

**Joint Legislative Audit and Review Commission
of the Virginia General Assembly**



**Review of Land Application
of Biosolids in Virginia**

**JLARC Staff Briefing
Eric H. Messick
October 11, 2005**

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Presentation Outline

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- Introduction and Background**
- Federal Oversight of Biosolids Generation and Disposal**
- State Oversight of Land-Applied Biosolids**
- Local Oversight of Land-Applied Biosolids**
- Improving Oversight with the Use of the Biosolids Fee Fund**

Study Mandate

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- **Biosolids are treated sewage sludges that can be applied to land as a fertilizer**
- **House Joint Resolution 643 (2005) directs JLARC to study the land application of biosolids**
- **The resolution focuses upon issues regarding biosolids oversight and enforcement, including:**
 - **Current funding, staffing, and resources available at the Virginia Department of Health (VDH) for oversight and enforcement of its biosolids program**
 - **Resources available to local governments for implementation of biosolids inspections and monitoring authority**
 - **Programs for proper training and support of local monitors**
 - **Incentives to encourage information and resources sharing among local governments, including use of multi-jurisdictional monitors**
 - **Measures to enhance coordination and communication between VDH and local governments to ensure consistency and efficiency in complaint response and enforcement**

Study Issues

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- **To what extent has the Environmental Protection Agency (EPA) effectively overseen and enforced the requirements and standards established by federal biosolids regulations?**
- **Has VDH effectively implemented and enforced Virginia's regulatory biosolids program?**
- **Have localities effectively used the authorities and resources provided to them to monitor and test biosolids activities in their jurisdictions?**
- **What changes, if any, could be made to improve the overall effectiveness of the biosolids program in Virginia?**

Research Activities

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- **Structured interviews**
 - VDH staff
 - Land appliers and citizens
 - Biosolids program staff in other states
- **Survey of county administrators in counties where biosolids use is permitted**
- **Site visits and attendance at meetings**
- **Document and literature review on biosolids oversight issues**
- **Data collection and analysis**
 - VDH permitting information
 - EPA generator reports
 - Local ordinances

