Odor Workgroup Report to the Missouri Air Conservation Commission

July 2007

Introduction

In December 2006, the department recommended to the Missouri Air Conservation Commission that a workgroup be convened to review current odor regulations in response to a formal petition from the Citizens Legal Environmental Action Network. The last major rule review was in 1998. A vast amount of research has transpired since that time and a workgroup seemed the appropriate forum to discuss any new information that may prove relevant to this issue. Additionally, odor complaints are consistently the largest subset of air quality related complaints to the department and numerous citizens have expressed concerns about how odor is regulated. This is not unexpected, since odor is more easily recognized than most other types of air quality problems.

With the commission's concurrence, the department established the Odor Workgroup, composed of representatives from industry, environmental concerns and partner state agencies. Many other interested people attended the workgroup meetings. During the meetings, anyone attending was allowed to offer comments or ask questions.

Workgroup members

- Brian Appel - Changing World Technology
- Jaime Burr - Tyson Foods, Inc.
- Robert Brundage - Newman, Comley & Ruth for Missouri Agribusiness
- Association (MO – AG)
- Don Nikodim - Missouri Pork Association
- Dave Drennan - Missouri Dairy Association
- Harold Bengsch - Missouri Association of Counties. Tim Green attended a meeting for Mr. Bengsch.
- Terry Spence and Rolf Christen – alternated attending meetings for the Citizens Legal Environmental Action Network (CLEAN)
- Ted Heisel - Washington University for CLEAN
- Morris Westfall - Governor's Small Business Ombudsman
- Jane Drummond - Department of Health and Senior Services (DHSS). Gale Carlson attended the meetings for Jane Drummond.
- Dan Engemann – Missouri Department of Agriculture
- Kelly Smith, Garrett Hawkins and Leslie Holloway alternated attending the meetings for Missouri Farm Bureau
- Joe Bindbeutel - Missouri Attorney General's Office
- Roger Walker - Regulatory Environmental Group for Missouri (REGFORM)
- Dwayne (Bill) Miller - Missouri Stream Team
- Ken Midkiff - Sierra Club. Scott Dye attended one meeting for Mr. Midkiff.
- Dave Townsend - Premium Standard Farms
- Leanne Tippett Mosby - Department of Natural Resources (DNR) – Division of Environmental Quality (DEQ)
- Brian D. Newby - DNR Air Pollution Control Program
- Joe Engeln – DNR Director's Office

Others attending some or all of the workgroup meetings:

- Kathrina Donegan - St. Louis County
- Glendon Miller - DHSS
- Harry Bozoian - Missouri Attorney General's Office
- Jerry L. Foster - Cargill
- John Bryan - The Poultry Federation
- Alan Zagra - Associated Press
- Tim Duggan - Missouri Attorney General's Office
- Jeff Shook - Little Blue Valley Sewer District
- Hugh Vogel - MOARK
- Ogle Hopkins - Missouri Egg Council
- Jo Manhart - Missouri Egg Council
- Tricia Orr - Citizen of Carthage
- David Orr - Citizen of Carthage
- Mayor James Woestman - Mayor of Carthage
- Susan Redden - Joplin Globe
- Brad Aldrich - Changing World Technology
- Bill Bryan – Missouri's Attorney General's Office
- Mark Fitch - University of Missouri – Rolla (via phone)
- Glenn Morrison - University of Missouri – Rolla (via phone)
- Mike Williams - North Carolina State University
- Buffy Santel - St. Louis Metropolitan Sewer District
- Joseph Moreles – City of Kansas City
- Nate Moore – Rose Acre Farms
- Art Halstead - Cargill Pork
- Ken Disselhorst - Missouri Cattlemen's Association
- Tim Noland - Missouri Farm Bureau
- Doyle Childers - DNR
- David Lamb – DNR Air Pollution Control Program
- Rebecca Birke – DNR Air Pollution Control Program
- Renee Bungart - DNR Public Information
- Darrick Steen - DNR Water Protection Program
- Jim Kavanaugh - DNR Air Pollution Control Program
- Jim Macy - DNR Field Services Division
- Steve Boone - DNR Northeast Regional Office (Macon)
- Camille Dobler - DNR Southwest Regional Office (Springfield)

Workgroup Staff

- Paul Myers - DNR Air Pollution Control Program
- Lisa Miller – DNR Air Pollution Control Program
- Alice Geller – DNR Director's Office, workgroup facilitator

A website was established for the Odor Workgroup at http://www.dnr.mo.gov/env/apcp/odor-workgroup.htm. All materials presented, information from workgroup members, minutes and agendas were posted on the website for anyone interested. This website is still active.

