

Athens Utilities Board

Low Pressure Force Main Project
Railroad Avenue

COMMITTED
TO THE BRAND

1977 - 1985 (City of Athens)

- ◉ May 20 1977 - U.S. EPA issues NPDES Permit No. TN0024201
- ◉ June 20, 1977 - Enforcement Compliance Schedule Letter with interim permit limits issued
- ◉ June 30, 1983 - Tennessee receives jurisdictional responsibility for this permit
- ◉ September 28, 1984 - Tennessee re-issues permit with compliance schedule because the plant could not attain the required effluent quality.
- ◉ Commissioner's Order No. 84-845 dated June 6, 1985 to the City of Athens
 - **Facts include:**
 - ◉ Extraneous Inflow and Infiltration
 - ◉ The City of Athens had not complied with 5 of 9 compliance items in the Enforcement Compliance Schedule
 - ◉ No fish and septic conditions were found in Oostanaula Creek downstream of the plant

1986 -1988

- ◉ March 21, 1986 - City of Athens reported compliance with permit as required in Order No. 84-845
- ◉ July 1, 1986 - City of Athens transfers the operations of the Wastewater treatment and collection system to AUB
 - Immediately, AUB added and divided staff into three groups: treatment plant, maintenance and lift stations, and a construction rehab. crew. Training and certification were also encouraged
 - AUB began to assess the conditions of the system
- ◉ July 11, 1988 - Partial Consent Decree entered with City of Athens and AUB
 - 14 items were required of the AUB and a civil penalty was assessed of the City of Athens
 - Items required of AUB included determining points of storm water connections, assignment of a full time backhoe and operator, reports of lift station conditions, rehabilitation plans, plans to install flow monitors, deployment of a TV and grout truck, semi-annual progress reports and compliance with NPDES permit

1988 - 1990

- ◉ By March 1988, all items of the Partial Consent Decree had been addressed with the exception of revising a particular rehabilitation plan
- ◉ October 11, 1989 - Commissioner's Order No. 89-3192 is filed against AUB
 - The facts include bypasses of wastewater for extended periods of time (i.e. 118 hours, 412 hours, 491 hours), and 18 permit limit violations during a three month period
 - The order and assessment required that no further connections be allowed
- ◉ August 15, 1990 - AUB enters into Agreed Order No. 89-3192 (moratorium)
 - The order and assessment allow AUB to make domestic wastewater connections in proportion to the amount of I/I removed on a 1 to 4 credit ratio
 - Credit was given AUB in the amount of 100,000 gpd in the order

To Present

- ◉ August 14, 1998 - TWPC relieves the Mouse Creek service area from the moratorium
- ◉ January 6, 1999 - Director's Order No. 99-001 issued to AUB requiring action on Oostanaula Plant bypasses
- ◉ July 15, 2000 - AUB complies by submitting a study recommending improvements be made to the Oostanaula WWTP
- ◉ 2004/2008 - AUB implements recommendations by completing a \$17.4 million renovation to the Oostanaula WWTP
- ◉ 2005/2006 - AUB completes the replacement of a majority of the Railroad Ave. gravity collection system with a low-pressure force main. This project has eliminated up to 700,000 g/d of I/I and eliminated three overflow points (lift station, manhole at Tellico Ave, and manhole at Ingleside Ave)

Sewer Moratorium Goals and Objectives

- Operate wastewater treatment plants and collection system to perform in the manner prescribed by Federal and State Law
- Continue to identify, prioritize, and eliminate problem areas in the collection system
- By demonstrating compliant operations, remove the entire collection system from the TDEC Order Imposed Moratorium and follow NPDES Permit guidelines for self-imposed moratorium as necessitated on a case by case basis within the collection system

Meeting Athens Goals

- ◉ In March 1990 (7.47 in. rain), AUB discharged an estimated 145.10 million gallons of untreated wastewater due to wet weather.
- ◉ In 2003 (exceptionally wet year 76 in. rain) AUB discharged an estimated 24.39 million gallons of untreated wastewater (56 events)
- ◉ In 2004 (63.11 in. rain) AUB discharged an estimated 8,579,316 gallons of untreated wastewater due to wet weather (10 events)
- ◉ In 2005 (48 in. rain), AUB discharged an estimated 1.67 million gallons of untreated wastewater due to wet weather (5 events)
- ◉ In 2006 (49.5 in. rain), AUB discharged an estimated 20,200 gallons of untreated wastewater due to wet weather (3 events)
- ◉ In 2007 (exceptionally dry year 36.2 in. rain), AUB had no discharges of untreated wastewater due to wet weather events

Railroad Ave Pump Station

- ◉ The Railroad Ave pump station was always the first station to overflow
- ◉ The location was a good place to try something new
- ◉ Athens evaluated replacing the existing system with either a gravity main, a step system or a low pressure force main with a grinder pump at each house



Railroad Avenue Beginning



- The overflow outfall at the Railroad Ave pump station overflowed to the point that this sign was required. This similar sign was posted at two other points due to I/I during rain events
- Athens wanted to try a new technology and this was a small basin that was well suited for a test case.