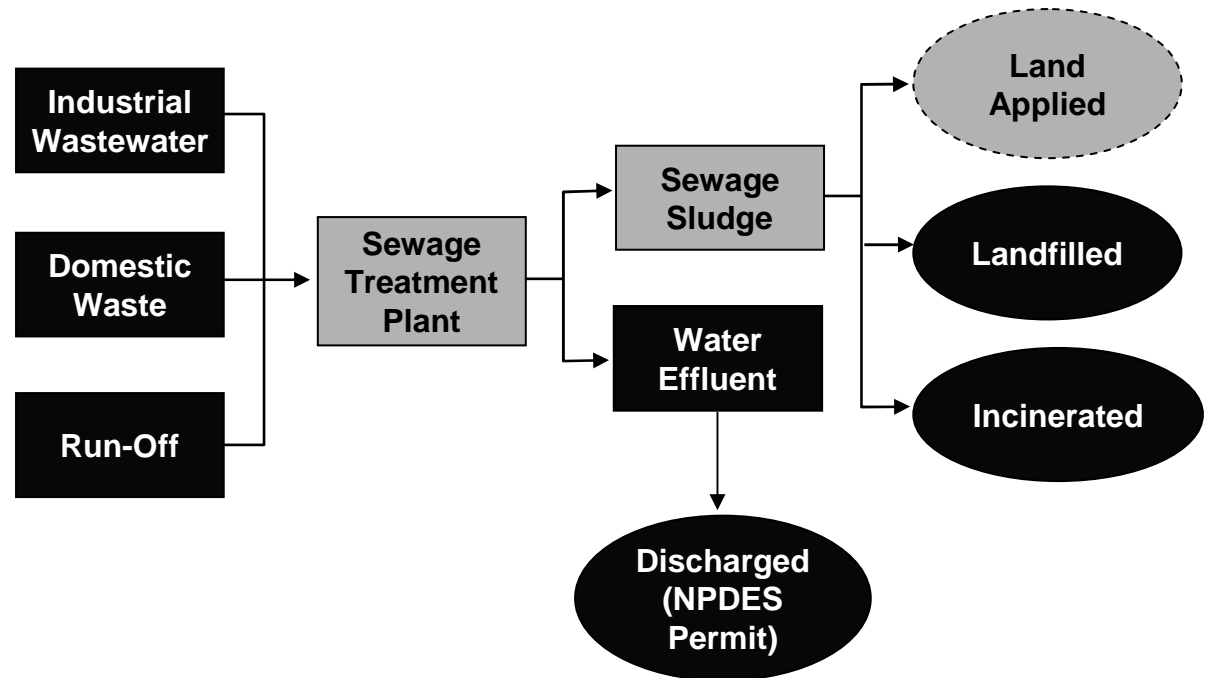
Production and Disposal of Biosolids

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Biosolids are residues generated after sewage sludge has passed through a wastewater treatment facility and has been treated to reduce:

- Pollutant concentrations
- Disease-causing organisms (pathogens)
- Attractiveness to animals and insects (vectors)

Production and Disposal of Biosolids



Source: Illustration from EPA report, "Land Application of Biosolids," March 2002, Office of the Inspector General.

Land Application of Biosolids



VDH Is Commonwealth's Lead Agency for Biosolids Oversight

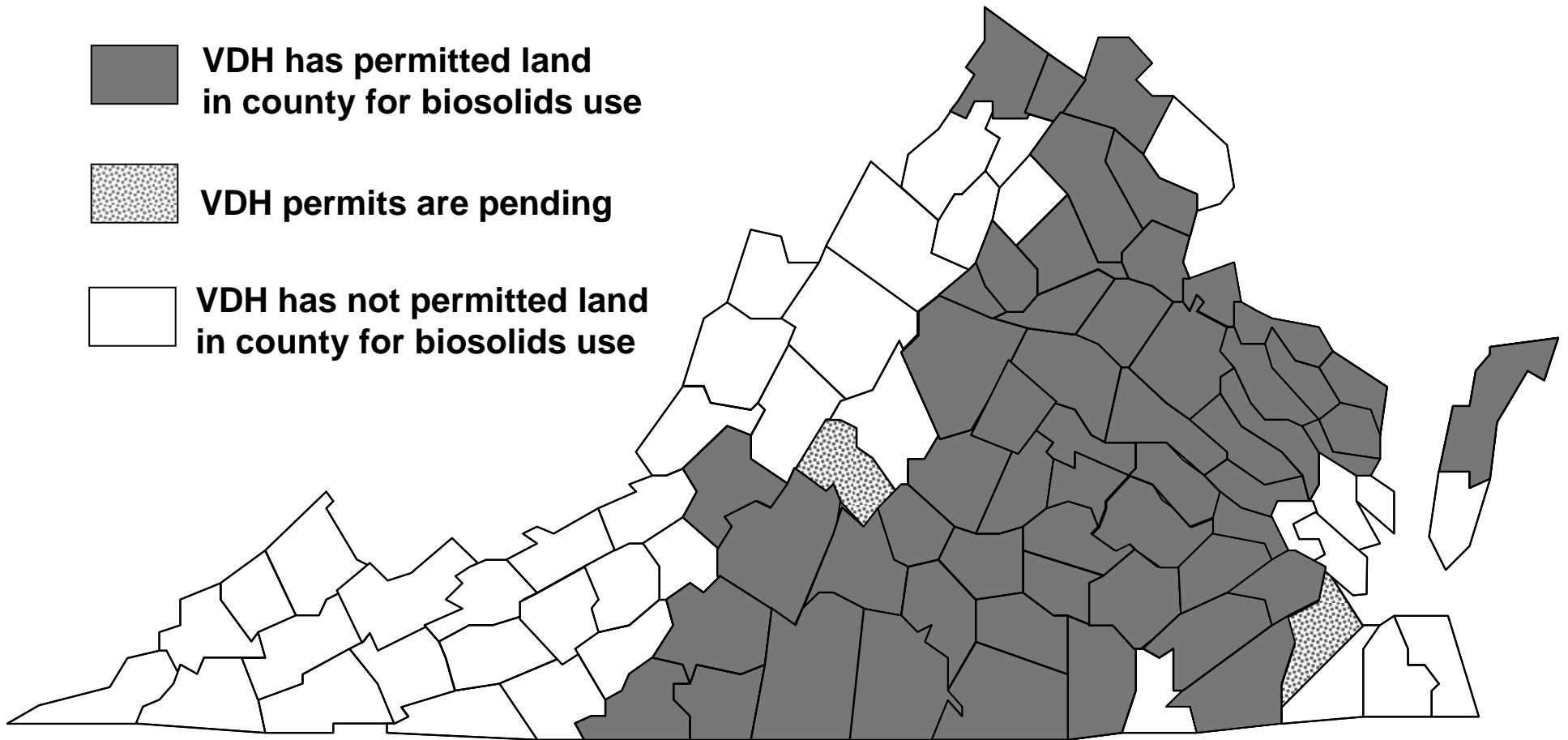
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- **VDH is primarily responsible for regulating biosolids land applications**
 - **Designated as Virginia's lead agency in 1994**
 - **Performs permitting, inspections, complaint response, and program enforcement**
 - **Administers a fund for reimbursing local governments that have adopted biosolids ordinances for the cost of monitoring and testing**

