

## **Superfund Laws and Animal Agriculture**

Statement  
Of the  
National Chicken Council  
National Turkey Federation  
U.S. Poultry and Egg Association

To the  
U.S. House of Representatives  
Committee on Energy and Commerce

Presented by  
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Testimony of John E. Starkey, P.E.  
Before House Committee on Energy and Commerce  
Subcommittee on Environment and Hazardous Materials  
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Good afternoon. My name is John Starkey, and I serve as Vice President – Environmental Programs for the U.S. Poultry & Egg Association (USPOULTRY). I am making this presentation on behalf of the National Chicken Council (NCC) and the National Turkey Federation (NTF). It is an honor to have this opportunity to present this testimony outlining the environmental practices, procedures, regulations and impact of our nation's approximately 35,000 broiler and turkey growers.

By way of introduction, USPOULTRY is a trade organization dedicated to three tenets – research, education and communication. For example, USPOULTRY was a founding member and partner with EPA, USDA and TVA in the Poultry Water Quality Consortium. We sponsor the International Poultry Exposition each year, the world's largest poultry and egg trade show with approximately 20,000 attendees. We provide numerous industry-wide training classes in industry-specific terms for poultry wastewater treatment facility operators, and HACCP, a program to further enhance food safety. We offer seminars on virtually every aspect of poultry production and processing, including an annual environmental management seminar. We award grants for approximately \$1 million/year in poultry related research. These grants have included almost \$2 million in environmental research related to poultry production and processing in recent years; much of this research is being used today as the basis of enhanced nutrient management efforts such as the inclusion of phytase to poultry feeds to enhance phosphorus utilization. We sponsor the Family Farm Environmental Excellence Award and the Clean Water Award, awards designed to recognize exemplary environmental stewardship at

poultry farms and at processing facilities, respectively. Our membership consists of integrators, processors, producers and allied industries in all poultry (broiler, duck, layers, turkeys) species. USPOULTRY works very closely with our industry's Washington-based commodity trade organizations, National Chicken Council and the National Turkey Federation, to ensure the research, education and technology needs of our industry are met.

The National Chicken Council is a nonprofit member organization representing companies that produce and process over 95 percent of the broiler/fryer chickens marketed in the United States. NCC promotes the production, marketing and consumption of safe, wholesome and nutritious chicken products both domestically and internationally. NCC serves as an advocate on behalf of its members with regard to the development and implementation of federal and state programs and regulations that affect the chicken industry.

The National Turkey Federation is the national advocate for all segments of the turkey industry. NTF provides services and conducts activities which increase demand for its members' products by protecting and enhancing their ability to profitably provide wholesome, high-quality, nutritious products.

Today, I am going to address some of the environmental practices at broiler and turkey farms and their impact on air and water media; the regulation of these farms under media specific laws such as the Clean Air Act and Clean Water Act, and the confusion and problems caused by the recent application of CERCLA/EPCRA requirements, heretofore reserved for industrial facilities, to farms, despite exceptions in each law to various aspects of normal agricultural operations.

Broiler and turkey production at the farm level in the United States consists of, almost exclusively, family-owned and family-operated relatively small farms. We conducted, in concert

with NCC and NTF, a survey of poultry growers in 2001, which focused on farm size and litter management techniques. Litter, at a poultry farm, is the combination of bedding material – such as rice hulls or pine shavings – and bird manure. Over 16,000 growers (or almost half of all U.S. poultry growers) participated in the survey, giving us a very robust data set from which to view our industry’s nutrient management techniques. The survey indicated that average poultry farm size was as follows:

**Table I**

Typical Poultry Farm Size

	Average	# of poultry houses	# of birds
Broiler	157	3.21	63,799
Turkey	226	3.05	27,004

Given the relatively smaller acreage of poultry farms makes it clear that the cash income these families derive from growing poultry is vital to the survival of these farms. Indeed, poultry producers have thrived in rural areas of the country that were not competitive in traditional row crop farming, and have brought a steady, reliable source of farm income dollars to these areas. When combined with the investment of processors in feed mills, hatcheries, and processing plants – typically with more than 1,000 jobs per plant – poultry production has been an economic anchor to many rural areas from Pennsylvania to Texas, from Minnesota to Florida and along the West Coast.

