

# FOG & Corrosion at the Gunston Commerce Center Gravity Sewer, Pump Station and Force Main



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Department of Public Works and Environmental Services  
Fairfax County, Virginia**

Thanks to NACWA for inviting Fairfax County to share its recent experience with Krispy Kreme at this conference.

## PUBLIC STATEMENT

Fairfax County and Krispy Kreme Doughnut Corporation have reached agreement regarding the litigation entitled "Board of Supervisors of Fairfax County, Virginia v. Krispy Kreme Doughnut Corporation." The parties are pleased to report that unique circumstances that led to this case have been amicably resolved. The County values Krispy Kreme, which has been a corporate citizen of the County for 42 years and Krispy Kreme values the County as a great place to do business.

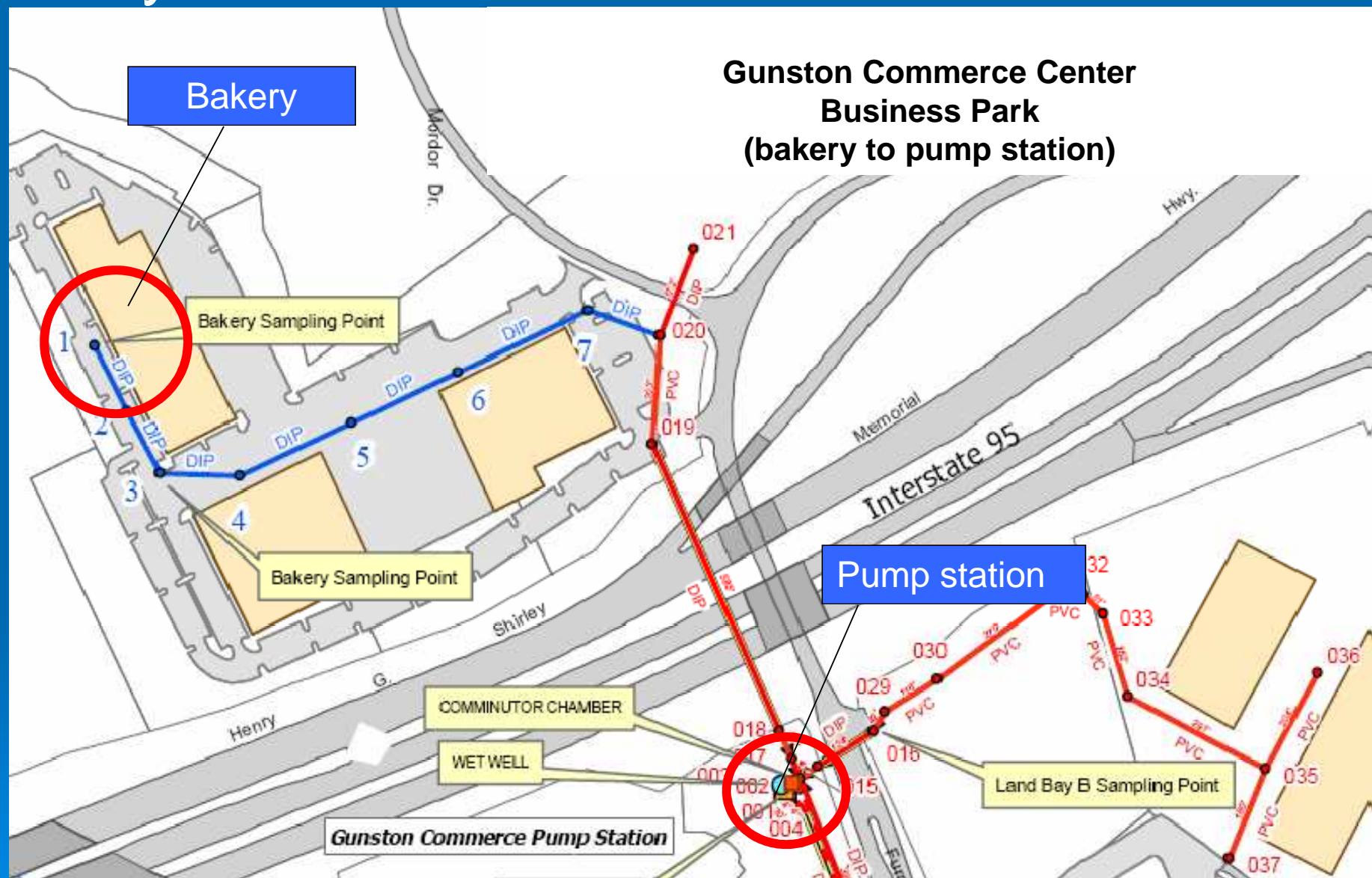
# Acknowledgements:

