Water Withdrawal Permitting for Irrigators
Tidewater Agricultural Research and Extension Center Workshop

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Office of Water Supply
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Presentation Outline

• DEQ - Office of Water Supply
• Groundwater Withdrawal Permitting
• Surface Water Withdrawal Permitting
• Water Withdrawal Reporting
• Question & Answers
Office of Water Supply

- Created in response to the 2001-2002 drought
- Water Withdrawal Permitting & Compliance
  - Groundwater Withdrawal Permitting (within designated Groundwater Management Areas)
  - Surface Water Withdrawal Permitting (statewide)
- Water Supply Planning
- Groundwater Characterization
- Environmental Data & Analysis Group
Groundwater Permitting Background

• More than 160 feet of decline in groundwater levels near Franklin & West Point, VA

• Decreased groundwater levels can lead to:
  o land subsidence
  o salt water intrusion
  o reduced availability

From USGS Circular 1392 (Pope and Eggleston)
Groundwater Permitting Background

• 1975/1976 – Designated GWMAs
  o Declining groundwater levels
  o Groundwater withdrawal interference
  o Salt water intrusion
  o Agriculture added as a “beneficial use”
• 1993 – Groundwater Withdrawal Regulations
• 2014 – Expanded Eastern Virginia GWMA
Groundwater Permitting

• Who needs a permit?
  o Anyone using ≥300,000 gallons in any one month in a designated GWMA
  o Applies to entire “withdrawal system”
  o Evaluated on a case-by-case basis

• Exclusions from permitting
  o Withdrawals <300,000 gallons per month
  o Temp. construction dewatering (<24 months)
  o Groundwater remediation (<60 months)
  o Geophysical investigations (inc. pump tests)
Groundwater Permitting Process

• Pre-application meeting w/ DEQ staff
• Prepare app. and supporting documentation
• Submit application (no permit fee for Ag)
• DEQ completeness review
  o DEQ may request additional information or identify deficiencies to be corrected
• DEQ technical review (technical evaluation)
• Draft Permit / Fact Sheet
• Public Notice (30-day public comment period)
• Final Permit issued
Technical Evaluation

• Identify Area of Impact (AOI)
  o Does AOI remain on property?
  o Existing groundwater users within AOI?
  o Mitigation Plan

• Evaluate against 80% drawdown criteria
  o Identify critical surface
  o Reduced withdrawal amounts / rates

• Evaluate potential for salt water intrusion
  o Chloride monitoring and reporting
Confined Aquifer Conditions

80% Drawdown = 80% of Distance from L.S. to Aquifer Top

Area of Impact (AOI) = 1 ft. of Drawdown

Potentiometric Surface

Distance from L.S. to Aquifer Top

CRITICAL SURFACE

Confining layer
Well Construction Guidelines

Well Construction Example 1

- Unconfined Aquifer
- Confining unit
- Confined Aquifer A
- Confining unit
- Confined Aquifer B
- Confining unit
- Gravel Pack
- Screen in Target Confined Aquifer C

- Grout

Well Construction to Avoid - Example 2

- Unconfined Aquifer
- Confining unit
- Confined Aquifer A
- Confining unit
- Flow through gravel pack from overlying aquifers
- Flow through well screen
- Extended Gravel Pack

- Screen in 1st Target Aquifer Confined Aquifer B
- Screen in 2nd Target Aquifer Confined Aquifer C

- Grout

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Surface Water Permitting Background

- Virginia Water Resources and Wetland Protection Program
  - Article 2.2 of SWCL (§ 62.1-44.15:20 et seq.)

- Virginia Water Protection (VWP) Permit Program Regulation (9VAC25-210-10 et seq.)
  - Impacts to wetlands, streams, as well as dredging and construction in state waters
  - Surface water withdrawals, preservation of instream flows
  - Clean Water Act § 401 certification

- Implemented statewide
Surface Water Permitting

• Surface water withdrawal – “removal or diversion of surface water... thereby altering the instream flow or hydrologic regime of the surface water”

• Withdrawals can come from streams, rivers, lakes or impoundments (e.g., ponds, reservoirs) constructed in a natural watercourse or wetland
Surface Water Permitting

• Who needs a permit?
  o Agricultural withdrawals $\geq 1,000,000$ gallons in any one month in nontidal waters
  o Agricultural withdrawals $\geq 60,000,000$ gallons in any one month in tidal waters
  o Applies to entire “withdrawal system”
  o Evaluated on a case-by-case basis

• Non-agricultural withdrawals $\geq 10,000$ gallons per day from nontidal waters require permitting

• Non-agricultural withdrawals $\geq 2,000,000$ gallons per day from tidal waters require permitting
Surface Water Permitting

• What is not a surface water withdrawal?
  o Withdrawal from a pond not constructed in a perennial or intermittent watercourse or wetland
  o May require a groundwater permit if pond is recharged (i.e., refilled) by groundwater well
Surface Water Permitting Process

- Pre-application meeting w/ DEQ staff
- Prepare JPA and supporting documentation
- Submit application (no permit fee for Ag)
- DEQ completeness review
  - DEQ may request additional information or identify deficiencies to be corrected
- Cumulative Impact Modeling
- Draft Permit / Fact Sheet
- Public Notice (30-day public comment period)
- Final Permit issued
DEQ also requires water withdrawal reporting for users statewide.

Requirements for reporting vary depending on use type.
Water Withdrawal Reporting

• Reporting of groundwater and surface water withdrawals is required for Agriculture when:
  o Crop irrigation – Withdrawal ≥1,000,000 gallons in any one month
  o All other agricultural uses (livestock watering, etc.) – Average daily withdrawal ≥10,000 gallons per day in any one month

• Contact for additional reporting information:
  o Sara Jordan, Water Supply Planner
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Questions & Answers

Fact-sheets, contact maps, and other helpful documents are available in the back.

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