&H


LA 4687 EL


23/03/2017


23/03/2017


23/03/2017

1990 Model Rain Reel

2nd Flood

3rd Motor

Transporting Sandbags to WWTP


YAMAHA
LA 4687 EB


YAMAHA
90

Three (3) 600 Kw Caterpillar Generators
2,000 gallon fuel cells for each generator
#1-86.6 hrs.
#2-54.3 hrs.
#3-0 hrs.

Planned on establishing a “fuel farm” at this location with 350 gallon barrels to provide fuel for the generators in the event that power company power was not restored

Rising water on Flood Dike

450 Kw Cummins Generator
850 gallon fuel cell
137.8 hrs.

Total Generator Runtime= 612.7 hrs.

5,000 + gallons diesel

Hazard Mitigation
What is the CMSD doing to prepare for future storms?

- North Carolina Resilient Redevelopment Planning (NCRRP) Program
- Established by the NC General Assembly to provide rebuilding and revitalization assistance for communities affected by Hurricane Matthew
- Consultants (AECOM) met w/municipal and county officials, as well as residents, to get input on the damage to Pitt County and what is needed to rebuild and what type of projects could help mitigate issues in the event of future flooding
- The plan was prepared, finalized and sent to State Officials on May 1st

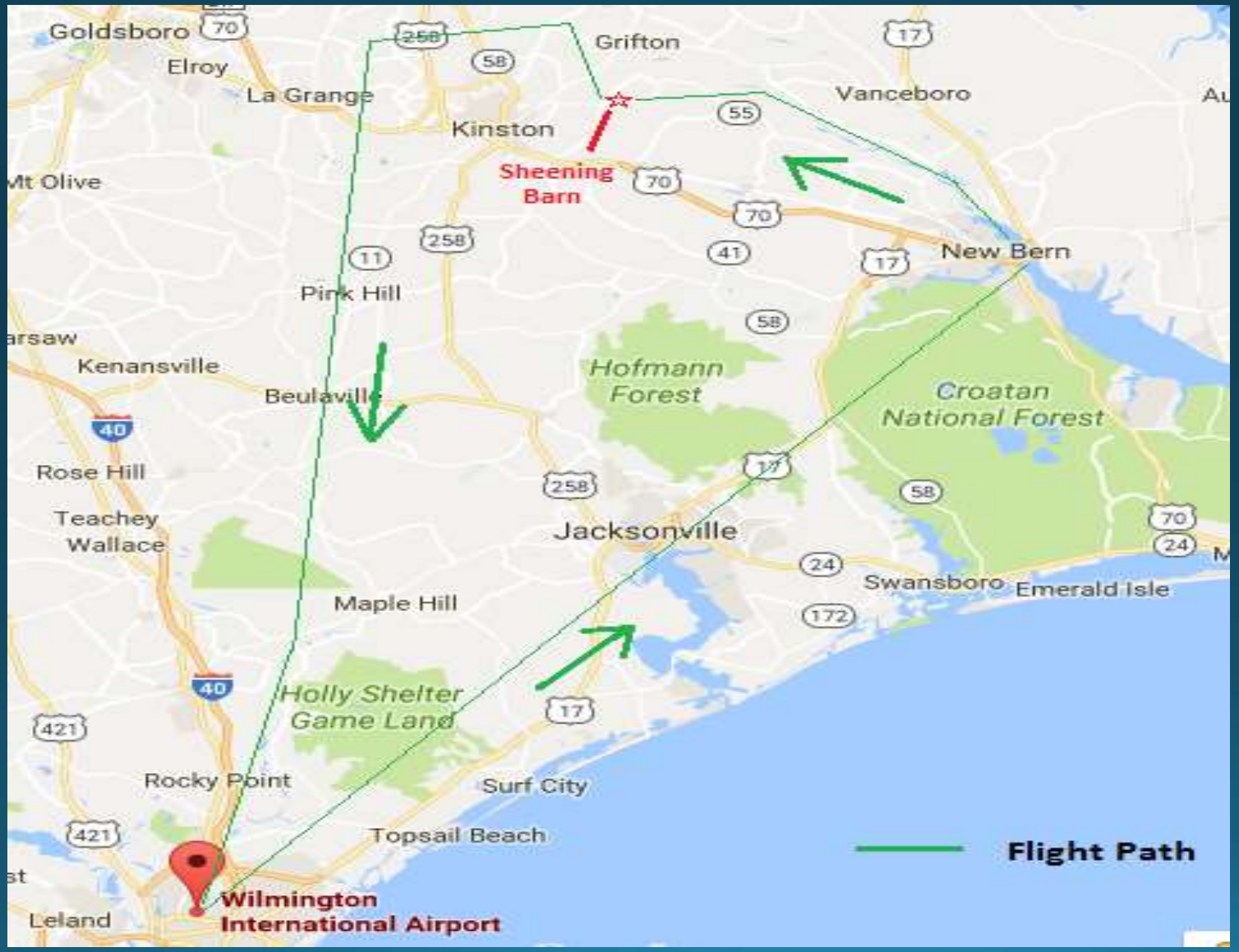
Continued

- Waiting for the State's determination and what funds (if any) may be available
- Engineers estimate $1.5 million to "hardened" flood dike around WWTP, Hwy 11 and Grifton Pump station
- North Carolina Division of Water Infrastructure (NCDWI) contacted our engineers after the flood and requested a list of potential mitigation projects
- Most recent Capital Improvement Plan (CIP) was completed in April 2017 and has listed this as the #1 Priority

Additional Photos of Surrounding Area

Submerged Van Near WWTP

Overview Flight by US Coast Guard



Submerged piers South of New Bern

Hog Farms Near New Bern

Hog Farm Near New Bern

Neuse River At Maple Cypress (Fort Barnwell)

Flooded Hog Houses

Barn near Grifton

Same Barn with “Sheen” Discharge

Flooded CAFO's

Town of Grifton

Questions, comments, discussion

Chuck Smithwick
District Manager, CMSD
cmsd100@embarqmail.com