PUBLIC ANNOUNCEMENT
Ordinance Amendment Technical Workshop

PROPOSED ORDINANCE AMENDING SECTION 24-5 OF THE
CODE OF MIAMI-DADE COUNTY, FLORIDA RELATING TO DEFINITIONS;
AMENDING SECTION 24-43 OF THE CODE OF MIAMI-DADE COUNTY,
FLORIDA RELATING TO PROTECTION OF POTABLE WATER SUPPLY WELLS
(PROPOSED WELLFIELD PROTECTION ORDINANCE)

PROPOSED CHANGES INCLUDE
- Hazardous material definition
- Maps of the Northwest and West Wellfield Protection Areas
- Liquid waste storage, disposal of treatment within Wellfield Protection Areas
- Land uses within Wellfield Protection Areas (Table E-1, etc.)

DATE:
Monday MAY 19th 2014

TIME:
1:00pm to 3:00pm

LOCATION:
Overtown Transit Village
701 NW 1 Court
Training Room (2nd Floor)

Copies of the proposed ordinance and wellfield maps will be available on the Department's website prior to the workshop.

For additional information please contact Wilber Mayanga at mayorw@miamidade.gov
AGENDA

1. Background
2. Overview of substantive changes
3. USGS Model
4. Proposed NWWF and WWF Boundaries
5. Wellfield Zones allowable uses
6. Review/Comments of proposed modifications ordinance
Background

- **02-05-2008**: Execution of contract with USGS to redo groundwater/surface water model for Northwest and Southwest Wellfields

- **01-13-2011**: 1st technical workshop; USGS presents draft findings.

- **05-20-2011**: 2nd technical workshop
Background cont.

- 04-19-2013
  Report released posted on USGS website

- 04-2013
  Announcement of 60 day comment period for the report.
  No comments received.

- 05-01-2014
  Announcement of technical workshop for ordinance amendment
Overview of Substantive Changes

1. Section 24-5 – *Definitions*

Revisions

- Hazardous Materials

- Sewage Loading

Additions

- De minimis quantity

- Onsite Sewage Treatment and Disposal System
Overview of Substantive Changes

2. Section 24-43(3) - Maps of Cones of Influence...
   - Incorporation of the USGS Open File Report 2013-1086
     "Estimation of Capture Zones and Drawdown at the Northwest and West Well Fields, Miami-Dade County, Florida, Using an Unconstrained Monte Carlo Analysis: Recent (2004) and Proposed Conditions"

   - Revision of boundaries (new maps) of the Northwest and the West Wellfield Protection Area based on USGS report
Overview of Substantive Changes

3. Section 24-43(4) – Septic Tanks, sanitary sewers, storm water disposal, liquid waste...

- Provides minimum distance between disposal system and potable water supply well

- Section 24-43(4)(a)
  - expanded to include other types of onsite sewage disposal systems. References to septic tanks deleted
  - change to allowable sewage loading for onsite sewage disposal systems

- Section 24-43(4)(b)
  - Provides specific testing criteria for exfiltration rates for sanitary sewers
  - Provides inspection and reporting frequency
Overview of Substantive Changes

4. Section 24-43(5) – Prohibition of hazardous material within wellfield protection area

- Allowance for de minimis quantities of hazardous material outside the 30 day travel time, of wellfield protection areas (except for the Northwest WPA).

- Allowance for prepackaged products utilized for the care and upkeep of the property, personal hygiene products, and office supplies

- Allowance for fuel and lubricants contained inside a vehicle, for the operation of the vehicle.
Overview of Substantive Changes

Section 24-43(5) cont.,

- Allowance for small quantity generators (SQG) of hazardous waste outside the basic wellfield protection area of all WPAs. SQGs not allowed within the Northwest wellfield.
Overview of Substantive Changes

5. Section 24-43(10) - *Land uses within the Northwest Wellfield protection area and West Wellfield ...*

- Applicability of this section to the West wellfield deleted.