The workgroup met six times beginning in January 2007 and ending in June 2007. For the first several meetings, the workgroup heard presentations and discussed several informational topics including:

- The science of odor
- History of odor regulations in Missouri
- Current odor detection equipment used by the department
- Department inspection and complaint response procedures
- Other states' approaches to odor regulation
- Odor complaints (statewide and for local agencies) and department complaint response
- Environmental Assistance Visits
- Feasibility of locating an odor detection lab in Missouri
- Emerging odor control technologies

In a brainstorming session, workgroup members generated a list of discussion topics that focused on three areas:

- Operational changes: actions that the department could carry out under current law or regulations;
- Odor management: a mix of rule changes and department practices; and,
- Enforcement: actions that would involve a rule change.

The workgroup then discussed each action and members expressed their opinions on the advantages and disadvantages of each.

During these discussions the workgroup reached consensus on three areas. Three proposals were also made that combined several of the individual actions. The workgroup did not come to consensus on these proposals. The report section titled Summary of Workgroup Discussions contains a summary of all the actions discussed. The section titled Proposals from Workgroup Members contains the three proposals.

Background

The statutory authority for regulating odor stems from the definition of air pollution in RSMo 643.020:

"Air pollution", the presence in the ambient air of one or more air contaminants in quantities, of characteristics and of a duration which directly and proximately cause or contribute to injury to human, plant, or animal life or health or to property *or which unreasonably interferes with the enjoyment of life or use of property . . .*(emphasis added)

Odor is regulated pursuant to the italicized clause above. These parameters are very difficult to quantify in comparison to the many specific chemical pollutants with established, health-based standards expressed in terms of ambient chemical concentrations. Additionally, individual response to odor varies.

Odor evaluation uses five parameters[1]. The underlined parameters are used in the rule:

- Threshold: measured by the amount of dilution required to bring the odor to its threshold (detection or recognition)
- Intensity: strength of odor about recognition threshold compared to a known concentration of a reference odorant
- Persistency: the rate a which the perceived intensity decreased as odor is diluted
- Hedonic Tone: the pleasantness or unpleasantness of an odor
- Characterization: odor quality, reported using standard descriptors (e.g., fruity, floral, offensive, etc.)

The current odor rule primarily uses dilution to threshold as a quantification method. Dilution to threshold is measured using a field olfactometer, and in some cases, laboratory olfactometry. An olfactometer is a device that provides a known ratio of clean, odor free air to odorous air. The dilution to threshold quantifies the odor by determining how many parts of clean air is required to dilute the odor to the point it is not detectable by the human nose. Many states, including Missouri, base odor regulation on some set dilution to threshold that is considered unacceptable.

In most cases in Missouri, an odor source is considered in violation if odor can be detected with the field olfactometer set at a 7:1 dilution twice within one hour, at least 15 minutes apart. The odor must be evaluated with the instrument at a location "not at the installation," in other words, off property. The commonly used 7:1 threshold is based on research conducted by the Barnebey & Cheney Corporation (now Barnebey & Sutcliffe), makers of the Scentometer®.

1 Reference: St. Croix Sensory website, http://www.fivesenses.com/

There are four exceptions to this 7:1 field olfactometry standard:

- Odors from the pyrolysis of wood in a Missouri-type charcoal kiln are completely exempt;
- Odors from the raising and harvesting of crops, or the feeding, breeding and management of livestock or domestic animals or fowl are completely exempt (except for Class IA CAFOs);
- Odors from a Class IA CAFO are subject to a second step evaluation using laboratory olfactometry; and,
- The St. Louis metro rule uses a combination of a complainant survey to determine if the odor is objectionable to a certain percentage of persons exposed coupled with various dilution to threshold levels depending on the setting where the odors take place (residential, commercial, industrial, etc.).

For odor investigations at Class IA CAFOs, there is a verification step using laboratory olfactometry. If odor is detected at the 7:1 dilution using the field olfactometer as described above, a sample is taken in a Tedlar® bag and sent to a contract laboratory for evaluation by an odor panel using a prescribed American Society of Testing and Materials standard method. The laboratory method is much more sensitive than the field method and thus the regulatory standard is not comparable from one method to the other. This made it necessary for department staff to conduct a research project to determine the appropriate regulatory standard using the laboratory method that is equivalent to a 7:1 dilution using field olfactometry. As a result of this research, the regulatory standard for laboratory olfactometry is a Best Estimate Detection Threshold of 110. Although it is expressed as an integer rather than a ratio, the number represents a ratio of parts of clean air to parts of odorous air[2]. In general, the use of laboratory olfactometry presents logistical challenges not of concern with the use of field olfactometry (e.g., samples must be mailed, holding time no more than 48 hours, laboratory operated only Monday through Friday except by special arrangement.).

