



PW/Utilities Connection



July 2006

Utilities Data from June 2006 City of Melbourne Public Works & Utilities Department

Cross connection control program ensures water safety

The City's cross-connection control (CCC) program prevents contaminants from entering the water distribution system. Tim Mulligan, a 10-year City employee, was recently promoted to the position of Environmental Compliance Technician to oversee this critically-important job.

"The DEP (Florida Department of Environmental Protection) mandates that all water suppliers protect their systems from contamination," said Utilities Operations Superintendent Tom Hogeland. "The number one issue is back siphonage."

Hogeland provided an illustration of how back siphonage could occur. Picture someone filling their car radiator with water from a garden hose connected to their house valve. If a water line break in the distribution system were to occur at that time and water pressure was lost, this could cause a siphoning effect where the radiator fluid could be sucked into the water distribution system. A dual check-valve is installed on all residential dwellings to prevent this type of contamination from occurring.

For commercial and multi-family properties, a double detector check assembly is required on fire lines, and a reduced pressure assembly is required on the potable water lines at the meter. These devices must be testable to make sure they are functioning properly. The DEP requires testing to be performed annually, which Mulligan is responsible for ensuring.

"Tim sends them notice. Then they must use a state-approved testing company and send the results back to Tim," Hogeland explained.

To further protect the water system, all reuse customers are required to have backflow prevention devices, which are also tested annually.

In addition to managing the CCC program, Mulligan is also responsible for monitoring all the private water



Environmental Compliance Technician Tim Mulligan checks the testing tag of the backflow prevention devices at the Harris facility on Wickham Road.

and wastewater utilities that are connected to the City's systems. There are 42 private wastewater utilities and about 200 private water utilities.

"Our system ends at the right-of-way," Hogeland said. "Anything beyond that is their system."

As an example, a master water meter might serve a large apartment complex. From there, sub meters could be located at the different buildings and fire hydrants throughout the complex. The sub meters and hydrants would be considered private utilities.

"Tim makes sure the private systems are being maintained," Hogeland said. "He also monitors the private lift stations."

Tank cleaning saves thousands



Russell Pate (left) and Bill Spann observe the cleaning taking place at the old lime settling basin. The tank had not been in service since the new Actiflo plan went online.

With the Phase II improvements, the

tank will be re-worked so it can be used as a filter backwash recycle station.

The project cost is \$6,000, far less than the quote of \$70,000 for a contractor to do the work.

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Monthly Water Usage and Raw/Finished Water Quality Statistics

Water Usage

- ◆ Water pumped to service: 481,811,000 gallons or 16.06 MGD average
- ◆ Maximum finished water pumped to service: 17.75 MGD on June 23, 2006
- ◆ Fire hydrant flushing: 20,663,522 gallons
- ◆ Committed capacity: 3.4386 MGD
- ◆ Capacity available for development: 7.2083 MGD (Based on 12-month average daily flow)

Water Quality Statistics

Lake water

- ◆ Level: 13.53 feet above MSL on June 30, 2006 (Prior month comparison: 12.97 feet on May 31)
- ◆ pH: 7.9
- ◆ Alkalinity: 86 mg/L

- ◆ Total hardness: 158 mg/L
- ◆ Chlorides: 100 mg/L
- ◆ Color: 102
- ◆ Total dissolved solids (TDS): 347 mg/L

Well water

- ◆ pH: 7.8
- ◆ Alkalinity: 122 mg/L
- ◆ Total hardness: 650 mg/L
- ◆ Chlorides: 785 mg/L
- ◆ Color: 6
- ◆ TDS: 1,710 mg/L

Finished water - pumped to service

- ◆ pH: 8.4
- ◆ Alkalinity: 42 mg/L
- ◆ Total hardness: 114 mg/L
- ◆ Chlorides: 83 mg/L
- ◆ Color: 3
- ◆ Total dissolved solids (TDS): 302 mg/L

In-house WaterCAD training saves the City thousands

The City's WaterCAD software will be used more fully thanks to the recent training of staff. Engineers, water plant operators, engineering technicians and others were among a group of 11 City employees who spent three days involved in hands-on instruction for the software. The City brought in the training rather than send employees to outside classes.

