Health Impacts of Managing Livestock Manure

2013 National HIA Meeting

Washington DC

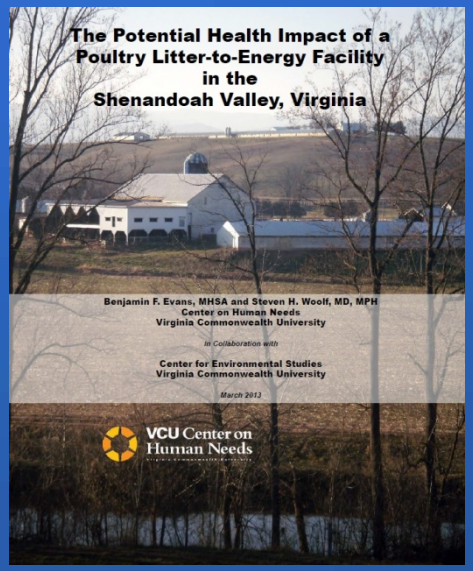
September 25th

VCU Center on Society and Health

Virginia Commonwealth University

Further Information

- The data presented here was collected as part of the production of the report "*The Potential Health Impacts of a Proposed Poultry Litter-to-Energy Facility in the Shenandoah Valley, Virginia*".



- Information on the report is available at go.vcu.edu/hiapoultrylittertoenergy

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Funding

- This project was funded by the Health Impact Project (grant 514426), a collaboration between the Robert Wood Johnson Foundation and The Pew Charitable Trusts

- Analysis was conducted by the VCU Center on Society and Health and the VCU Center for Environmental Studies

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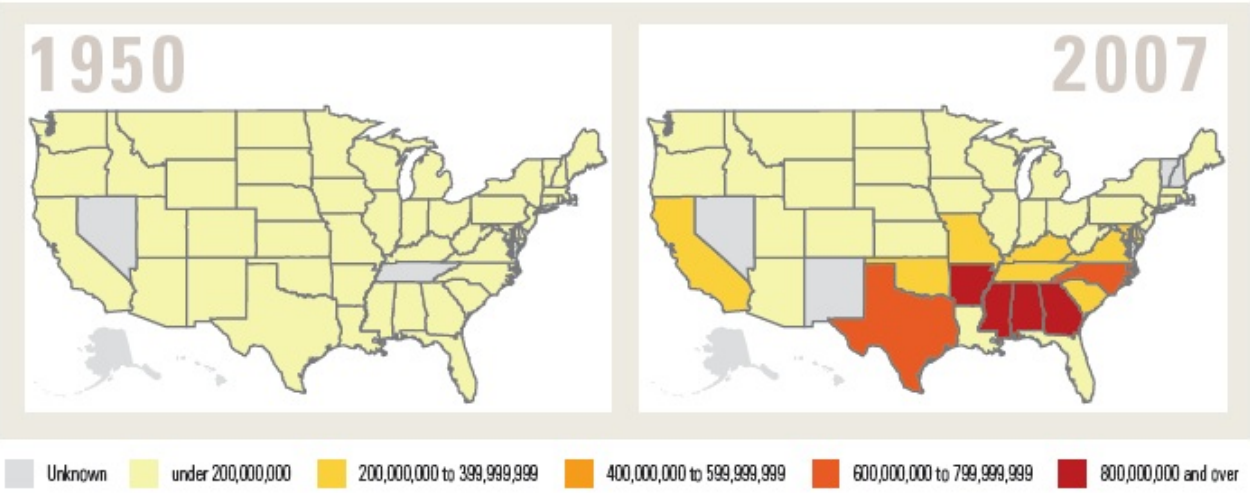
Background

U.S. Broiler Farms: What They Produce

	1950	1978	1987	1997	2007
Farms[10]	1,636,705	31,743	27,645	27,737	27,091
Chickens	581,038,865	3,062,154,490	4,361,975,630	7,366,526,456	8,914,828,122