Enforcement of the odor rule is complaint driven. Odor complaints represent a large percentage of the air pollution complaints received by the department, but a relatively small number of Notices of Violation are issued. It is interesting to note that more than half of the 3643 complaints recorded for the 2001-2006 time period were attributed to only 5 facilities/locations. Often, complainants are frustrated when an odor they believe is interfering with their quality of life does not rise to the level of a Notice of Violation. Also, the department may receive some complaint calls about sources that are exempt which do not get investigated or recorded (such as CAFOs smaller than Class IA.)

Some sources of odor complaints have alleged that complainants have an ulterior motive for registering an odor complaint with the department (e.g., disgruntled former

2 Class IA CAFOs are also subject to an intensity standard. Intensity is measured by comparing the odor to a known concentration of a reference standard, commonly n-butanol. The regulatory standard for intensity only applies to Class IA CAFOs. An intensity value of greater than 225 ppm n-butanol is considered a violation. However, as a practical matter, all samples analyzed for comparison to this standard have been well

employees, feuding neighbors, etc.) As with other areas in the department's regulatory authority, the appropriate response is to conduct a thorough, objective evaluation. However, because odor is subjective, it is very difficult to craft a standard to objectively measure whether or not an odor meets the statutory test of " . . .unreasonab[le] interfere[ence] with the enjoyment of life or use of property . . ."

Summary of Workgroup Discussions

The workgroup discussed various options for changes to the way the department regulates odor. These options included actions that would require rule change as well as actions that would not require rule change. The options came from an initial "brainstorming" session in which all participants were allowed to add topics for discussion. Therefore, it is very important to note that the group discussed all of these options without any preliminary decision as to the relative merits of each.

The options were organized into three main areas: Operational, Odor Management, and Enforcement. The Operational options are those that the department could carry out without changes to current law or regulations. E.g., these options could be implemented as departmental policy or as programs developed and supported by the department. The Odor Management options would require a mix of rule changes and changes to DNR practices. The Enforcement options would most likely require some type of rule changes in addition to changes or expansion of department practices.

The following tables summarize the discussion of each option. Again, it is important to note that all participants' comments were noted as either an advantage or disadvantage without discussing the relative merits of each comment.

Operational suggestions **These are suggestions that DNR could carry out under current law or regulations**	
Establish non-punitive consequences (no NOV) when odors detected to try and address earlier so they do not become more severe. This is not the same as a Notice of Excess Emissions. If the odor persists or increases, then regular enforcement practices would ensue. This would require development of an odor management plan using best management practices or different technologies (such as Best or Reasonably Available Control Technologies, BACT/RACT) and direct assistance from DNR. It would be at a lower detection ratio than for enforcement (currently less than 7:1). Using this process does not make a facility immune from actions by the Missouri Air Conservation Commission. It would also include frequency criteria (example: lower detection level of odor in some time frame). This would apply to all odor sources. As such, it may need revisions for the 1A CAFOs taking into consideration current rule requirements. (Note: this was also listed under Odor Management.)	
Advantages	Disadvantages
Proactive, allows companies to keep up with new technologies	Mandates something extra to do when not at threshold level for violation
*Provides economic opportunities for other new industries to assist odor producing facility	Can be a cost for existing facilities; but *
Could benefit local counties economically with these new businesses	Effectively lowers standard at which a company has to do something
Improved quality of life	BACT process difficult
Increased communication between the facility and DNR	If required across the board, it could hurt smaller businesses. Some businesses could go out of business.
Multiple hits over time at a lower detection level similar to detection at 7:1 – so handling would be a positive impact to those in the area	Decreases competitiveness with other states
It demonstrates to citizens that DNR is doing something	There is concern with implementation across the board.
Best Achievable Control Technology (BACT) changes over time, so would increase options in how to handle odor over time.	Will entail more frequent sampling by DNR staff when DNR may not have those resources.
Best management practices required, are industry specific.	What dilution threshold should be used?
	What signal does this send to industry about possible future regulations?
Other comments ▪ This could be tied into an incentive program. ▪ Facilities that receive the non-punitive notice could quality for financial incentives to address the odor.	