The Project

- ◉ Athens decided on LPS and obtained funding through an ARC grant
- ◉ Evaluated grinder pumps and chose E/One
- ◉ E/One assisted in the design
- ◉ Athens mailed letters to the affected customers, met with a majority of them and obtained permissions to install the stations and force mains on their properties
- ◉ Started construction

Electrical Concerns

- ◉ Project budget was set
- ◉ The cost of upgrading electrical services was going to take a large portion of Athens' monies
- ◉ Found a solution
- ◉ For most customers meter extenders were installed eliminating the requirement to upgrade their electrical service



Installation of Mains



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Discharge Manhole



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Station Installation

206 Total Stations

203 single stations

- ◉ 190 residences
- ◉ 1 day care
- ◉ 1 restaurant
- ◉ 11 businesses

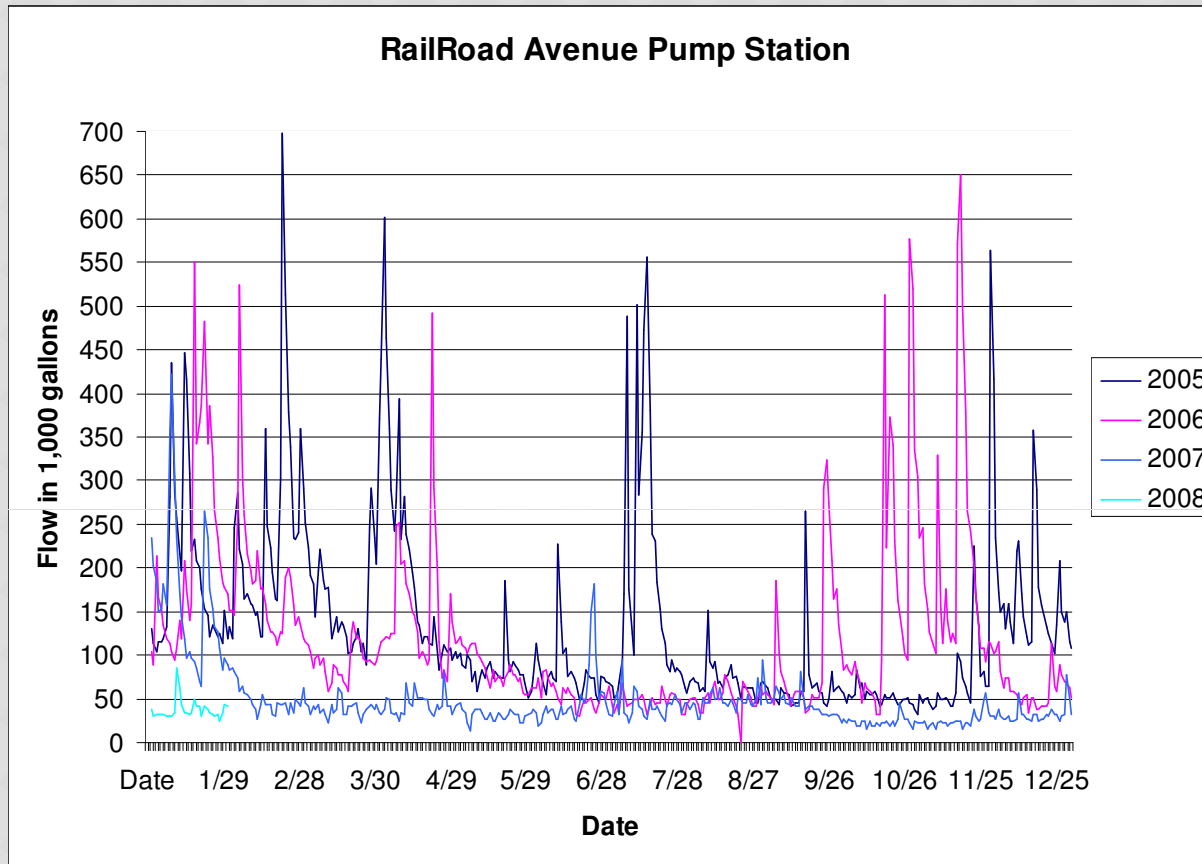
2 duplex units

- ◉ School with 300 students
- ◉ Mexican restaurant

1 single, large basin station
installed at a church

The goal was to place the
stations as close as possible
to the building to limit
future I/I

Wastewater Project Success Story



- ◉ The Railroad Ave. ARC project was complete in late January 2007 and the results were immediate as is shown on this graph.

Results

- 2003 - 9 events - 494,000 gal.
- 2004 - 10 events - 265,000 gal.
- 2005 - 4 events - 16,000 gal. (Project in Const.)
- 2006 - 3 events - 10,000 gal.
- 2007 - 2008 - no events
- Not only did Athens eliminated the overflows, they also reduced pump lift station flows by up to 700,000 gpd during rain events, eliminated two other overflow points, and greatly reduced the occurrences and quantity at a third

Records indicate a reduced flow through the Railroad Avenue pump station to the Athens Treatment Plant of 27,500,000 gallons per year which equate to an annual savings of \$89,212.00 in treatment cost alone

Installation of the E/One low-pressure grinder pump system produced a significant reduction in wet weather overflows

Eliminating overflow points moved Athens closer to meeting the goal of having the TDEC imposed moratorium removed