- **VDH has oversight responsibility for more than 95 percent of all biosolids applications made in Virginia (DEQ is responsible for the remaining biosolids applications)**

- **Courts have held that because the State issues biosolids use permits through VDH, local governments are preempted from enacting more restrictive ordinances**

VDH Has Permitted Land Applications in 54 Counties



Biosolids Are a Source of Some Public Controversy

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■ Points made in support of biosolids

- Beneficial recycling of waste material
- Saves farmers money on fertilizer costs
- Production and application are regulated and inspections are conducted
- Documented evidence of negative public health effects is lacking

■ Concerns raised about biosolids

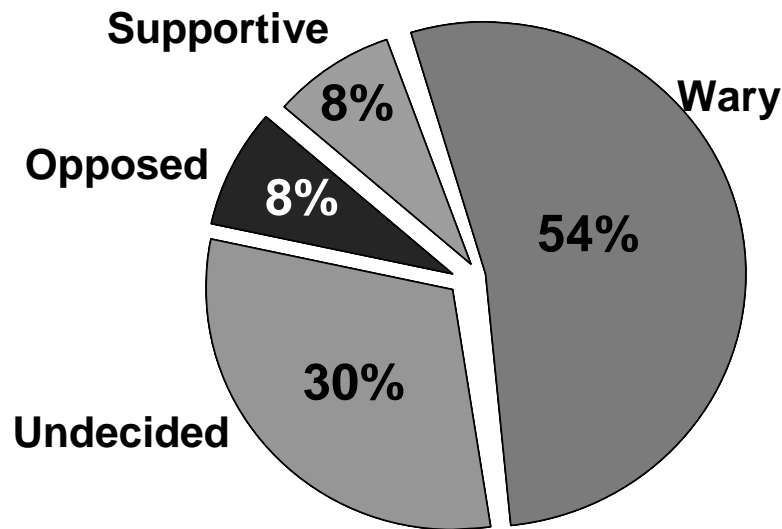
- Pathogens are still active in Class B biosolids and only nine chemicals are regulated
- Odors can be very offensive to neighbors
- There is limited oversight of land applications
- Potential health risks of biosolids need more study

■ 2002 National Academy of Sciences' National Research Council report:

- “There is no documented scientific evidence that the [federal regulations have] failed to protect public health”
- “However, additional scientific work is needed to reduce persistent uncertainty about the potential for adverse human health effects from exposure to biosolids”

Public Appears to Be Wary or Undecided About Biosolids Use

County Administrators' Assessment of the Overall Attitude of the Citizens in Their Counties toward Biosolids Applications



37 of 56 County Administrators Responded

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EPA Developed Regulations to Govern Biosolids Use and Disposal