Operational suggestions **These are suggestions that DNR could carry out under current law or regulations**	
Establish an odor lab in Missouri. This would entail purchasing odor detection equipment and establishing a pool of testers according to established standards. DNR or another entity could operate the lab, but whoever does operate the lab must be willing to testify in court as to the process and results.	
Advantages	Disadvantages
Increase lab capability – very few labs in U.S.	
With a lab in Missouri and under Missouri control, it could address the sampling hole in the week (the weekend)	Would it be utilized enough to be cost effective? Need approximately 100 samples per year to be cost effective.
Gain time lost to transport of samples to MN and increases sample integrity	There would be similar logistical problems as with the current lab (hours of operation, availability of testers)
Decreases or removes the bias inherent with using the scentometer. Increases objectivity with olfactometry – eliminates false positives and false negatives.	Would the cost exceed the benefit?
	This costs money and would need a source of funds.
Other comments ▪ If this is only for CAFO, is there really a need for a lab? ▪ How do we get to the capability of being able to provide inspection/enforcement 7 days a week?	

Odor management **(A mix of rule changes and DNR practices)**	
Increase monitoring. This would entail several monitoring strategies. 1) Locate satellite offices where there are frequent odor complaints or problems. 2) Increase ambient air monitoring system capability. 3) Establish "stream teams" for odor detection or partner with other local entities to increase odor monitoring. To be meaningful, training and the appropriate equipment would be needed. 4) Place staff "on call" for odor monitoring similar to emergency response staff that are on call. 5) Increase monitoring for repeat offenders and add random monitoring or spot checks.	
Advantages	Disadvantages
Address complaints quicker – more likely to be able to test within same atmospheric conditions	Increased cost to department
Be able to sample quicker	Department lacks staff
Expands anticipatory monitoring (anticipating appropriate weather conditions)	May be difficult to find unbiased partners
Could include all industries, not just CAFOs	

Odor management (A mix of rule changes and DNR practices)	
Lower the dilution ratio. Decrease the dilution ratio in rule for enforcement action to below 7:1, so that permittees must address odor detectable with less dilution. Enforcement means the issuing of a NOV.	
Advantages	Disadvantages
Address quality of life and the use of newer technologies	7:1 has research to support it. Need science behind the newer number to justify and determine what dilution is appropriate.
Increase the responsiveness to citizens	May need increased DNR resources (staff and funds) to investigate more complaints and to take more samples at lower dilutions.
Include Class 1B CAFOs in odor regulation	
Advantages	Disadvantages
Addresses quality of life for more people	This shouldn't be the same everywhere in Missouri – rural areas should have different ratios than urban. (Agricultural operations expected in rural areas)
More fair to 1A CAFOs	More stringent requirements for smaller businesses may put them out of business. They may not be able to afford the added requirements.
Most people want to comply with requirements. So may be able to implement without more staff.	DNR staff concerned that they would not have the resources (staff, funds and time) to be able to carry out the expanded requirements.
If new 1B or 1C CAFOs locate near people, why shouldn't they meet odor standards?	
Other comments ▪ There was discussion whether to include all CAFOs, 1B only, 1B and 1C, or any regardless of size. ▪ If someone moves next to an existing facility, there should be different standards. ▪ Do Class 1B and 1C CAFOs have significant complaints?	

Odor management
(A mix of rule changes and DNR practices)

Establish more DNR satellite offices near areas with frequent odor complaints. The department has several small offices (typically a couple of staff) throughout Missouri where assistance is needed frequently to address environmental issues. There is a satellite office in Carthage to assist with the odor complaints. More satellite office near facilities with frequent odor complaints could lessen the time taken to travel to a facility and take odor samples. This may or may not address the issue of being available on weekends.

Advantages	Disadvantages
This would benefit the health and environment of Missouri	It would have added costs in time, funds and resources (staff and equipment)
Benefits DNR with more data to base decisions on.	Staff may not be located where needed, necessitating moves
If staff are in the field, or located closer to sources, it increases the probability of being there when atmospheric conditions are right for sampling, thus increasing efficiency	Is this an important concern for citizens and stakeholders to reallocate resources to address odor monitoring? (Other environmental concerns may be of higher priority)

Other comment

- Contract with public health agencies in counties or other state or federal agencies to increase monitoring.

Incentivize new technologies. Provide financial or permit related incentives for companies to use new technologies that may be more effective.

Advantages	Disadvantages
Possibility of $8M grant from EPA	Costs money for technology that may or may not work
MDA supports – can see quicker results	
Could use tax credits as incentive – there is no cost as far as money going out.	
Achieves results without increasing regulation	

Other comments

- Will need to include some kind of regulatory moratorium or variance for pilot projects, to companies will try new technologies without the fear of being penalized when they don't work.
- Use the term "proven" rather than "new". The risk is not as great.
- Really need both, new technologies tried to see if they work, and proven technologies to put them into use.
- This needs to be available to all businesses – large and small, existing and new.
- Incentives could also be quicker review time (move to the top of the stack), waive permit fees.
- DNR has small scale pilots eligible in water regulations – small scale not defined. Will want to be sure scope of projects clear