- Industrial Waste Section:
  - Joel King, Manager
  - Cathy Roth, Inspector
- County Attorney's Office:
  - Erin Ward, Assistant County Attorney
  - Cynthia Bailey, Assistant County Attorney
  - Marilyn McHugh, Assistant County Attorney
- Consultants:
  - Many excellent attorneys, engineering consultants, and subject matter experts

# Background:

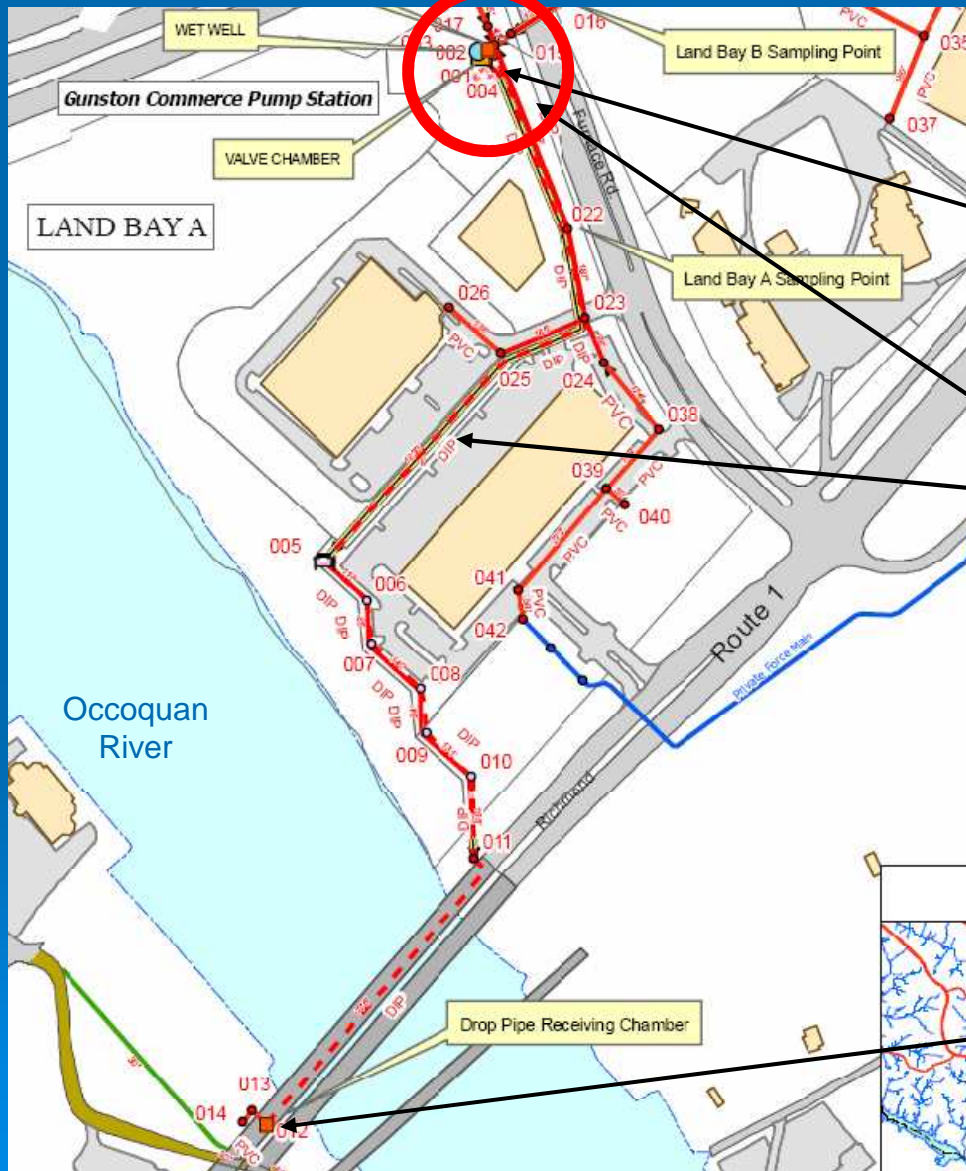
- A doughnut bakery & distribution center producing 6.2 million doz. doughnuts yearly opens in Fairfax County.
- The bakery locates in a small business park with low flows (no residential) & close proximity to a small pump station with a force main discharging across a bridge to another county.
- The bakery is discovered when high levels of fats, oil and grease are found in the gravity sewers, sewage pump station and the force main.
- FOG is discovered in less than 2 months after bakery goes into operation.