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- **EPA's Part 503 rule establishes federal standards for guaranteeing that biosolids**
 - **Meet quality control requirements when being produced**
 - **Are applied in a manner consistent with established practices**

- **EPA's view is that when properly treated and used in accordance with existing regulations and standards, biosolids are safe for the environment and human health**

- **To ensure compliance with Part 503, EPA staff can:**
 - **Review annual reports from generating facilities**
 - **Conduct inspections of generating facilities and on-site applications**
 - **Take part in complaint resolution**

EPA's Oversight of Biosolids Use Does Not Ensure Compliance

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- **In 2000, EPA's Office of Inspector General found that EPA "does not have an effective program for ensuring compliance with the land application requirements of Part 503"**
- **EPA has assigned few resources to biosolids oversight**
- **EPA regional staff conduct few on-site inspections of wastewater treatment plants and land application sites**
 - **EPA staff perform few inspections of wastewater treatment plants**
 - **Biosolids coordinator in the EPA region that includes Virginia stated that one on-site inspection has been conducted in the region since 2002 (in Pennsylvania)**

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VDH Has Three Positions Assigned to Biosolids Oversight

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- **VDH administers biosolids use regulations with three full-time positions**
 - **Full-time position in Lexington field office also provides permit and complaint inspection on a part-time basis**
- **Review permit application and permit modification information**
- **Review monthly and annual activity reports submitted by land appliers**
 - **Concentrations of the nine regulated pollutants**
 - **Source of biosolids**
 - **Location of spreading, tonnage, and nutrient content**

Focus of VDH Inspections Has Been on Permits and Complaints

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<u>Calendar Year</u>	<u>Permit Issuance</u>	<u>Complaint</u>	<u>Routine</u>
2000	---	28	12
2002	---	12	20
2003	---	58	---
2004	71	55	19
2005 (Jan. – Aug.)	28	27	10
Average for full years	71	38	17

Note: Complaint and routine inspection data from between 2000 and 2003 are taken from VDH correspondence files. Data from 2004-2005 are based on JLARC staff review of data supplied by VDH.

Lack of Routine Inspections Weakens VDH's Ability to Ensure Compliance

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- **In 2004, VDH performed 19 routine inspections for more than 1,100 land applications**
- **Routine inspections are performed if VDH staff happen to be in the area of a known application and have the opportunity to stop by**
- **During two visits to land applications sites by JLARC staff, two compliance issues, involving proper buffer identification, and material being spread in the buffered area, were observed**

VDH Needs to Have a Greater Inspection Presence at Biosolids Applications Sites

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- **Factors contributing to few routine inspections being performed**
 - Limited amount of staff resources at VDH
 - Presence of out-of-state monitors at a number of applications
 - Lack of prior knowledge regarding where land applications are occurring
 - VDH presumed creation of local monitor positions would free it from oversight duties, or at least augment State resources

- **These factors are not sufficient to make routine inspections infeasible**
 - Additional inspector positions could be authorized, and VDH could insist upon timely information on the spreading plans of appliers
 - Out-of-state monitors and local monitors are not providing the site coverage nor the information needed for credible State oversight

Recommendations

- **The Department of Health should allocate two full-time positions for the primary purpose of conducting routine inspections of biosolids spreading operations and compliance with site restrictions**
- **The Department of Health should develop a routine inspection schedule that provides for a sufficient number of and quality of inspections in different geographic regions and involving various generators and land appliers**

VDH Complaint Response Is Timely, But Updates to Complaint Database Lag

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- **Counties indicated on the JLARC staff survey that VDH usually responds to complaints within 24 to 48 hours**
- **Despite statutory requirements, VDH is not maintaining a searchable electronic database of complaints on a timely basis, and localities are not consistently reporting complaints to VDH**

Recommendations

- **The Virginia Department of Health should ensure that its publicly available complaints database is proactively maintained. VDH should ensure that the information is updated at least on a monthly basis**
- **Local governments should notify the Virginia Department of Health of all complaints, as required by the *Code of Virginia***

