

ON-SITE REGULATION AMENDMENT PROCESS

Large Systems

Tonight's Agenda

- ⦿ Introduction
- ⦿ Proposed Changes
 - All Systems
 - Large Systems
 - Exhibits
 - Attachments

Introduction

- ◎ Jack Hayes
 - Environmental Scientist
- ◎ Ron Graeber
 - Program Manager

All Systems

- ⦿ Definitions – Section 1.0

- Added – Advanced Treatment Unit, Certified Service Provider, community system, engineered sandy fill, lift package, lift station, Public Service Commission, PSN, PSP, Pollution Control Strategy, Professional soil scientist, regeneration water, system operator and tertiary treatment
- Others added beyond this listing as well

All Systems

- ◎ General Standards, Prohibitions and Provisions – Section 2.0
 - Small system specific – Section 2.29
 - Large system specific – Section 2.30
 - Property owner responsibilities – Section 2.31

All Systems

- ⦿ Licensing - Section 3.0
 - Deleted all GB & GC licensee sections
 - Class D & E licensing requirements
 - Tiered approach – Sections 3.6 & 3.7
 - Class F requirements – Section 3.11.5
 - Class H responsibilities – Section 3.11.6

≥ 2,500 gpd

LARGE SYSTEMS

Large Systems- Section 5.0

- ◎ Site Characterization – Section 5.2
 - LOI – Section 5.2.1
 - SIR – Section 5.2.2
 - Hydrogeologic Suitability Report – Section 5.2.3
 - Test borings
 - Groundwater modeling
 - Loading test
 - Wet season monitoring

Hydrogeologic Suitability Report

- Reduce the 2,500 ft well survey for spray irrigation systems to 1,000 ft
- 5 year expiration on the HSR well survey once construction permit is issued
- Addition of ambient groundwater sampling

**GW monitoring moved to section 5.8*

Hydrogeologic Suitability Report *cont'd*

- Groundwater modeling requirements:
 - All systems (excluding RIB & spray) with proposed discharges $>2,500$ gpd and $\leq 100,000$ gpd must, at a minimum, use an analytical model
 - All systems with proposed discharges $>100,000$ gpd, all RIBs and spray must use a numerical model
- Addition of large-scale on-site loading test to confirm groundwater model
- Wet season monitoring

Large Systems – Section 5.0

- Surface Water Assessment Report – Section 5.2.4
 - Watershed assessment review
 - Performance Standards
- ◎ General Design Parameters – Section 5.3
 - System specific – Section 5.3.2
 - Subsurface disposal – Section 5.3.2.1
 - Rapid infiltration basins – Section 5.3.2.2
 - Spray irrigation – Section 5.3.2.3

Large Systems – Section 5.0

- ⦿ Legal Documentation – Section 5.4
- ⦿ Permitting – Section 5.5
 - Construction Permits – Section 5.5.2
 - Operation Permits – Section 5.5.3
 - Operations Permit Re-issuance – Section 5.5.4
 - Compliance Monitor Report
 - Soils, Hydrogeology, Operations, Bio-solids & Conclusions
 - Permit Modification – Section 5.5.5
 - Regional Permits – Section 5.5.9

Large Systems – Section 5.0

- ⦿ Construction – Section 5.6
 - On-site meeting prior to construction commencement
- ⦿ Operations & Management – Section 5.7
- ⦿ Monitoring – Section 5.8
 - Groundwater – Section 5.8.1
 - Influent/Effluent – Section 5.8.2
 - Soils – Section 5.8.3
 - Report – Section 5.8.4

Groundwater Monitoring Modifications

- Increase the minimum number of monitor wells for all large systems (excluding spray) to four (4)
- Addition of nested monitor wells for RIBs $>100,000$ gpd and located based on particle tracking analysis in the numerical model
- Addition of a pressure transducer in one (1) monitor well within the disposal area for all large systems $\geq 100,000$ gpd and RIBs

Spray Irrigation: Proposed Changes

⦿ Site Access

- Limited Public Access sites
- Unlimited Public Access sites
- Removed “Restricted Public Access” sites

⦿ Point of Compliance

- After Treatment but prior to storage
- Disinfection residual required at point of irrigation for Unlimited Public Access sites

⦿ Increase Freeboard requirement to 3’