# Lay of the land...





# Gunston Commerce Center Business Park (pump station to bridge)



Pump Station

Force main damage

Drop pipe damage

# Off to a bad start:

- Bakery not flagged during plumbing plan review process, commences operation without pretreatment staff review.
- Bakery does not fully disclose the characteristics of its wastewater.
- Grease interceptor is the only pretreatment.
- No monitoring manhole.
- Low pH effluent.
- FOG accumulates in pump station, force main and gravity sewer.
- Wastewater conveyed in force main under high bridge over Occoquan River to neighboring Prince William County.

High temperature wash  
waters from cleaning...



Trench drain to interceptor



...in combination with flour,  
yeast, sugar, dough & oil  
resulted in a fermenting, high  
strength wastewater.



## Typical Waste Characteristics of Grease Interceptor:

BOD: 5000-19000 mg/L

COD: 7000-23000

FOG: 70-320

pH: 4-9



Close up of the wet well  
and results of a bench  
test using water, yeast  
and...a glazed doughnut.

The initial concern was FOG. Pretreatment staff worked with bakery, but despite NOV's, installation of a pH adjustment system, lower temperature wastewater and improved housekeeping...

...improvements were too little and too late.



Front of Bakery



High strength wastewater fermented in the pump station and force main generating organic acids.





The pump station discharge pipes were severely corroded.



And pumps were damaged.



They were “just doughnut makers”... but it only took 22 months from going online in May 2004 until the first corrosion was discovered in the pump station.





Periodic CCTV inspections for FOG frequently cannot detect corrosion damage...



...or thinning of pipe walls.

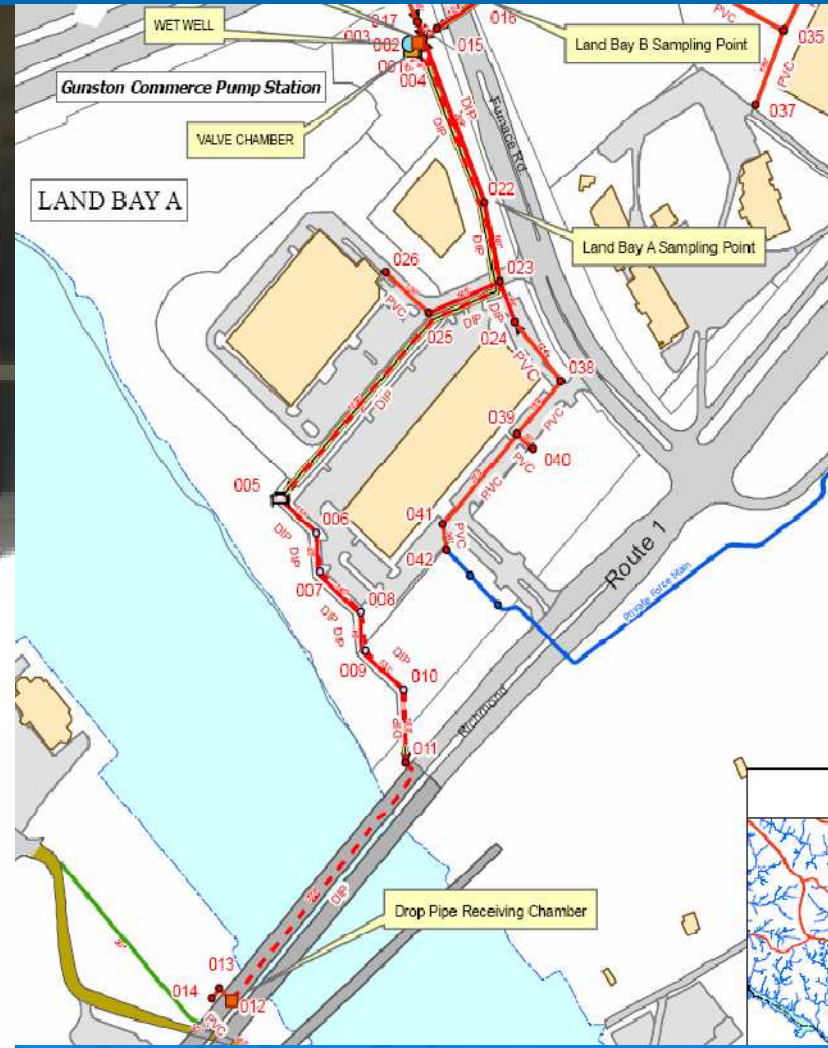




Force main had to be excavated and repaired...