Source: USDA Census of Agriculture

Numbers of Broiler Chickens Per State—1950 and 2007



Source: The Pew Environmental Group. *Big Chicken: Pollution and Industrial Poultry Production in America.* 2011

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Background

Poultry Litter as an Energy Source

- Produce 40 – 55 MW of power
- Burn anywhere from 86,000 – 465,000 tons of litter
- Create phosphorus dense ash byproduct

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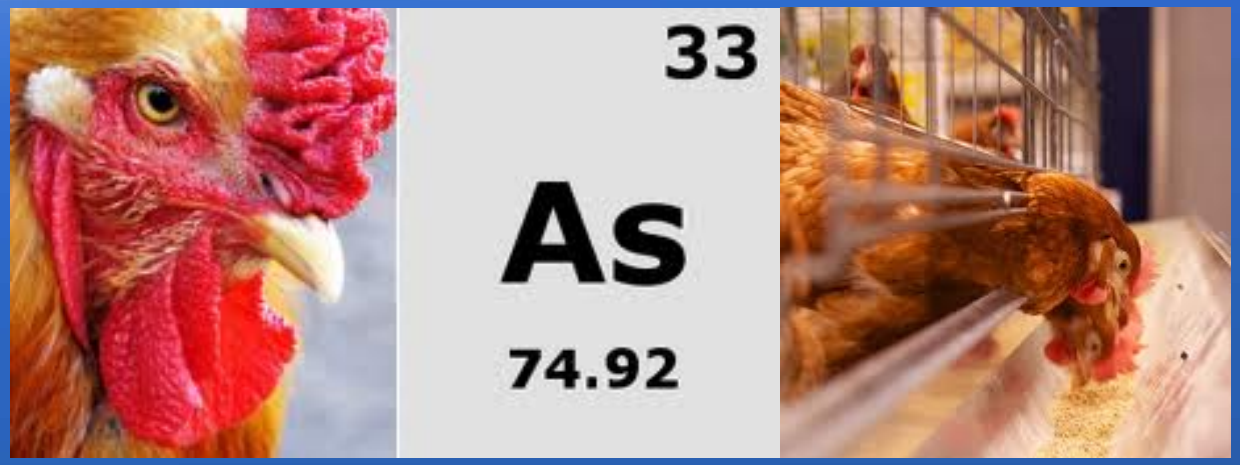
Assessment

Arsenic



Summary of Risk Estimates	
Risk Level	**Concentration**
E4 (1 in 10,000)	0.02 µg/m^3
E5 (1 in 100,000)	0.002 µg/m^3
E6 (1 in 1,000,000)	0.0002 µg/m^3

