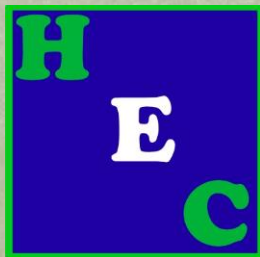


# Consequences of Incompatible Spray Field Wastewater Treatment Applied to Chalk Soils of the Southeastern United States Black Belt

Jason Heberling Ph.D., P.G.  
Heberling Environmental Consulting (HEC)

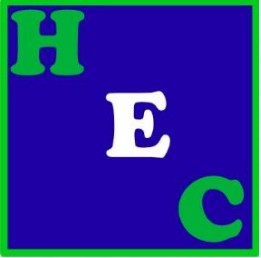


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# The Community

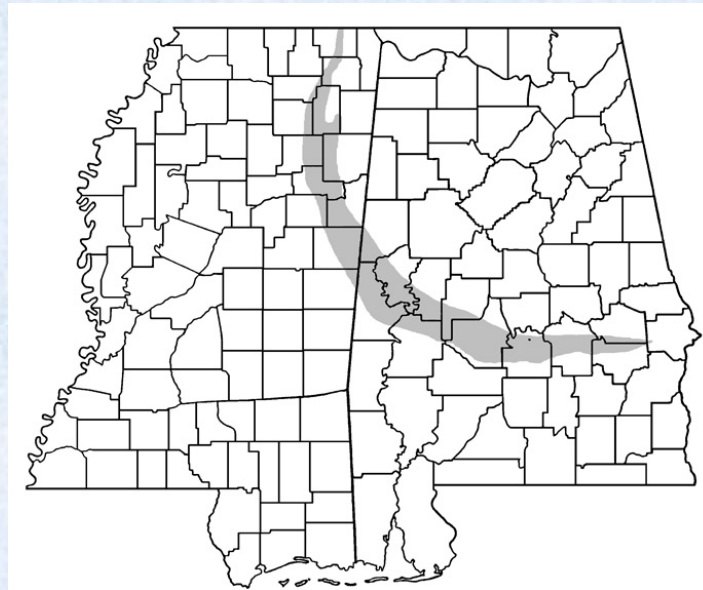
Uniontown, Alabama – population 1,775





# The Black Belt

Black Belt region – characterized by fertile soil and poverty



# Black Belt Geology



# Background - Geology

- Upper Cretaceous Demopolis Chalk, Kd
- Extremely low permeability
- Weathered chalk extremely unique geological feature





Celeste Yost

# Soil Applicability for Wastewater Treatment

- Low permeability encourages runoff
- Not recommended for septic tanks
- Spray fields and lagoons – reduced effectiveness with extremely low permeability soils.

## The Problem:

Newly constructed sprayfield/lagoons do not adequately treat wastewater for the city of Uniontown.

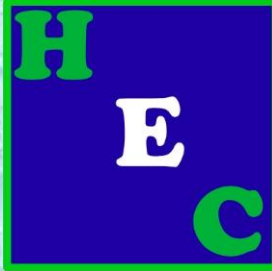
Sources: Tuscaloosa News; Gadsden Times.