VDH Has Taken Few Formal Enforcement Actions

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- Since 2001, VDH has issued eight notices of violation, and six consent orders with fines totaling \$3,750
- JLARC staff found instances where VDH did not take action for repeat offenses of a similar nature by the same company
- No formal guidance document has been developed to assist staff with compliance and enforcement issues

Recommendation

- **The Virginia Department of Health should establish a guidance document that addresses enforcement issues, including the general circumstances under which enforcement action will be taken**

Additional \$80,000 in Biosolids Fees Should Have Been Collected by VDH

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- ***Code of Virginia* established a biosolids fee fund to pay for costs incurred by local monitors**
- **Contractors are required to collect a fee from biosolids generators equal to \$2.50 per dry ton of biosolids applied in localities which have adopted a local ordinance**
- **Land appliers pay this amount to VDH on a monthly basis**
- **In response to inquiries by JLARC staff, VDH found that it should have collected roughly \$51,000 more than it did in 2004, and \$29,000 more than it has so far in 2005**
- **VDH reports that it has taken steps to improve oversight of the fund and has successfully collected some of these fees since the time the problem was identified in early September**

VDH Support of Local Monitors Could Be Improved

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- Responses to JLARC staff survey of counties indicate that additional monitor training should provide:
 - More information about operational concerns
 - Greater clarification on State regulations
 - Complaint resolution
 - Sampling techniques

- Localities want additional information about program and program changes

- In order to assist information sharing among localities, VDH could establish a monthly or quarterly newsletter to county staff and/or a place for interactive communications on its website

Recommendations

- **The Virginia Department of Health should offer additional training opportunities for local monitors that address operational concerns such as odor control, tracking, and site access issues; general training on the biosolids use regulations, and complaint investigation and resolution**
- **The Virginia Department of Health should develop a guidance manual for local monitors that addresses typical monitoring and testing issues faced by local monitors**
- **The Virginia Department of Health should provide more information to localities regarding biosolids-related issues and activities. In addition, the department should create a newsletter or space on its web site for sharing biosolids-related material among localities and the department**

Composition of Regulatory Advisory Committee Should Be Altered

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- **Biosolids Use Regulations Advisory Committee (BURAC) serves as a 25-member advisory panel to assist the Commissioner of Health**
- **BURAC considers controversial issues and develops recommendations for consideration by the Board of Health**
- **Collective opinion of the group favors regulated community**
 - **Biosolids generators and land appliers account for ten members**
 - **County staff and private citizens account for four members**
- **Report makes a recommendation to increase or reconstitute membership to better address county and citizen input**

Recommendation

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- **The Virginia Commissioner of Health should increase or reconstitute the membership of the Biosolids Use Regulations Advisory Committee to provide for more input from local governments in localities where biosolids are applied to land, and for more input from concerned citizens**

Site Access Restrictions Need to Be Increased and More Closely Enforced

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- **Biosolids use regulations restrict public and animal access to sites where biosolids have been applied**
 - 30 days – low potential for public exposure
 - 365 days – high potential for public exposure
- **Access restrictions prevent pathogens from being tracked from site**
- **Biosolids use regulations do not require posting of signs after application for a length of time to match site access restrictions**
- **Biosolids use regulations lack clarity on the relative responsibilities of land owners and appliers for ensuring people and animals do not access sites**
- **Site access restrictions would be more effective if:**
 - Signs were posted throughout the time period of the restriction, and
 - Land owner and applier responsibilities for restricting access were clarified

Recommendations

- **VDH should require that applicators of biosolids post signs about the application for a minimum of 30 days (or one year, for high access sites) following the application. Signs should be posted at known access points and along road frontage**
- **VDH should develop a “medium” access designation that would be used to address sites that are not actually remote from the public, but may not fit the “high” access designation**
- **VDH should strengthen and clarify its animal grazing restrictions**