"Training is very expensive," said Assistant Public Works & Utilities Director Harold Nantz. "If we had sent all these people outside to the training, it would have cost about \$3,000 per person, in addition to travel expenses for motels and meals."

Nantz explained that the group session cost \$8,600 which saved the City approximately \$25,000 from what it would have cost had all 10 employees been sent out



Back row: Michelle Shoultz, Public Works & Utilities Administration (l); Craig Silverman, Utilities Operations; Harold Nantz (shared seat with Fred Davis/Water Production), Public Works & Utilities Admin.; Bob McDoniel, Information Systems. Front: Keith Cunningham (l), and Dani Straub, Engineering. Also attending were Shaniese Alexander and Dave Phares, Water Production, Rory Dittmer from Engineering, and Matt Tanguay from Public Works & Utilities Administration.

for the instruction.

WaterCAD is used for water distribution system modeling. It will also be put into service to perform fire flow modeling for new development, distribution system verification for new subdivisions, planned future system improvements, water quality tracing, and more.

"It will allow us to work together to avoid problems and solve problems," Nantz said.

He said that the next step will be to obtain a new version that will link directly to the City's GIS (geographic information system) and GPS (global

positioning system).

Nantz explained that another goal is to obtain a multi-seat license that would allow the software to be placed on the City's server, allowing multiple users at the same time.

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Wastewater Treatment Operational Summary and Reuse Statistics

D.B. Lee WWTP

- ◆ Treated this month: 135.96 MG
- ◆ Treated daily: 4.53 MGD
- ◆ Reuse production — total month flow: 68.85 MG
- ◆ Reuse average daily flow: 2.3 MGD
- ◆ Reuse number of days run: 30
- ◆ Plant efficiency, BOD removal: 99.40%
- ◆ Committed capacity: 1.0265 MGD
- ◆ Capacity available for development: 0.4269 MGD
(Based on 12-month average daily flow)
- ◆ Rainfall: 6.85 inches over 11 days

Grant St. WWTP

- ◆ Treated this month: 87.75 MG
- ◆ Treated daily: 2.93 MGD
- ◆ Reuse production — total month flow: 8.52 MG
- ◆ Reuse average daily flow: 0.28 MGD
- ◆ Reuse number of days run: 30
- ◆ Plant efficiency, BOD removal: 99.13%
- ◆ Committed capacity: 1.6294 MGD
- ◆ Capacity available for development: 0.4865 MGD
(Based on 12-month average daily flow)
- ◆ Rainfall: 7.78 inches over 12 days

A total of 77.37 million gallons of reclaimed water was produced during May, representing 35% of total plant flows.

Reuse distribution to increase to McGrath and Crane Fields

Water conservation will soon be getting a boost in the City thanks to reuse projects at two of the City's ballfield complexes.

Once the projects are online, approximately 21.9 million gallons per year of groundwater will be saved as reclaimed water takes its place for irrigation.

The McGrath Field project is expected to be completed in August. Once the Little League All-Star tournaments are completed, the new four-inch line will be run and connections made to water the two ballfields.

Approximately 30,000 gallons of water per day are used to water these fields.



Water Distribution Foreman Tim Hedrick (left) and Wastewater Collection Foreman Perry McThenney observe as Robert "Colgate" Coger and Odell Wadlington work to connect the smaller reuse main to a larger one. Rubin Rosada and Charlie Packard prepare to insert the tapping device.

To double the amount of groundwater savings, engineering design is in process to bring reuse to Crane Field and the adjacent community center.

Engineers are currently determining the best route the pipes will take from the plant to the field.

"Once the route is settled and the design done, we may have this project to bid by the end of the year," said Assistant Public Works & Utilities Director Harold Nantz.

"We will continue to use reclaimed water to conserve potable water and the surficial aquifer," Nantz said.