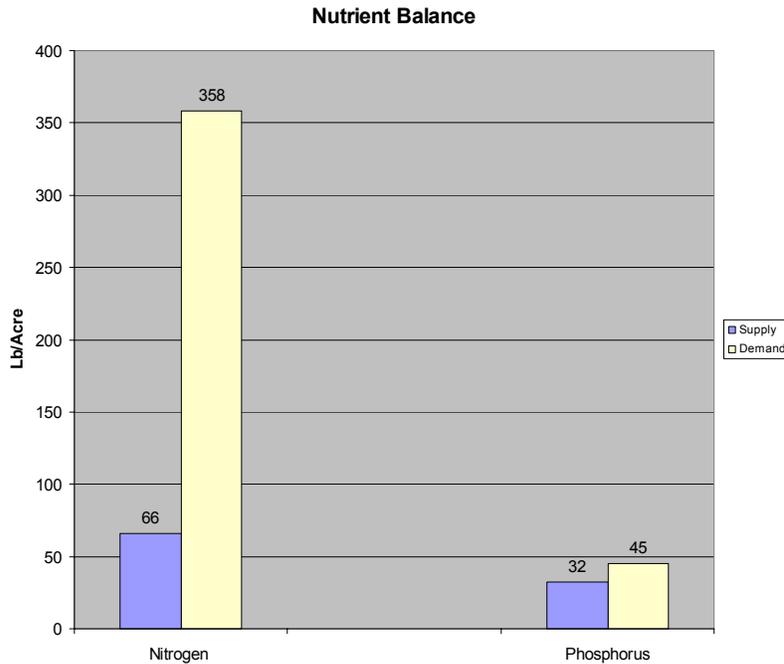
Commercial broilers and turkeys are raised in well-lit, well-ventilated comfortable “houses” – typically 40 feet long x 400 to 500 feet long, with an eave height of about 13 feet. They have free movement to readily available water and feed in the house, and temperature is carefully controlled for bird comfort. The floor of the houses are covered with 8” or so of an absorbent bedding material such as pine shavings or rice hulls which also provide a comfortable, and

sanitary, environment for the bird. Bird manure is absorbed into the litter. Periodically, the litter is removed from the house and most commonly used as a natural organic fertilizer. We need to be clear broiler and turkey litter is not a waste by definition, because it is a commodity that is bought and sold or traded every day in this country. Since it is dry, it can efficiently be transported considerable distances – truckloads of north Georgia litter, for example, are sold to south Georgia row crop farms as an organic fertilizer.

As a fertilizer, litter will provide nutrients to crops and pasture to enhance productivity. But it offers some very unique advantages in providing these nutrients. First, the natural forms of nitrogen and phosphorus in litter have been shown to be less likely to “runoff” in storm water than the inorganic nutrients available in commercial fertilizer. Litter also provides soils organic matter to improve soil tilth and structure, thereby reducing erosion and compaction and enhancing a soil’s resistance to drought. The salt build-up noted with long term used of commercial fertilizer is not only avoided but is actually counter-acted by the use of litter, restoring soils to their former productivity. Poultry litter contains many micronutrients so essential to maximizing crop production; its use also reduces how much natural gas this country must consume to produce commercial fertilizer. Like any nutrient source, it must be managed properly. However, applied at agronomic rates it is clearly environmentally superior to the use of commercial fertilizer.

Poultry growers are using litter in an agronomically and environmentally sound manner. In our 2001 survey, we also learned how much litter growers were utilizing on their own crops and pastures, versus how much they sold, traded or otherwise used. Growers also supplied information on the crops or forage they produced on their farms. From this data, we calculated an overall nutrient application rate for poultry growers, as well as the average nutrient uptake rate for the crops raised. Those results are provided in Figure I below:

**Figure I**



This data indicates that as early as 2001, the industry had shifted from a nitrogen based application rate to phosphorus based rate. This is significant because, historically, litter had been applied to fields closer to its nitrogen uptake rate, which led to a slow build-up of relatively insoluble phosphorus in the soils. Indeed, a grower going into an NRCS office in the late 1990's for a nutrient management plan would have received a nitrogen based plan. The slow build-up of phosphorus that resulted from such a plan was viewed as environmentally benign given the unlikelihood it would run off; farmers were simply "banking" phosphorus on their soils against the day they no longer raised poultry and would have to purchase commercial fertilizer. Since phosphorus is commonly the most expensive nutrient in fertilizer, the farmer was avoiding that future expense. However, in the last decade, and in particular in areas where there is a substantial conversion of farm land to other uses – concerns were raised regarding the levels of phosphorus accumulating in soils. The ag departments of many universities, and USDA Extension Service and other USDA offices, and the growers and the processors worked

together to develop and implement nutrient management plans to address the conversion to phosphorus based plans – and indeed, the results from the 2001 survey confirmed those actions have been successful.