Odor management (A mix of rule changes and DNR practices)	
Add criteria for odor plans to include: criteria for components that must be included in an odor plan and criteria by which the odor plan will be evaluated. By establishing criteria the DNR inspector will have more tools to evaluate compliance with the approved odor plan.	
Advantages	Disadvantages
Allows for more accountability, makes what the criteria is based on, more clear	There is a presumption that the BACT is needed for approval, but there is still a need for professional judgement as to what fits the situation best.
	DNR needs flexibility to use judgement
	Often there is more than one source for the odor -–may not need BACT for all the sources.
Require odor plans for all	
Advantages	Disadvantages
There are more smaller CAFOs than when the rule was promulgated. This could help address those	Why require a plan if there is no odor problem or no odor exceedances?
Other comments ▪ There was quite a bit of discussion on whether this would include anyone having an air permit, all CAFO's, all permittees in Missouri. ▪ The suggestion was made to require an odor plan either when a lower dilution ratio is met, for all CAFOs or leave the dilution ratio at 7:1, but require an odor plan whenever there is an exceedance. ▪ Odor plans need to be updated on a regular basis. There is currently no provision for update. Suggest every 5 years.	

Enforcement (These would probably involve a rule change)	
Regulate emission markers. Identify specific chemical markers associated with odor, and regulate those markers at specific levels.	
Advantages	Disadvantages
Could do on a case by case basis	Impossible to do on a broad regulatory basis – too expensive. Must be done on a case by case basis.
Could be effective for specific industries, for instance as part of a monitoring program.	May not have toxicological data for exotic chemicals to say whether a marker is a health hazard or not
Regulate agriculture as other industries are regulated Apply the odor rules statewide to all odor producing facilities	
Advantages	Disadvantages
Agriculture often uses setbacks to meet requirements, that industry doesn't	Difficult in agriculture – every day is not the same as with other industries such as an asphalt plant. Weather also plays a big part in the variety of conditions
	Not all agricultural facilities have an odor issue
	Imposes a less stringent standard (olfactometry would no longer be required)
Decrease the dilution ratio in rule for enforcement action to below 7:1, so that permittees must address odor at lower levels.	
Advantages	Disadvantages
The 7:1 ratio seems to be a problem now (why the workgroup was formed). Lowering the ratio would help address.	7:1 is backed by research. What is the science to back a lower ratio?
The public would see state government protecting their interests	Changing rules harms industry
It would reduce exposure – even if not provable at different ratios what exposure indicates	Casts a wider net – increases the universe of facilities included
Use different dilution levels for different receptors. Have different dilution ratios for detection for types of places such as schools, hospitals and industrial parks.	
Advantages	Disadvantages
Move the odor rule impact, to where the odor is perceived, that is where it is a nuisance	If a facility has no receptors, would the odor be caught? What happens if someone moves next door?
It is a compromise. Don't change the 7:1 ratio, but move the detection closer to where the people are. It is more fair	People are not always at a building or facility (a receptor site). Sometimes they are out in their fields
* when businesses own more surrounding property, there are fewer people living nearby to be affected by odors	Businesses may buy more surrounding property, resulting in less property available for sale. But…*
Other comment ▪ **Some states use different ratios for different receptors.**	

Enforcement (These would probably involve a rule change)	
Include Class 1B CAFOs in odor regulation	
Advantages	Disadvantages
More equitable for citizens	Overkill…regulation without results in mind
There have been complaints about 1B and 1C CAFOs	A manpower issue for the department (not enough staff)
There are a growing number of 1B and 1C CAFOs	Too much generalization
Use one type of analysis, either the scentometer or olfactometry (laboratory analysis) but not both, to determine the odor level.	
Advantages	Disadvantages
Olfactometry is expensive with logistical problems	Olfactometry is more objective – reduces bias
Scentometer does not have an issue with sample degradation	There is sample degradation, but it can't be measured
Exempt land application. Do not include land application of manure (or other agricultural product) from odor regulation.	
Advantages	Disadvantages
Becomes more competitive with other states that have done this	Would impact air and water quality
Odor is short lived	Even short lived odors can have an impact on the quality of life
Land application goes up to the fence	Current rule has helped reduce a problem *i.e. big guns shooting effluent)
Other comments ▪ Need to distinguish among the methods of application [surface vs. subsurface (injection)] ▪ In Missouri, it is sometimes not feasible to use ground injections – depends on the area of the state.	
Change St. Louis metro (city and county) odor regulations from a survey type system to a detection system (the statewide odor rule). The current St. Louis odor regulations predate DNR. In summary it includes: ▪ ***For residential, recreational, institutional, retail sales, hotel or educational premises a violation occurs is odor is deemed objectionable by:*** ➢ ***30% of people exposed (if sample size is at least 20 people)*** ➢ ***75% of people exposed (if sample size is lower than 20 people).*** ▪ ***For industrial premises when D/T is 20:1 and survey results deem the odor objectionable as described above*** ▪ ***For all other premises when D/T is 4:1 and survey results deem the odor objectionable as described above*** ▪ ***Class IA CAFO provisions and agricultural exemption same as the other three rules.*** ***It is difficult to conduct a representative survey, as many people will not respond or participate. The proposal is to either change the St. Louis odor regulation to some dilution detection level, or to include it with one of the other odor regulations (Kansas City, Springfield, or statewide)***	
Advantages	**Disadvantages**
Difficult to enforce as a practical manner	
No reason for the difference.	