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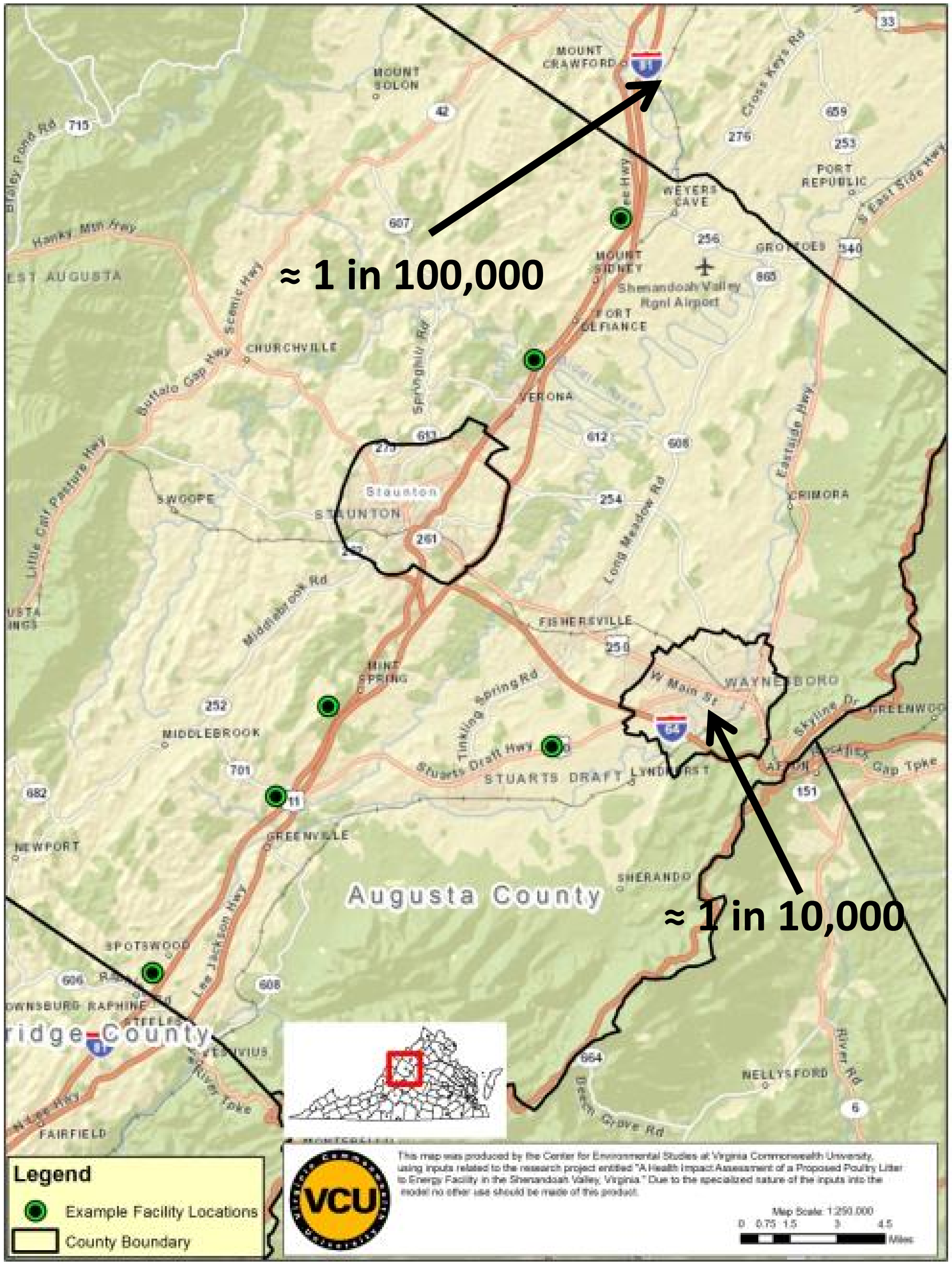