- Table E-1 deleted

- Land use zoning classifications deleted

- Expands criteria to be considered when determining appropriate land uses within the Northwest Wellfield by providing land use categories
Proposed Revised NWWF and WWF Boundaries

Basis

USGS report
  o Model
  o Assumptions
  o Inputs
  o Lakes
  o Seepage

  o Smoothing

  o Selection of drawdown
USGS Model

Model Features:

- 2D groundwater flow model w/ particle tracking
- Constructed using MODFLOW-2005 and MODPATH
- Model area: urbanized MD county, east of L-31N canal
- Calibration period: 1996-2004
- Lakes represented explicitly with high kh and porosity
- Calibrated to daily groundwater level and net canal-basin exchange data
Model Features cont.,

- Well-field capture zones determined using stochastic approach – 10,000 forward simulations

- Capture zones estimated using 95% confidence intervals for selected dry, average and wet conditions

- Travel times through lakes adjusted based on residence times calculated using lake volumes and known outflows

- Scenarios representing flow barrier west of L-31N canal and WWF, seepage canal west of NWWF along Dade-Broward Levee, and expansion of quarried areas by about 25 mi² and resulting increase in lake volumes
Major assumptions:

- 1-D model – sufficient data do not exist to map flow units within Biscayne aquifer throughout model domain, nor to calibrate water-level observations.

- Laminar flow – nature of porosity in Biscayne aquifer indicates possibility of turbulent flow near WWF and NWWF.

- Particle tracking can only track to western edge of model, source areas may extend west into Everglades.

- Precipitation and ET distributed evenly over modeled area.

- Mixing in lakes not simulated explicitly.
USGS Model

Limitations of model:

- Uncertainty in lateral distribution of hydraulic properties – thus the stochastic approach
- Uncertainly in vertical layering and distribution of hydraulic properties – thus one-layer approach
- Runoff and canal discharge not represented explicitly
- Distribution of groundwater recharge unknown
- Particle travel times through lakes based on assumption of residence times
- Particle tracking with MODPATH represents only advective flow
Proposed Revised NWWF and WWF Boundaries

Proposed NWWF and WWF maps
Map showing overlay of proposed Northwest Wellfield versus the outer boundary of the current Northwest Wellfield
Map showing overlay of proposed West Wellfield versus the outer boundary of the current West Wellfield Interim Protection Area
Details

2. Is it allowable?

De minimis Quantity of Hazardous Material and Factory Pre Packaged Products For Domestic Use and Consumption allowed, **EXCEPT IN THE NWWF**

Prepackaged products used for care and upkeep of property, personal hygiene products office supplies allowed
Details

2. Is it allowed??

No hazardous waste except that Small Quantity Generators Allowed

EXCEPT WITHIN THE NWWF*

*Or within that portion of the West Wellfield which is outside the basic and outside the UDB
Section 24-43(4) – Septic Tanks, sanitary sewers, storm water disposal, liquid waste ...

24-43 (4)(a): OSTDS vs. Septic Tanks

Carlos L. Hernandez, P.E., CFM, CEHP, LEED AP - DERM
Section 24-43(4) – Septic Tanks, sanitary sewers, storm water disposal, liquid waste ...

24-43 (4)(a): OSTDS vs. Septic Tanks

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Section 24-43(4) – Septic Tanks, sanitary sewers, storm water disposal, liquid waste ...

24-43 (4)(a): Sewage Loading for Residential
  • Northwest Wellfield & West Wellfield, outside UDB

\[
\text{Area} = \frac{\text{Residential Sewage Flow Rate}}{\text{Allowable Sewage Loading}}
\]

where,

\[ \text{Residential Sewage Flow Rate} = 350 \text{ gpd} ** \]

\[ \text{Allowable Sewage Loading} = 70 \text{ gpd/Ac} \]

therefore,

\[ \text{Area} = \frac{350 \text{ gpd}}{70 \text{ gpd/Ac}} = 5 \text{ Acres} \]

** Rate at the time code established 70 gpd/Ac

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Section 24-43(4) – *Septic Tanks, sanitary sewers, storm water disposal, liquid waste* ...

24-43 (4)(b): Sanitary Sewer Systems

- Maintained “*Sewage Loading*” for all New Construction, Enlargements and Alterations that increase Gross Area.

- Includes the following protection:
  - Leakage Testing for All new systems

Observed leaks/defective joints/pipes shall be repaired/replaced

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Section 24-43(4) – Septic Tanks, sanitary sewers, storm water disposal, liquid waste ... 

24-43 (4)(b): Sanitary Sewer Systems

- Gravity sanitary sewers 8” or larger are televised (Closed Circuit TV) and manholes are visually inspected every 5 years. All defects shall be repaired.
DRAFT ORDINANCE

- Review/Comments of changes
Comment Period

Comment Period for the proposed Ordinance open until June 6, 2014

Comments shall be provided to Wilbur Mayorga at mayorw@miamidade.gov
Resources

• Proposed Ordinance

• Proposed Wellfield Maps
  Northwest Wellfield and West Wellfield Protection Areas

• May 17, 2014 Public Workshop Presentation (modified version)

• USGS REPORT
  http://pubs.usgs.gov/of/2013/1086/