Enforcement (These would probably involve a rule change)	
Change the current odor rules to the St Louis (city and county) odor regulations. Replace the Kansas City, Springfield and statewide odor regulations with the St. Louis odor regulations (survey based).	
Advantages	Disadvantages
Would be more fair for citizens	Difficult to administer. Time consuming and subjective, difficult to uphold. May not withstand legal scrutiny. Difficult to separate odor issues from other issues
More in line with what we expect in a nuisance based standards.	
Define unreasonable interference and/or nuisance. The Air Conservation Law includes the definition "Air pollution: the presence in the ambient air of one or more air contaminants in quantities, of characteristics and of a duration which directly and proximately cause or contribute to injury to human, plant, or animal life or health or to property or which unreasonable interferes with the enjoyment of life or use of property." Unreasonable interference and nuisance are not defined in the law or rule. Defining these terms may help differentiate what should be regulated as odor, and what should not.	
Advantages	Disadvantages
	No need to do: Case law defines it and the odor rule defines it. All states' language very similar.
Focus odor rules on the type of animals and type of industry. Current odor rules (except for St. Louis city and county) focus on Class 1A CAFOs regardless of animal type. Expand the odor rules to address specific types of animals (such as poultry, swine and cattle) and specific industries (such as food or waste treatment)	
Advantages	Disadvantages
Odors are different for different animals…makes sense	Presents consistency issues
	Odor is odor
There is consensus to not use this recommendation	
Increase monitoring. Expand the current ambient air monitoring system with more monitors and more chemicals tracked. Placement of the monitors and the decision on what chemicals to monitor would be based on the situation in a given locality (such as monitors placed near 1A CAFOs, or monitors placed near certain cities)	
Advantages	Disadvantages
Use as an enforcement tool	Monitoring is expensive
	Difficult to choose what to monitor for
	There are an infinite number of "marker" chemicals
There is consensus to use monitoring as a tool on a case by case basis.	

Consensus

The Odor Workgroup came to consensus on the following three items. The first two can be pursued without a rule change. If the last item is deemed to have merit by the commission, it would require a rule change.

Pursue new odor assessment tools

Pursue partnerships to bring new assessment tools to Missouri that enable the identification of odorous compounds. Identifying the specific compounds causing odor will enable more efficient and effective design of odor controls.

Increase monitoring on a case by case basis

Monitoring was discussed broadly with the term entailing several monitoring strategies. The group reached consensus that any monitoring strategy used needs to fit the situation.

The following were suggestions for how this might be accomplished. It is important to note that the group did not reach consensus on the relative merits of these individual ideas.

1) Locate satellite offices where there are frequent odor complaints or problems.
2) Increase ambient air monitoring system capability.
3) Establish "stream teams" for odor detection or partner with other local entities to increase odor monitoring. To be meaningful, training and the appropriate equipment would be needed.
4) Place staff "on call" for odor monitoring similar to emergency response staff that are on call.
5) Increase monitoring for repeat offenders and add random monitoring or spot checks.

Further investigate whether the St. Louis Odor Rule should be updated, changing the detection strategy from a survey method to the sampling method used statewide[3]

Currently, the St. Louis metro (city and county) odor regulations use a survey type detection system as opposed to a sample based detection system used throughout the rest of Missouri. It is difficult to conduct a representative survey, as many people will not respond or participate.

The current St. Louis odor regulation predates DNR. In summary it states:

- For residential, recreational, institutional, retail sales, hotel or educational premises a violation occurs is odor is deemed objectionable by:
  - 30% of people exposed (if sample size is at least 20 people)
  - 75% of people exposed (if sample size is lower than 20 people).
- For industrial premises when D/T is 20:1 and survey results deem the odor objectionable as described above
- For all other premises when D/T is 4:1 and survey results deem the odor objectionable as described above
- Class IA CAFO provisions and agricultural exemption same as the other three rules.