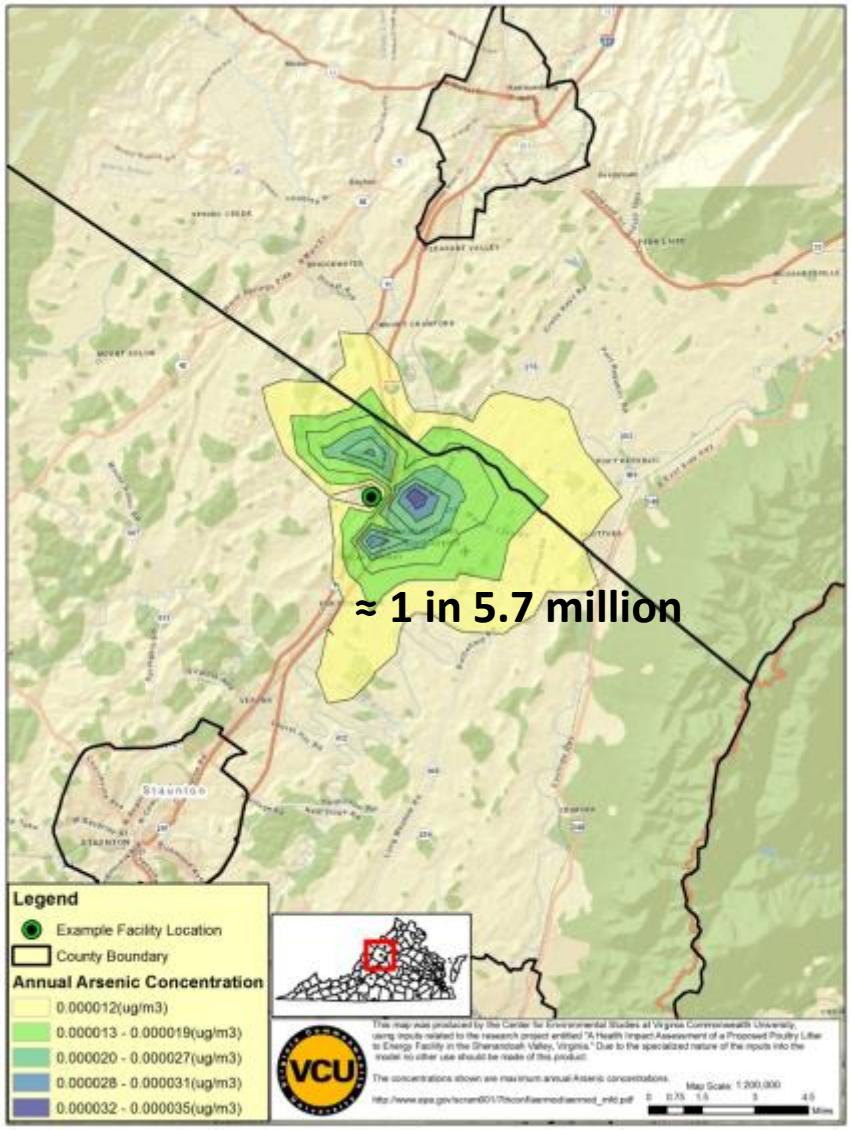
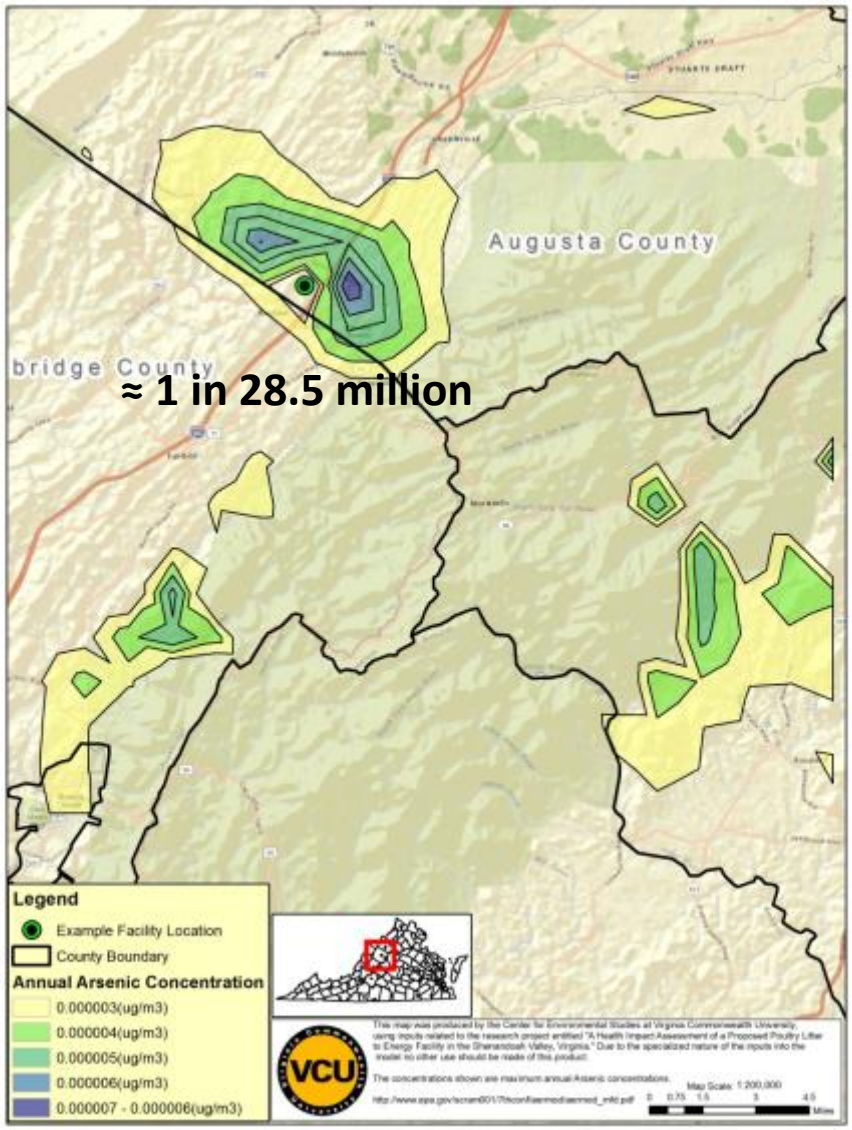

