



PW/Utilities Connection



December 2004

Utilities Data from Nov. 2004 City of Melbourne Public Works & Utilities Department

Study to look at regional biosolids treatment facility

The City has joined Brevard County and seven other local cities that have wastewater treatment operations for an interlocal agreement to participate in a regional biosolids study. Biosolids are one of the end products of wastewater treatment.

The joint project will evaluate the feasibility of a regional biosolids treatment/recycling facility to meet the needs of all study participants.

"There are a number of reasons we are doing this," said Bob Klapproth, Public Works & Utilities Director. "However, the main driving force is anticipated regulations by the Florida Department of Environmental Protection that will require a higher level of treatment of our sludge."

There are four treatment and disposal levels for biosolids. The first and most basic is Class I landfill disposal, which requires no treatment. Class B treatment, the standard Melbourne currently meets, is soil augmentation on restricted access sites. This requires processing the sludge to significantly reduce pathogens. Class A allows soil augmentation on unrestricted sites, including its use on landscaping, for food crops, and commercial soil mixes. This requires treatment to further reduce pathogens and to achieve low metal content. Finally, Class AA, which meets all of Class A requirements and has been dewatered to allow the most disposal options, including wholesale or retail sales, such as the commercially available fertilizer Milorganite.

"In the past we have looked at other levels of treatment but the problem has been that we don't produce enough sludge to make it cost effective," Klapproth said. "Neither do the other cities or the county. This study will look at the potential to pool our sludge to make it feasible, from

a capital standpoint, to go to the next level of treatment. Location for a facility will also be studied. It would need to be in a centrally-located area in the county."

The study should begin by February and take approximately seven months to complete. The cost for the study is being shared based on the amount of wastewater treated by each entity, as follows:



Dried sludge, or biosolids, drop from conveyor belt into truck to be transported to disposal site.

- ◆ Brevard County: \$24,090
- ◆ City of Melbourne: \$13,740
- ◆ City of Cocoa Beach: \$5,898
- ◆ City of Cocoa: \$4,990
- ◆ City of Titusville: \$4,942
- ◆ City of Palm Bay: \$3,821
- ◆ City of Rockledge: \$3,777
- ◆ City of West Melbourne: \$2,403
- ◆ City of Cape Canaveral: \$1,629

The total project amount

for the study is \$65,290.

"The nice thing is if this proves to be feasible, the end product will probably be highly desirable as a fertilizer," Klapproth said. "It has the potential to be marketable."

Melbourne generates about 12,000 cubic yards of wet sludge per year. After the dewatering process and the addition of lime used to stabilize the pH, approximately 1,470 dry tons per year are generated. This product is loaded on trucks and sent to approved agricultural sites to be spread on sod fields.

"It took about two years to get to this agreement," Klapproth said. "Titusville originally contracted with the engineering firm for the study but found out they didn't generate enough to make it feasible. The consultant suggested a regional approach."

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Monthly Water Usage and Raw/Finished Water Quality Statistics

Water Usage

- ◆ Water pumped to service: 461,726,000 gallons or 15.391 MGD average
- ◆ Maximum finished water pumped to service: 16.319 MGD on Nov. 22, 2004
- ◆ Water billed: 368,983,100 gallons
- ◆ Fire hydrant flushing: 17,588,340 gallons
- ◆ Fire Department water usage: 43,550 gallons
- ◆ Brevard County water usage – sewer flushing: 10,500 gallons
- ◆ Flushing and testing new water mains: 11,245 gallons
- ◆ Committed capacity: 2.3829 MGD
- ◆ Capacity available for development: 9.1267 MGD (Based on 12-month average daily flow)

- ◆ pH: 7.5
- ◆ Alkalinity: 50 mg/L
- ◆ Total hardness: 73 mg/L
- ◆ Chlorides: 45 mg/L
- ◆ Color: 259
- ◆ Total dissolved solids (TDS): 179 mg/L