For the poultry grower, there are four tiers of regulation and/or oversight they are subject to ensure agronomic use of litter. The first tier, of course, is the federal tier under the CAFO NPDES permits. Any poultry grower with a discharge is required to have an NPDES permit, including the preparation and implementation of a nutrient management plan. The second tier is state regulation to ensure agronomic application rates. Many states have instituted permits or nutrient management requirements for poultry producers. Examples include (but not necessarily limited to) Alabama, Delaware, Indiana, Kentucky, Maryland, Minnesota, Missouri, Ohio, Pennsylvania, Texas and Virginia. Generally speaking, these programs emphasize development and implementation of nutrient management programs, and focus more heavily on larger growers – 125,000 birds or more for broilers, 65,000 birds or more for turkeys.

The third tier is the processor – or integrator. Today's production contracts include language requiring the grower utilize litter in an agronomically sound manner, and to obtain and follow a nutrient management plan prepared with the help of experts such as NRCS, or extension service or similarly qualified personnel.

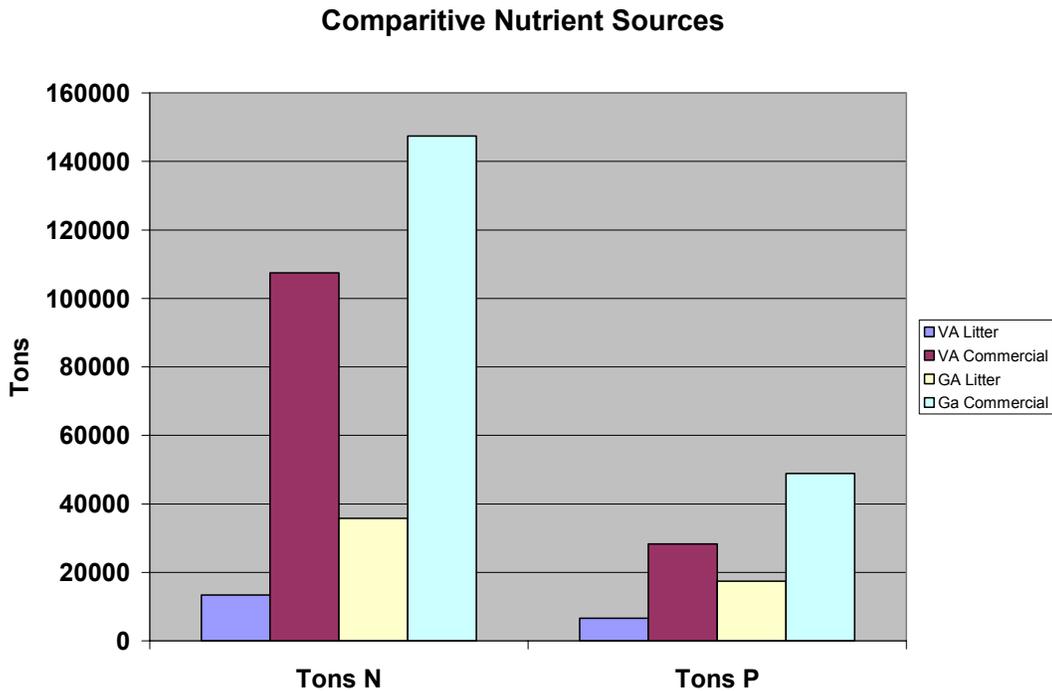
Note, the integrator stipulation applies to all growers – even those who would be too small to be subject to a federal or state permit. This holistic approach to nutrient management planning is intended to ensure the continued use of an excellent organic fertilizer indefinitely; and produce environmental benefits vis-à-vis the use of commercial fertilizer. Today, close to 100% of all broiler and turkey growers – not just defined CAFO's – have nutrient management plans in place.

In watersheds with a water quality impairment, a fourth level of regulation is available to EPA and the states under the Clean Water Act to ensure reduction of loads in the watershed so water quality goals can be achieved. Through the Total Maximum Daily Load – or TMDL – program, all inputs are evaluated, and the necessary steps to allow achievement of water quality goals are apportioned amongst all contributors to pollutant loads – point source and non-point source alike.

There are some areas of the country where there are nutrient-water quality issues, and where poultry farms are located. Poultry producers – the small family farms whose families have often lived in the regions for generations – recognize the value of improved water quality. They have been willing to adopt additional best management practices in order to further reduce any environmental impact from the operations. Poultry farmers are no different from other farmers in that they realize their livelihood is based upon the land and water, and want to preserve the value of their communities in general, and their farms in particular, for future generations.