3 The animal agriculture representatives present noted that they did not have an opinion on this item.

Post Workgroup Input Clarification on Consensus Items

At the May and June meetings, the group discussed the idea of providing financial or other incentives for companies to use new or proven technologies that may be more effective in odor management for small to large companies. This was originally thought to be a consensus item. However, input received from members after the final meeting questioned this as a consensus item and it was therefore removed from the list for this report.

Additional Note on Public Health Issues

Group members held vastly differing opinions on the issue of public health impacts from odors, ranging from “no impact” to “unknown” to “known” impacts. Accordingly, nothing in this report should be construed to be a consensus opinion regarding health impacts from odor.

Several members did comment that providing a more quantitative assessment of specific chemical constituents of odor would allow a better evaluation of potential health concerns.

Proposals from Workgroup Members

M E M O R A N D U M

TO: Members of the Odor Rule Workgroup

FROM: Joseph P. Bindbeutel, Senior Chief Counsel
Agriculture and Environment Division
Office of the Attorney General

DATE: June 14, 2007

RE: *Odor Rule Proposal*

The Workgroup's efforts are critical in protecting all Missourians' fundamental property right to be free from nuisance conditions which interfere with the peaceful use and enjoyment of their homes and farms. In view of the tremendous number of odor complaints received by DNR, strengthening the State's odor regime is critical in addressing this threat to Missourians' property rights. The members of the Workgroup have thoroughly discussed any number of potential alternatives to Missouri's current odor rules and enforcement practices. In addressing this challenge, the state's odor control regime should be tailored to specifically address individual odor-emitting industries, both in terms of finding the most economic and effective odor control strategies, as well as limiting costs of compliance to only those entities which are causing nuisance odors.

TECHNOLOGY BASED ODOR STANDARD

As such, we recommend the Commission adopt new odor control rules separate and apart from the current 7:1, penalty-driven standard by adopting a technology based standard which:

1. Establishes a more protective odor tolerance threshold than 7:1. We would suggest a 2 or 3:1 threshold;[4]

2. In the event a firm violated this standard with some pre-established frequency (i.e. more than once a month, four times per year, etc.), it could be required by DNR to do a comprehensive evaluation of its operations and identify its odor sources and to submit an analysis of reasonable treatment alternatives in

4 Exceedance of this standard would not trigger any enforcement activity or penalty liability. It would only require the source to implement the fix. If a source refused to determine its odor sources and do the analysis of possible "solutions," penalties would be imposed.

accordance with an established technical and regulatory standard (such as Reasonably Available Control Technology ("RACT"), or Best Available Control Technology ("BACT") etc.), to control each such source.

3. If there were treatment technologies or process changes which met the chosen standard, DNR could then direct the company to install the indicated device or process change pursuant to a reasonable schedule. Of course, affected parties would have the right to appeal any final agency determinations by the Department to the Air Conservation Commission and the courts.

4. Once a company had implemented what the Department determined was an appropriate level of odor controls, it could not be compelled to repeat this process unless the Department demonstrated new and more effective (BACT or RACT) technologies existed, or a suitable time had passed - such as no less than 3 years.

5. Agricultural facilities should be recognized as operating in a highly competitive and therefore cost-sensitive environment. As a result, the technology standard chosen should specifically account for the size, nature and financial strength of an operation - be it an independent producer, or an operation fully integrated into a larger production scheme. For many facilities, Best Management Practices and adherence to industry standards of responsible manure, animal and facility management may well satisfy the applicable standards. More substantial or integrated facilities would be expected to invest more. Such "affordability tests" are common throughout environmental regulations at both the federal and state levels.

OTHER RECOMMENDATIONS

The Commission should also review its other rules and staff practices to implement the following:

A. The survey requirement in the rule applicable in the St. Louis area is not workable and should be dropped. An inspector is expected to determine who has been exposed to a given odor, whether the number of persons affected is more or less than 20, and what percentage of them find the odor offensive. The 20:1 dilution standard for industrial sources is overly forgiving.

B. The dilution-based standard should be adjusted in accordance with the likely receptors involved - one dilution at a property line, but other more stringent standard for homes, churches, public places, commercial property, incorporated municipalities, etc.

C. Olfactometry should be dropped as a component of the odor enforcement approach. It is costly, cumbersome and does not add to the protection afforded Missourians.

D. Companies seeking permits for operations which promise the most aggressive odor control regime should receive staff attention, review and permit issuance prior to applications which promise no more than minimally compliant measures (“Best in - First out”).

Thank you for your consideration of these proposals. I look forward to completing our work on the rules and hopefully produce a better odor rule for Missouri.