⦿ Prohibit clay liners

Spray Irrigation: Proposed Changes

- ⦿ Applicant must demonstrate the ability to evacuate storage in 90 days
- ⦿ Routine assessment of soils to determine if repairs/renovation is needed
- ⦿ Minimum 50' buffer to wetlands
- ⦿ Surface water monitoring if site is adjacent to surface waters
- ⦿ High pressure shut-off
- ⦿ Flow metering for each field/zone

Distribution to Farmers

- ⦿ Cooperative venture between DNREC and DDA
- ⦿ Highly treated reclaimed water provided at agronomic rates, based on crop needs
- ⦿ No additional permitted disposal credit
- ⦿ Farm is identified in Spray Irrigation Operating Permit
- ⦿ Farm updates Nutrient Management Plan to account for nutrients in Reclaimed Water
- ⦿ Facility reports flow data to DNREC/DDA/Farmer

Large Systems – Section 5.0

- ⦿ Annual Report – Section 5.9
 - Summarizes parameters demonstrating operation and management of the facility
- ⦿ Temporary Holding Tanks – Section 5.10
 - Both stand alone and regional
- ⦿ Fees – Section 5.11

Exhibits – Section 6.0

- ⦿ U & V – WAG
- ⦿ AA - System Abandonment Report
- ⦿ BB – Peat System Loading Rates
- ⦿ CC & DD – Drip Loading Rates & Installation
- ⦿ EE - I/A Product Approval Checklist
- ⦿ FF – Lot Clearing/Site Disturbance Inspection Report
- ⦿ GG – Crop Nutrient Uptake Websites
- ⦿ HH – Cumulative Metal Loading Limits for Spray

Exhibits – Section 6.0

- ⦿ II - Monthly Average Daylight Hours for Thornthwaite Potential Evapotranspiration
- ⦿ JJ - Climatological Normal Temperature (Ta) & Thornthwaite Potential Evapotranspiration
- ⦿ KK - Climatological Normal Precipitation (P) & 5 Year Return Monthly Precipitation (P5)
- ⦿ LL – Minimum Treatment Requirements for Large Systems
- ⦿ MM – OWTDS Performance Standards
- ⦿ NN – Waste Transporters Permit Application

Attachments - Guidance Documents

- Class C Inspection Guidelines
- Class F Pumping Guidelines
- Lot Clearing Guidelines
- Shellfish Waters Guidelines & Map
- Recycling OWTDS Soil & Stone Guidelines
- LOWTDS Flow Chart
- Barricading the Proposed Disposal Area
- Micro-irrigation “Drip” Dispersal Design Criteria
- Peat Biofilter Design Criteria

Watershed Assessment Section

Division of Watershed Stewardship

Office of Natural Resources

- Water Quality Standards
- Total Maximum Daily Loads (TMDLs)
- Pollution Control Strategies (PCSs)
- Monitoring & Assessment
 - Surface Waters
 - Wetlands
 - Recreational Waters
 - Shellfish Waters
- Inspect Shellfish Handling Facilities

The Problem

- ⊙ Basis of TMDLs
 - 1 to 3 mg/l Total Nitrogen
 - 0.1 to 0.2 mg/l Total Phosphorus
- ⊙ Assume most of Nitrogen from RIBs will discharge to surface waters
- ⊙ Research tells us that Phosphorus (& other contaminants) will become mobile when soils are saturated
- ⊙ Emerging Contaminants (e.g., Pharmaceuticals)

Proposed Performance Standards for RIBs

- ⦿ It is proposed that, for effluent to be disposed of via RIBs, regardless of design flow, the following limits be met at the end of pipe of the pretreatment unit:
 - Total Nitrogen: 3.0 mg/l
 - Total Phosphorus: 0.1 mg/l

Performance Standards in Permits

- Average Annual Concentrations
- Discharge limitations are to be expressed as a mass, based on average design flows (221 gallons per day per unit for residential systems)

Partial Solution - Spray

- ⦿ Assume loads from row crop ag with spray = loads from traditional row crop ag
 - Follow custom-designed Nutrient Management Plan
- ⦿ Soils & soil microbes reduce pharmaceuticals
- ⦿ Ancillary benefits of spray (reuse, supports ag, ensures yield, preserves open space)
- ⦿ But need back-up for unusual weather conditions (prolonged periods of wet or frozen ground)

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Conclusion

- ⦿ What else needs to be addressed?
- ⦿ Questions
- ⦿ Thank you for your assistance
- ⦿ Thank you for your interest in the Regulations and for attending tonight