Well water quality

- ◆ pH: 7.7
- ◆ Alkalinity: 117 mg/L
- ◆ Total hardness: 611 mg/L
- ◆ Chlorides: 760 mg/L
- ◆ Color: 6
- ◆ TDS: 1,572 mg/L

Finished water quality - pumped to service

- ◆ pH: 8.3
- ◆ Alkalinity: 36 mg/L
- ◆ Total hardness: 65 mg/L
- ◆ Chlorides: 48 mg/L
- ◆ Color: 4
- ◆ Total dissolved solids (TDS): 217 mg/L

Water Quality Statistics

Lake water quality

In-house water line projects improving and adding service

Recent water line projects performed in-house will soon be adding to the quality of water on one North Melbourne street and providing new water service on another.

An existing two-inch water line on the north side of Laguna Vista will be abandoned after a new four-inch and six-inch water main has been installed on the right-of-way on the south side of the street.

The old galvanized steel water line was too small and reached a dead end in the system.

A Hydro-Guard automatic water flushing system had been installed about two years ago to try to alleviate dirty water complaints. The flushing system kept the water clean, but resulted in low pressure.

The new PVC pipes are stronger under pressure than the galvanized steel pipes they have replaced and are



Crew completes finishing touches on Laguna Vista water line project. From left are Shannon Brogan, Robert "Colgate" Coger, Doug Effler, and Robert Sigman operating the backhoe.

also easier to maintain, more cost effective, and have a smoother surface for better flow.

According to Harold Nantz, Assistant Public Works & Utilities Director, this is part of an on-going effort to replace all the old two- and four-inch galvanized steel water lines in the system with PVC.

In addition to the new water pipes, fire protection has been provided with the installation of two new fire hydrants.

The other recently completed project is on Citrus Street. The work

involved installing 640-feet of six-inch PVC water line in a small street where there had previously been no City water service. The residents had been using wells for their water source. There are now seven service connections and a fire hydrant. The property owners have all shared in the cost and are being assessed impact fees.

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Wastewater Treatment Operational Summary and Reuse Statistics

D.B. Lee WWTP

- ◆ Treated this month: 131.69 MG
- ◆ Treated daily: 4.39 MGD
- ◆ Reuse production — total month flow: 55.65 MG
- ◆ Reuse average daily flow: 1.85 MGD
- ◆ Reuse number of days run: 30
- ◆ Plant efficiency, BOD removal: 98.97%
- ◆ Committed capacity: 0.8628 MGD
- ◆ Capacity available for development: 0.6288 MGD
(Based on 12-month average daily flow)

Grant St. WWTP

- ◆ Treated this month: 92.12 MG
- ◆ Treated daily: 3.18 MGD
- ◆ Reuse production — total month flow: 8.75 MG
- ◆ Reuse average daily flow: 0.30 MGD
- ◆ Reuse number of days run: 28
- ◆ Plant efficiency, BOD removal: 98.44%
- ◆ Committed capacity: 0.8701 MGD
- ◆ Capacity available for development: 1.6331 MGD
(Based on 12-month average daily flow)

Large Fabri-Form project lowers maintenance requirements

The City recently completed its largest “Fabri-Form” project undertaken to date at the Eagle Lakes Subdivision, near Crown Heights in the southernmost part of Melbourne.

Fabri-Form are fiber mats sewn together and filled with concrete. They are used to stabilize and prevent erosion of embankments.

The Eagle Lakes subdivision ditch has four separate drainage outfall flowing into it. It was maintenance-intensive, requiring a trackhoe to be put into service four times per year to dredge the built-up muck, and also requiring monthly mowing of the banks.

“We decided to install a Fabri-Form concrete revetment to stabilize the slopes so we no longer have to keep it mowed,” explained Tom Williams, Superinten-



Fabri-Form lines drainage ditch in Eagle Lakes subdivision.

dent of Streets and Stormwater Management. “The concrete is six inches thick and doesn’t allow vegetation to grow through and we won’t have to dredge the bottom.”