JPB:ka

Joint Position Statement - Odor Rule Amendments

June 19, 2007

Endorsed by Workgroup Members:

Citizens Legal Environmental Action Network
(Terry Spence, Rolf Christen, Ted Heisel)

Sierra Club
(Ken Midkiff)

Dwayne W. Miller

Dilution Threshold – The dilution threshold for the odor standard should be lowered to 2:1 at receptors (homes, schools, public buildings, etc.). This position is supported by the fact that DNR continues to receive thousands of complaints under the existing standard, indicating that it is too weak to resolve odor problems. Many of these complaints go unaddressed because the dilution threshold is not met when inspectors measure the odor concentration. Staff from DNR and the Attorney General's Office with experience dealing with odor problems have verified during the stakeholder meetings that odor measurements below the existing standard of 7:1 are very offensive.

Sampling Methods – Compliance with the state odor regulation for CAFOs should be determined using the field sampling method alone. The current CAFO odor regulation requires that a field test be conducted as a screening measure and that samples then be collected and sent to an out-of-state laboratory. This process hinders enforcement of the odor regulation because of the time and expense required to send samples to the laboratory. Odor regulations applied to other facilities do not require this dual layer of testing. Moreover, there is some indication in scientific literature that transmitting odor samples can distort their strength.

1B and 1C CAFOs – Class 1B and 1C CAFOs should be covered by state odor rules. There is evidence that these facilities are causing odor problems and there is no justification for exempting them from the state rule. State records indicate that a substantial number of complaints are received relating to these facilities. DNR currently lacks the ability to address legitimate problems because these operations are exempted from the state rules.

Odor Control Plans – Odor control plans should be updated every five years or upon a violation of the ambient odor standard. In addition, criteria should be added to the rule upon which DNR must base its approval or disapproval of such plans. As indicated by presentations to the workgroup, odor control technology is evolving over time. Moreover, there already exist proven methods of controlling

odors from CAFOs, such as biofilters, that are not used by the vast majority of CAFOs in Missouri. The odor control plan component of the regulation needs to be strengthened to ensure that CAFOs are taking all practicable steps to reduce odor emissions.

Common Law Liability – The state rules should contain an express provision that compliance does not serve as a defense to common law nuisance actions.

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June 26, 2007

Ms. Alice Geller
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Re: Odor Rule Workgroup – Unified Position Statement

Dear Ms. Geller:

The following agricultural entities have participated in the Odor Rule Stakeholder Workgroup: Missouri Agribusiness Association, Missouri Pork Association, Missouri Egg Council, The Poultry Federation, Missouri Dairy Association, Missouri Cattlemen's Association, Premium Standard Farms, and Moark. After deliberating on the issues and proposals discussed during the workgroup meetings, our group has agreed upon the following unified position:

1. Support current olfactometry standard of 110:1 for Class IA CAFOs.

2. Support continued use of the scentometer as only a screening tool for Class IA CAFOs.

3. Oppose applying CAFO odor rule to CAFOs smaller than Class IA farms.

4. Support amending Class IA CAFO odor rule to exempt land application.

5. Support amending Class IA CAFO odor rule to require odor sampling beyond setback distances described in § 640.710 even if such location is "not at the installation" or beyond the permitted boundary of CAFO.

6. Support amending the Class IA CAFO odor rule to move compliance point to residences or public buildings instead of "not at the installation."

7. Oppose an amendment to the odor rules that imposes a mandatory technology review and implementation at a D:T below 110:1 olfactometry for Class IA CAFOs or 7:1 scentometry for industry.

8. Support MDNR or University of Missouri opening and running an olfactometry laboratory.

9. Require MDNR inspectors to become "certified" on the scentometer.

In conclusion, the aforementioned agricultural entities strenuously oppose any efforts to eliminate the use of olfactometry or to reduce the odor detection threshold as described in the current rule. We urge the Missouri Department of Natural Resources to recommend to the Air Conservation Commission the above-described amendments to the livestock odor rule.

MISSOURI AGRIBUSINESS ASSOCIATION

THE POULTRY FEDERATION

MISSOURI PORK ASSOCIATION

MISSOURI DAIRY ASSOCIATION

MISSOURI EGG COUNCIL

MISSOURI CATTLEMEN'S ASSOCIATION

PREMIUM STANDARD FARMS

MOARK

Closing

The six months of discussion in the Odor Workgroup were civil and sincere. Members spoke with candor, representing their concerns well. In contrast to what is often the normal course of workgroup deliberations, attendance by the members and those interested in the discussions remained steady throughout the six months. This shows great interest and dedication. The department appreciates the commitment of all workgroup members and observers in this effort.

We learned a lot during our time together and all came away with a greater understanding about the characteristics of odor generation and measurement that make odor regulation a difficult challenge.