"Increasing our reuse distribution also will help us meet our regulatory requirements."

Streets and Stormwater Management Monthly Summary

- ◆ Daytime street sweeper — hours run: 127
Cubic yards of material removed: 212.5
- ◆ Nighttime street sweeper — hours run: 65
Cubic yards of material removed: 65
- ◆ Asphalt repairs made: 37
- ◆ Tons of asphalt used: 28.75
- ◆ Feet of canals cleaned mechanically: 3,765
- ◆ Acres treated through aquatic spraying: 21
- ◆ Feet of storm drain pipe repaired: 9
- ◆ Concrete repairs: 37
- ◆ Cubic yards of concrete used: 96

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City to outsource hurricane debris monitoring and accounting

Debris collection following '04 Hurricanes Frances and Jeanne was a major event in Melbourne requiring 30 staff members to take part. They were involved in administering the debris removal process, monitoring debris collection and disposal, accounting for the daily receipts, and seeking reimbursement from FEMA. Employees from various City departments who served as monitors for the collection efforts logged hundreds of hours, including significant overtime hours, which required other staff to work double-duty to fill their positions.

Thanks to a new contract the City has entered into with Beck Disaster Recovery, should the City be slammed with other large hurricanes, the City can turn to this disaster management and recovery firm to provide those services, freeing staff to focus on their regular assignments.



Johnny Pitchford, a wastewater treatment plant operator, served as one of the debris collection monitors following Hurricanes Frances and Jeanne.

What's Done, What's Underway and What's Coming Up

Water Projects

Under Construction:

- ◆ Phase II surface water treatment plant improvements, \$11,322,000
- ◆ Miscellaneous two-inch to six-inch waterline upgrades, \$874,857

Under Design or in Bid

Process:

- ◆ Wickham Road ground storage tank and booster pump station
- ◆ Automatic transfer switch and generator enclosure at the surface water treatment plant's belt press building
- ◆ Pineda Causeway 16" water main
- ◆ Wickham Road 8" water main
- ◆ Babcock Street water line relocation between Fee Avenue and Melbourne Avenue
- ◆ 36" water main clearing, Phase II
- ◆ Waterlines in annexation areas — Deerwood and El Dorado
- ◆ Rehabilitation to RO wells #1, 2 & 3
- ◆ Backup well #4
- ◆ Unidirectional flushing program & Individual Distribution System Evaluation (IDSE) plan

- ◆ Water model update
- ◆ St. Andrews water line replacement
- ◆ Harlock Rd water main extension

Wastewater Projects

Under Construction:

- ◆ Various CIPP sewer line rehabilitation projects, Wastewater Collection: \$867,143, Wastewater Treatment: \$423,000
- ◆ Lift Station #43 (Front Street) upgrade, \$567,000
- ◆ Bell Street sewer aerial crossing, \$140,000

Under Design or in Bid

Process:

- ◆ Water & Wastewater Operations maintenance building
- ◆ Lift Station #55 upgrade
- ◆ Electrical upgrade to the sludge belt press building at D.B. Lee and Grant Street WWTPs
- ◆ D.B. Lee WWTP administration building

- ◆ Lift Station #29 (Aurora & Marywood) and Lift Station #46 (BCC) renovations
- ◆ St. Andrews lift station and subaqueous force main
- ◆ Grant Place lift station and force main
- ◆ Reuse interconnect

Streets & Stormwater Projects

Under Construction:

- ◆ Eber Road widening from Babcock Street to Dairy Road, \$3,840,879
- ◆ Various CIPP pipe rehabilitation projects, \$855,000

Under Design or in Bid

Process:

- ◆ Babcock and Hibiscus intersection improvements
- ◆ Gramling Park Road drainage improvements
- ◆ Melbourne Avenue drainage at Pennwood Avenue

For more information about this report, please contact the Melbourne PW/Utilities Administration Department at (321) 674-5761 or send an e-mail to utilities-admin@melbourneflorida.org