Freetown Creek  
Discharge

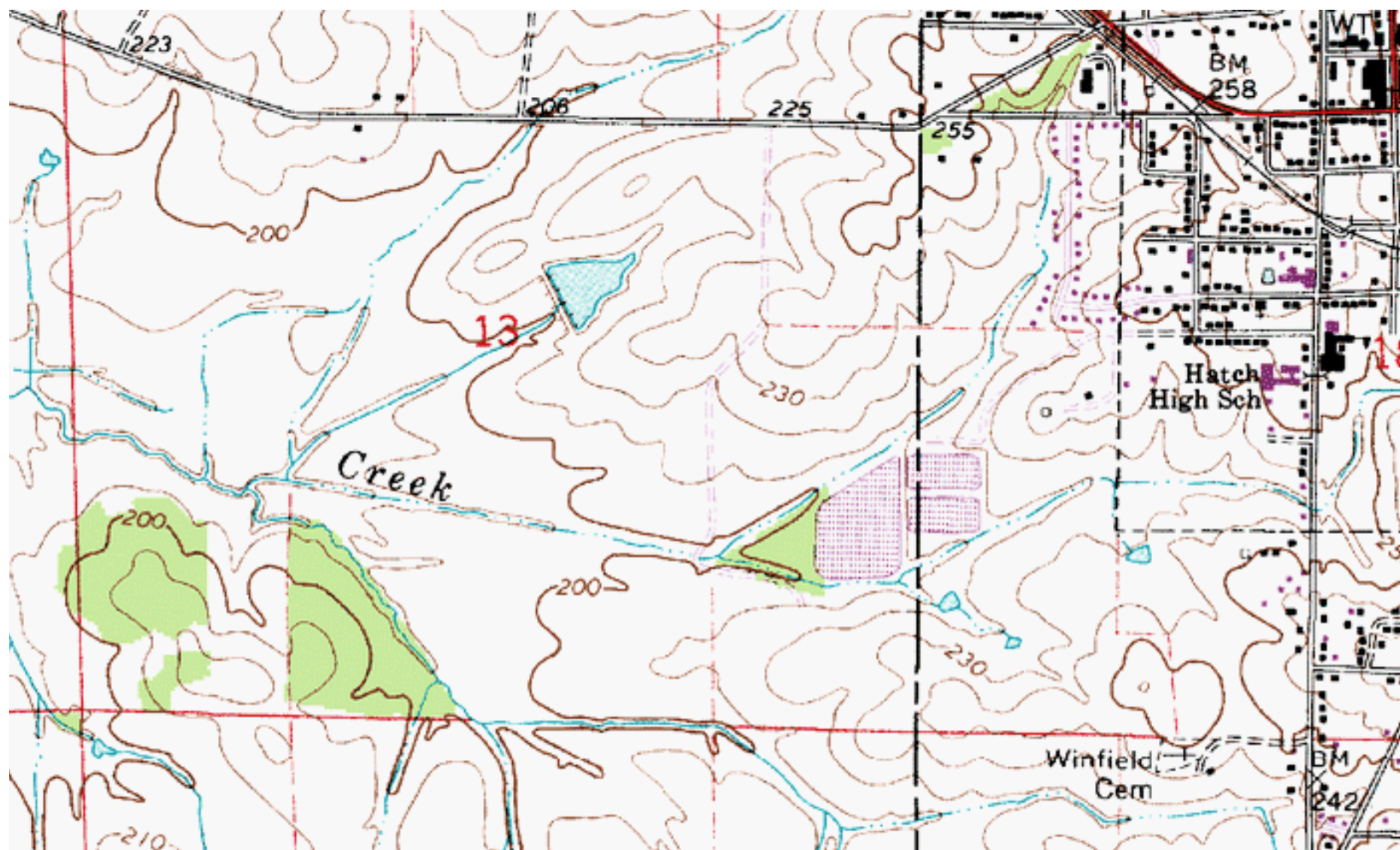


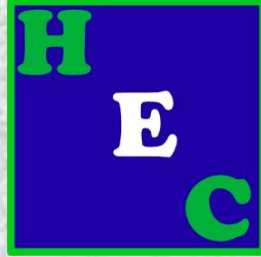
Cottonwood Creek  
Discharge



## The Problem (Cont.)

- Untreated wastewater is being discharged to nearby streams
- The City of Uniontown is in violation almost daily
- 4.8 Million in upgrades proved useless





## The Problem (Cont.)

In 2011, another report found that a broken pump at the sewage treatment plant allowed 300,000 gallons of sewage into Cottonwood Creek. And in the spring of 2011, two different sewage leaks were found.

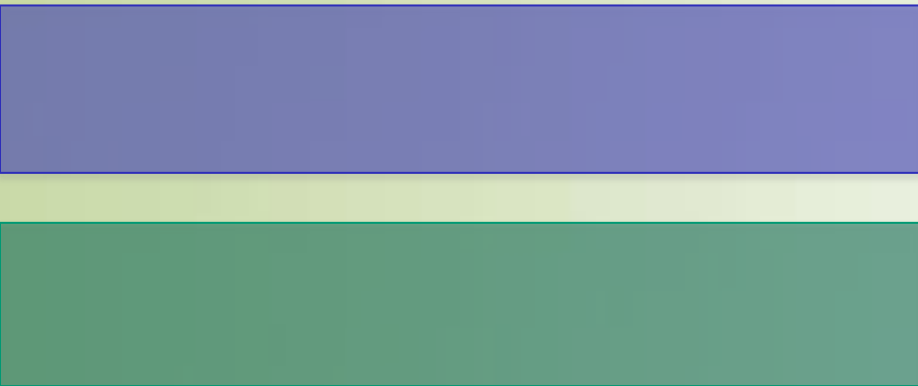
# The Problem



Source – Tuscaloosa News

# The Problem (Cont.)

Dams around the sprayfield collapsed, leaking discolored, foul-smelling wastewater into Freetown Creek.



H  
E  
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# Wastewater Contamination

- Uniontown in violation Since 2009
- 4.8 million in upgrades in 2012
- Upgrades failed

# Industrial Wastewater Sources

- Catfish Processor
- Cheese Plant
- Landfill (currently trucks waster to Demopolis Alabama)



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Lagoon overflow contaminating Cottonwood Creek



Lagoon breach site where 500,000 gallons of untreated wastewater contaminated Freetown Creek



Sprayfield breach

# Implications and Aftermath

- ADEM blames engineering firm
- Overflows continue this year
- Pipeline to Demopolis, Alabama now considered favored solution.

# Recommended wastewater treatment for low permeability soils

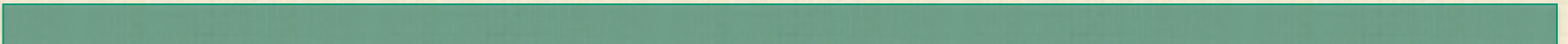
- Mechanical wastewater treatment plant with direct, treated discharge.
- Secondary treatment options
- Greywater applications



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# Mitigation

- Water audit, water conservation
- Eliminate cross connections between stormwater and wastewater
- Continued infrastructure repair



# Contact Information

Jason Heberling

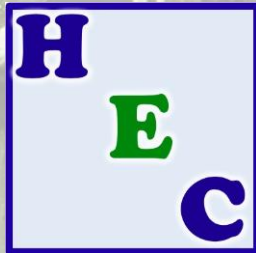
Heberling Environmental Consulting (HEC)

[jheberling@hecenvironmental.com](mailto:jheberling@hecenvironmental.com)



[www.hecenvironmental.com](http://www.hecenvironmental.com)

# Questions



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