...additional damage was discovered at the drop pipe coming off the Occoquan River Bridge on the Prince William County side.



# What to do?

- County issues Cease & Desist Order.
- Bakery is required to pump and haul all process wastewater.
- With force main out of service, County pumps and hauls all wastewater from the entire commerce center at the pump station lasting ~ 2 yrs.
- Bakery denies responsibility, claims other dischargers were to blame, and claims County has responsibility to provide sewer system that can handle industrial waste.



# The battle begins:

- Engineering reports:

5 engineering reports by the County and bakery were commissioned.

- Data collection and review:

All business park dischargers were re-inspected. Additional sampling was conducted at the business park for pH, conventionals, FOG, ORP & hydrogen sulfide. A pump & haul waste characterization study was done of all hauled wastes from the park and the bakery.



# Legal:

Three County attorneys worked on the case almost exclusively in addition to two outside law firms hired by the County.

Two law firms worked on behalf of the bakery.

FILED  
2009 MAY -8 PM 4:35  
CLERK OF CIRCUIT COURT  
FAIRFAX COUNTY, VIRGINIA

VIRGINIA:  
IN THE CIRCUIT COURT FOR THE COUNTY OF FAIRFAX

BOARD OF SUPERVISORS,  
FAIRFAX COUNTY, VIRGINIA,  
Plaintiff,  
v.  
KRISPY KREME  
DOUGHNUT CORPORATION,  
Serve:  
Corporation Service Company,  
Registered Agent  
11 South 12th Street  
P.O. Box 1463  
Richmond, Virginia 23218,  
Defendant.

Case No. CL 2009- 6793

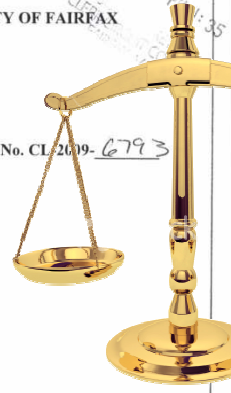
COMPLAINT

COMES NOW Plaintiff, the Board of Supervisors of Fairfax County, Virginia ("County"), by counsel, and alleges as follows:

NATURE OF ACTION

1. This is an environmental enforcement action brought against Krispy Kreme Doughnut Corporation ("Krispy Kreme") as a result of the company's significant noncompliance with applicable federal, state, and local environmental laws and regulations and an associated permit as well as an action for property damage directly resulting from those violations.

2. Krispy Kreme operates a large-scale doughnut production plant from which Krispy Kreme discharged industrial wastewaters, including excessive quantities of highly



# Abbreviated legal timeline:

- Initial information gathering 3/08 – 10/08
  - County hired multiple experts to assess cause and level of damage.
  - Bakery submitted over 10 comprehensive FOIA requests.
- Settlement attempts fail. 11/08
- County “Demand Letter” asks for reimbursement. 2/09
- Bakery alleges County is in Violation of the Clean Water Act; files 60-day-notice in preparation for a Citizen’s Suit under CWA. 5/09
- State reviews 60-Day-Notice; says “No basis for action”
- County files suit \$1.95 million in damages and up to \$2,500 /day /violation in civil penalties. 5/09
- Bakery counter sues on CWA claims. 8/09
- Court dismisses 60-day-notice on technicality (improper notice). 9/09
- Bakery re-files 60-day-notice. 10/09
- Discovery process begins in preparation for trial; expensive requests for documents and other information. 8/09 and 11/09
- Case goes to mediation and is settled out of court 12/09

# End Result:



- County repairs and upgrades, gravity sewers, pump station, force main and line across Occoquan River ~ \$1M.
- Bakery pays county \$950,000.
- Two months later bakery announces closure of facilities due to consolidation of operations.
- Closure inspection 4/10.
- Bakery pump and haul ends after 18 months and 1300 loads.
- County pump and haul ended 12/09 after almost 2 years and approximately 2500 loads.

# How this may have been prevented:

- Pretreatment Staff involvement prior to construction and move-in.
- Commitment by user to comply with sewer use ordinance.
- More aggressive & earlier enforcement actions.
- Better understanding of the waste characteristics and dynamics of the collection system at business park.



# Lessons learned:

- Need better communication with plans reviewers & collections department.
- Working with a business has its limits.
- Sewer use ordinance can be strengthened & clarified.
- Earlier, more aggressive enforcement is necessary.
- Bring in technical help earlier.
- Keep State regulators in the loop.
- Documentation is critical...be careful with emails.

# Questions?