Some 10,000 square feet of the material was used in the project.

“We started using Fabri-Form about three years ago,” Williams explained. “We have had good results. It has stopped all of our erosion problems. We

generally use it in areas with large outfalls and at some of our major pipe crossings under streets. It is put on each side to stabilize the banks.”

The next project using this material will be on Laurie Street.

Streets and Stormwater Management Monthly Summary

- ◆ Daytime street sweeper — hours run: 111.5
Cubic yards of material removed: 139
- ◆ Nighttime street sweeper — hours run: 67
Cubic yards of material removed: 77
- ◆ Asphalt repairs made: 23
- ◆ Tons of asphalt used: 23.25
- ◆ Feet of canals cleaned mechanically: 4,055
- ◆ Acres treated through aquatic spraying: 20
- ◆ Feet of storm drain pipe repaired: 325
- ◆ Concrete repairs: 17
- ◆ Cubic yards of concrete used: 15.8

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November Highlights

The level of Lake Washington decreased during the last month. At the end of November, the lake level was 14.93 feet above sea level. This compares to the end of October, when it was 17.19 feet above sea level. Water quality remains good.

The D.B. Lee Wastewater Treatment Plant recorded 0.9 inches of rain during seven days in November. The Grant Street Wastewater Treatment Plant received 0.57 inches of rain over six days during November. A total of 58.31 million gallons of reclaimed water was distributed during November. This represents 26% percent of total plant flows for November.

New administration building slated



Pictured is the vacant land to the west of the current Public Works & Utilities Administration office building that will be the site of a new building. The engineering of the facility has been

completed and the bidding process will begin soon. Construction is expected to start in April and take six months to complete.

The new 3,300 square foot building is needed as a result of last year's consolidation of the Utilities Department with Public Works. A temporary trailer has been set up on the Harper Road property to provide offices for the solid waste and customer service functions. It will be removed once the new building is complete.

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

Water Projects

Recently Completed:

- ◆ Sludge handling facility motor control center and belt filter press control cabinets, \$175,685

Under Construction:

- ◆ Parkway Drive and Turtlemound water line extension, \$657,000

- ◆ Hibiscus booster station electric shut-off valves, \$75,777

- ◆ Wickham Road waterline replacement from SR 192 to Nasa Blvd., \$1,257,000

- ◆ Waterline upgrade, Olde Eau Gallie, \$347,409

- ◆ Fee Avenue waterline replacement under FEC, \$120,330

Under Design or in Bid

Process:

- ◆ Phase II surface water treatment plant improvements
- ◆ Utility relocation in association with NASA Boulevard realignment

at Wickham Road

- ◆ Chemical feed upgrades at Canova Beach Booster Station

- ◆ Wickham Road ground storage tank and booster pump station

- ◆ Covered storage building at surface water treatment plant

- ◆ Eau Gallie River sub-aqueous crossing

Wastewater Projects

Under Construction:

- ◆ Lift Station 24 replacement, \$451,440

- ◆ Demolition of old treatment units at D.B. Lee WWTF, \$624,700

Under Design or in Bid

Process:

- ◆ New monitoring network for reuse system at DB Lee WWTP

Streets & Stormwater Projects

Under Construction:

- ◆ Sherwood Park drainage improvements, \$358,285

- ◆ Sarno Road/Bell Street drainage improvements, \$257,911

- ◆ Babcock Street realignment, \$1,394,649

- ◆ Eber Road widening from Babcock Street to Dairy Road, \$3,840,879

- ◆ Pineapple Avenue pedestrian bridge at Cliff Creek, \$115,429

Under Design or in Bid

Process:

- ◆ Hoag Avenue paving and drainage improvements

- ◆ Upgrade of stormwater system at Charles Dr./Almar Subdivision

- ◆ Upgrade of existing culvert crossing under Pirate Lane

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