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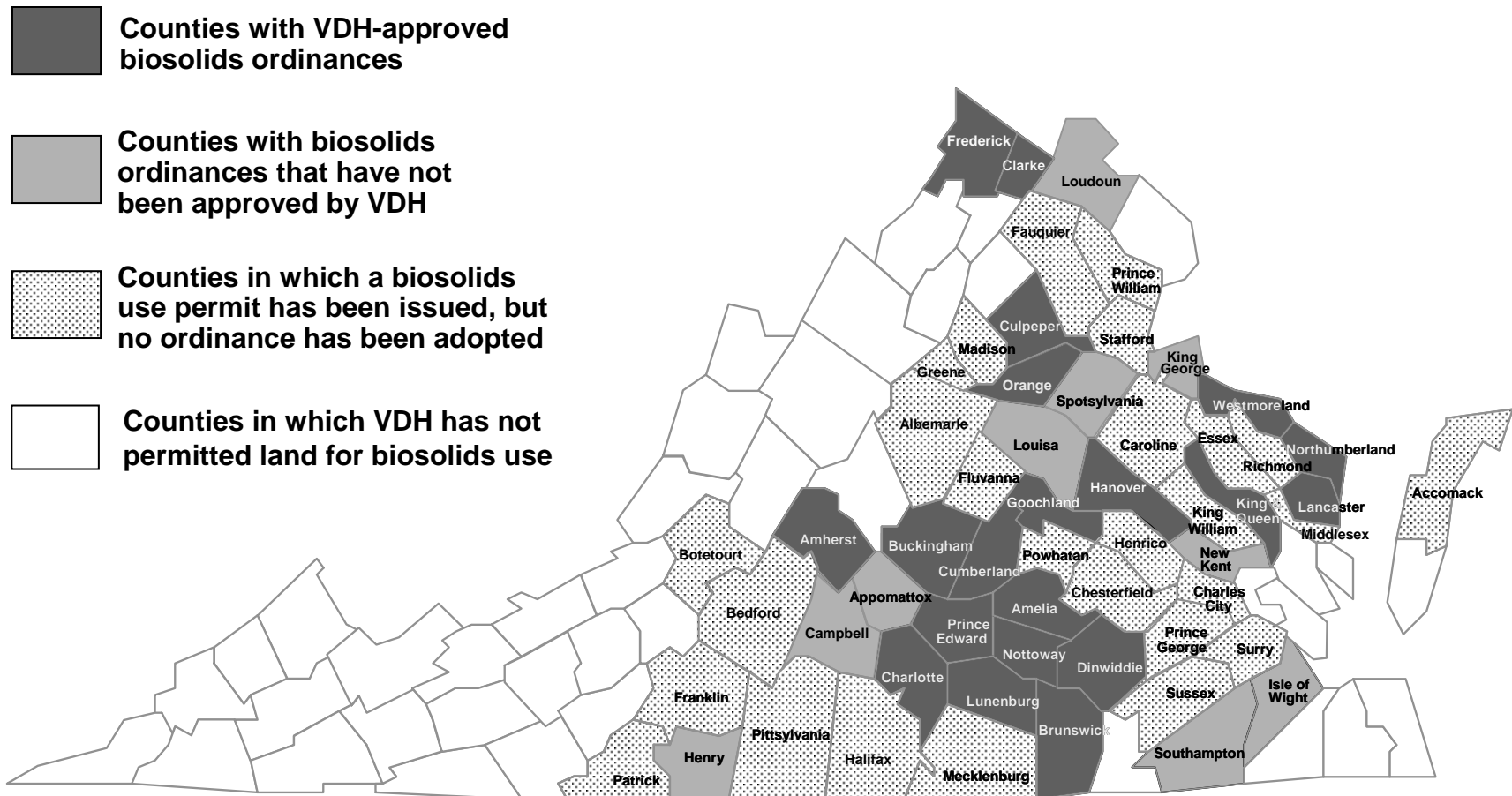
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***Code of Virginia* Establishes Biosolids Activities Localities May Implement**

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- **The General Assembly has sought to provide localities with some authorities to oversee biosolids activities, including:**
 - **Adopting ordinances providing for testing and monitoring of biosolids land applications**
 - **Creating a biosolids fee fund to reimburse local governments for the costs they incur associated with monitoring and testing biosolids**
 - **Permitting localities to halt an application in the event of any dispute concerning a potential violation, pending a final determination by the Department of Health**

Few Counties Have Adopted Biosolids Ordinances



Note: VDH is currently reviewing biosolids use permit applications for sites in Amherst and Isle of Wight counties. VDH has approved an ordinance passed by Amherst County. Isle of Wight County has adopted a local ordinance, which has not been approved by VDH.