In some situations recently, however, CERCLA/EPCRA have been utilized to allege the release of phosphate in animal manure results in the release of elemental phosphorus regulated by these statutes. This causes almost exclusive emphasis on reduction of poultry-related nutrients, to the exclusion of other sources of these nutrients. This is an egregious error, and in the end, the water quality issue may be made worse by only addressing poultry nutrients, rather than the whole universe of potential contributors to nutrients in streams as was intended under the TMDL program under the Clean Water Act. In Figure 2, I have provided comparison of nutrients available in poultry litter in Georgia and Virginia compared to the nutrients available in commercial fertilizer.

Figure 2



The results for these states are pretty typical of what you would see for any poultry state: there is 7 – 10 times more nitrogen and 4 – 6 times more phosphorus available from commercial fertilizer sold in the state than in all the poultry litter generated. And, remember, poultry litter is already subject to up to four tiers of regulation or oversight, including the TMDL program. For example, a nutrient management plan at a poultry farm will require a buffer zone – usually 35’ to 100’ – around a drainage channel on an agricultural field. With commercial fertilizers, there is no such oversight or regulation, theoretically the fertilizer spreader truck could drive right through the drainage area to avoid the lost time of diverting around it.

Even where properly applied, nutrients in commercial fertilizers are generally more soluble than in litter, i.e., more prone to runoff. Yet, when litter is solely targeted as the source of nutrients, and subject to an even higher level of regulatory scrutiny, many may choose to forego the “hassle” factor and switch to commercial fertilizers. Often these are non-poultry farmers who

have previously bought litter for their nutrient needs. Not only does this reduce poultry farmer income, and cause more consumption of natural gas for commercial fertilizer production, it also causes nutrients that are, pound for pound, more likely to runoff in a storm event to be placed in the watershed, exacerbating the nutrient problem, rather than solving it.

I am not trying to point a finger at agricultural commercial fertilizer users. Whether commercial fertilizer or poultry litter, supplying nutrients to crops is a cost for the farmer. A farmer must be efficient in order to compete and remain a viable operation, so I believe farmers as a whole judiciously use either source of nutrients. Further, with nitrogen in multiple forms all around us and phosphorus being the sixth most common element on earth – there is no lack of nutrient sources completely outside agriculture, from septic tanks to sewage plants, from fallen leaves to homeowners desperately trying to win “yard of the month.” The point here is not to blame others, but rather expose the fallacy, and ultimately the failure, of attacking only one nutrient source – a comparatively minor one that is already subject to regulation and oversight – in addressing these watershed nutrient issues. Utilizing CERCLA/EPCRA to increase requirements despite the agricultural exemptions Congress wrote into these laws, on to the agronomic use of litter will stigmatize its usage, and increase the use of – and pollution from – commercial fertilizers. Congress provided the TMDL program under the Clean Water Act to holistically solve these type of watershed wide water quality issues. Where the CERCLA/EPCRA enforcement focuses solely on phosphorus from animal agriculture – a significantly smaller piece of nutrient loading – the TMDL easily accommodates, and allows EPA and the states to address all sources of nutrients, be it agricultural or urban, from a specific source or from multiple soil sources.

In recent years, also, there have been several enforcement actions alleging an animal agriculture facility was not in compliance with permitting aspects of the Clean Air Act, or release

reporting requirements of CERCLA and EPCRA. Unequivocally, broiler and turkey farms are not violating Clean Air Act standards, or Clean Air Act permitting requirements. The fact is that the levels of VOC's, particulate matter and PM10, etc. in broiler and turkey exhaust air are significantly below the permitting thresholds in the Clean Air Act. Certainly, standards change and evolve over time, and it is conceivable that at some point, for some pollutant, a broiler or turkey farm will be subject to Clean Air Act requirements. We will vigorously participate in the process of proposed changes to these standards, basing our presentations on sound scientific principles. And, of course, we recognize the obligation to comply with the potential regulatory revisions. But today; we are fully in compliance, and any allegation that broiler or turkey houses are avoiding or not complying with Clean Air Act rules and regulations is simply false and without basis.

The natural breakdown of organic nitrogen deposited by poultry in litter in a broiler or turkey house can create ammonia. This has led to enforcement action under CERCLA and EPCRA against a few broiler farms alleging they have exceeded release of the 100 lb/day reportable quantity for ammonia, and should have notified the National Response Center and others concerning this release.