≈ 1 in 100,000
≈ 1 in 10,000
Augusta County
MOUNT CRAWFORD
MOUNT SOLON
WEYERS CAVE
PORT REPUBLIC
GROTTOES
MOUNT SIDNEY
Shenandoah Valley Rgnl Airport
FORT DEFIANCE
CHURCHVILLE
VERONA
Staunton
STAUNTON
SWOOPE
CRIMORA
FISHERSVILLE
WAYNESBORO
MINT SPRING
MIDDLEBROOK
STUARTS DRAFT
LYNDHURST
AFTON
GREENVILLE
NEWPORT
SHERANDO
SPOTSWOOD
RAPHINE
STEELES
FAIRFIELD
NELLYSFORD
GREENWOOD
Hanky Mtn Hwy
Scenic Hwy
Buffalo Gap Hwy
Little Calf Pasture Hwy
Middlebrook Rd
Springhill Rd
Long Meadow Rd
Eastside Hwy
Cross Keys Rd
S East Side Hwy
Tinkling Spring Rd
Stuarts Draft Hwy
W Main St
Skyline Dr
Lee Jackson Hwy
Legend
Example Facility Locations
County Boundary
This map was produced by the Center for Environmental Studies at Virginia Commonwealth University, using inputs related to the research project entitled "A Health Impact Assessment of a Proposed Poultry Litter to Energy Facility in the Shenandoah Valley, Virginia." Due to the specialized nature of the inputs into the model no other use should be made of this product.
Map Scale: 1:250,000
0 0.75 1.5 3 4.5 Miles
VCU





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Assessment

Virginia Ambient Air Monitoring Data for Criteria Pollutants (µg/m^3)						
Pollutant	2008	2009	2010	2011	3-Year Mean	Standard
Fine Particulate Matter	11.5	9.8	11.2	9.6	10.2	12 *
Sulfur Dioxide	28.8	34.1	21.0	15.7	23.6	196.5**
Nitrogen Dioxide	20.7	16.9	18.8	16.9	17.5	99.6*
Ozone	138	126	136	138	132	150***
Notes: All background concentrations were taken from a monitoring station in Harrisonburg, VA						
* Annual average						
** 1-hour daily maximum						
*** 8-hour average concentration						

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Conclusions

Usefulness of HIAs

- Early inclusion of health impacts on decision-making process
- Stakeholder engagement is vital to the success of the HIA
- Reframes argument as a comparative risk analysis

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Questions??

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