Survey Results Show that Local Testing and Monitoring Activity Is Limited

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<u>Extent of Monitoring and Testing Activity</u>	<u>Number of Respondents</u>	<u>Percent</u>
No local monitor position established	20	54 %
Monitor assigned, but no on-site testing	13	35
Monitoring with some on-site testing (testing of biosolids, soils, or nearby wells)	4	11
Total counties responding to the survey	37	100 %

Local Monitors Typically Have Multiple Responsibilities and Limited Environmental Expertise

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<u>Type of Responsibility</u>	<u>Number of Monitors</u>
Building code enforcement	12
Planning	8
Administration	7
Secretarial	4
Erosion control	3
Landfill oversight	3
Animal control	1

Note: Based on the 16 counties responding to the JLARC staff survey that have established local monitors

Relatively Few Monitor Training Sessions Have Been Held, and Attendance in 2005 Has Been Low

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<u>Date of Training</u>	<u>Topic</u>	<u>Number of Counties Represented</u>
May 21, 2003	Land application fee and reimbursement process	9
June 24, 2004	Updates on regulations, inspections/enforcement, and operational concerns	16
January 25, 2005	Updates on regulations, sampling and testing, and enforcement	10
June 30, 2005	On-site sampling and testing	8

Biosolids Fee Fund Has Not Induced Many Localities to Be Active

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- **Since the inception of the biosolids fee fund in May 2003 and based on the fee of \$2.50 per dry ton applied, VDH has collected more than \$380,000**
- **Only \$60,000 in reimbursements have been requested**
- **Between May 2003 and June 2005, 12 of 19 eligible counties have sought reimbursement from VDH**
- **Three counties (Amelia, Charlotte, and Nottoway) account for almost 70 percent of total reimbursement requests**
- **Balance in biosolids fee fund was more than \$300,000 as of September 2005**

Use of Regional Monitors Is An Option For Improving Oversight in Some Localities

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- **County staff may spend as little as two to 30 percent of their time on biosolids-related activities and that time may vary from year-to-year**
- **More effective oversight of biosolids activity may result from more arrangements with two or more localities joining together to employ a single part-time or full-time monitor**
- **Two regional monitor arrangements exist**
 - **Culpeper and Orange**
 - **Buckingham, Charlotte, Lunenburg, and Prince Edward**

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Resources Are Available to Improve Program Oversight

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- **VDH's current ability to ensure compliance is limited**
- **Biosolids fee fund has a \$300,000 balance currently, and more than \$200,000 can be collected annually**
- **Using biosolids fee fund proceeds to cover the costs of additional inspectors at VDH for routine inspections and other biosolids activities could raise the credibility of the oversight program**

Recommendations

- **The General Assembly may wish to consider amending the *Code of Virginia* to permit the use of biosolids fee funds to pay costs incurred by the Virginia Department of Health for the oversight of biosolids applications**
- **If the General Assembly provides for the use of biosolids fee funds to pay for increased State oversight, then the Virginia Department of Health should require in its regulations that fee funds be collected for all applications of biosolids, not just in those localities that have adopted local ordinances**

Summary

■ Current situation:

- Some controversy has surrounded biosolids use, and the public in many counties receiving biosolids are wary of their use
- EPA and VDH claim that biosolids produced and disposed of in compliance with regulations and standards are safe for the environment and human health
- However, there is little on-site oversight being provided of biosolids applications to ensure this compliance
- Few localities have effective monitoring programs

■ Steps to increase the credibility of biosolids oversight include:

- VDH inspection staffing can be increased by two positions and paid for from the underutilized biosolids fee fund
- VDH could develop and implement a schedule to conduct more routine inspections of land applications
- VDH needs to develop a guidance document to assist department staff and the localities with compliance and enforcement activities