For a moment, consider the family farmer trying to determine whether or not the broiler or turkey farm has exceeded a CERCLA/EPCRA release threshold. Assume the farmer has assembled the appropriate sections of the Code of Federal Regulations, the National Academy of Science report questioning the accuracy and applicability of emissions estimates in previous studies, the court opinions from the Denver and Kentucky courts concerning the release of ammonia from animal housing, EPA CERCLA/EPCRA report guidance documents and recent studies listing emission rates for various other farms, who may or may not follow some of the same production practices.

The first thing the farmer will notice is that the published emission rates vary by almost two orders of magnitude. So the farmer must decide which to use – the highest, the lowest, the average, the one with the most similar production practices, or perhaps the most similar climate, or bird size? On the heels of that decision, the farmer must decide if the release standard is applicable “per house” or per farm. Twenty-five years of regulatory history and published EPA guidance says it should be quantified per house, yet two recent court cases might suggest to the farmer he should aggregate the release. The farmer then decides to call the environmental manager at the processor’s poultry plant and ask whether the release should be calculated per house or per farm. The environmental manager does not know either, but the processor had requested – almost two years ago – clarification from EPA on this exact subject, and had not yet received a response.

The farmer returns to trying to determine an emission rate. The studies available on broilers and turkeys show that the release of ammonia increased as the birds got bigger. But, on a day to day basis, many other factors came into play – the type of bedding material, the number of flocks previously raised on the litter, the temperature in the house, the moisture level in the house, the use of litter treatments, and many other variables rarely described – let alone quantified in these research reports.

There are other questions the farmer could ask like: “Won’t some of the ammonia be converted to an aerosol ammonia hydroxide prior to release, given house conditions are ideal for this to occur.” And if so, what percent will be converted, for this is an important issue as the RQ for ammonia hydroxide is 1000 lb/day – 10 times greater than the anhydrous ammonia RQ. Yet, not a single study before the farmer addresses this fundamental question.

Ultimately, the studies conducted under the Air Consent Agreement – which the broiler industry is participating in – may provide the farmer with some of the answers necessary to determine if the farm is subject to release reporting requirements.

But at some point, the farmer has to wonder: “Why am I having to do this?” CERCLA and EPCRA are intended to advise emergency response personnel and the public about threats to human health and the environment. The entire farm family goes into each and every one of their broiler or turkey houses everyday, and have for years, and they are as healthy as can be. The farmer knows it is vital to keep the house properly ventilated, and has invested substantial amount of capital in ensuring this. The farmer knows that ammonia levels in the house should average 10 ppm or less. While certainly there may be short term increases in ammonia concentration above 10 ppm depending on the computer controlled ventilation system program, the farmer knows the houses should not reach the NIOSH 8-hour ammonia occupational standard for ammonia of 50 ppm. Poultry is more sensitive to ammonia than humans, and reaching that type of ammonia plateau would affect the growth performance of the bird. And a decrease in performance leads to a decrease in pay, so the farmer is very motivated to manage ammonia levels.

The ventilation system moves large quantities of air through the houses – at 5 mph when the birds are biggest and temperature warmest (and hence, release of ammonia is greatest). This leads to a rapid dilution of ammonia in the exhaust, and the wind speed also enhances dispersion outside the house. In fact, the release of 50 lb/day from a house – or about what the highest level most studies suggest would come from one house – would result in a concentration of only 0.5 ppm ammonia 100 feet from the exhaust fan according to the EPA SCREEN3 model. This is far below any suggested health standard or occupation standard for exposure to ammonia.

And so again, the farmer asks “Why must I do this, with all the uncertainty about how to properly account for and measure ammonia release?” Because even if the farmer does so, and calculates on a given day that reporting is required, there will be no emergency response, and there will be no impact on human health, starting first with the farmer’s family.

We ask you to support the legislation introduced by Congressman Ralph Hall to re-affirm it was not the intent of Congress to require the farmer to report release information that does not impact emergency response or human health.



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Mr. Starkey received his BS in chemical engineering at Purdue University (1980) and his MS in sanitary engineering at Georgia Tech (1982). Previously, he was manager of environmental engineering for Gold Kist, director of environmental affairs for Hudson Foods, and a principal in the engineering firm of Vaughn, Coltrane & Associates.

In these various capacities, Mr. Starkey was directly involved in the design, construction or operation of over 50 food processing facility waste water treatment systems, in addition to a number of odor and particulate control systems. He authored *Poultry Wastewater Operators Training Manual* (2003) and conducts training sessions on this subject throughout poultry producing areas. He has also prepared nutrient management programs and appurtenant permit applications for numerous animal feeding operations, including egg, broiler and turkey farms.

Mr. Starkey, a registered professional engineer in several states including Georgia, now serves on the staff of U.S. Poultry & Egg Association as Vice President of Environmental Programs.