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July 11, 2005

04-001N
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American Meat Institute

FSIS Docket Clerk
Food Safety and Inspection Service
US Dept of Agriculture
Room 102, Cotton Annex
300 12th Street SW
Washington, DC 20250-3700

RE: [Docket No. 04-001N] Technical Meeting on Risk Assessments of *Salmonella* and of *Clostridium perfringens* in Ready-to-Eat Products; Notice of Availability and Public Meeting; 70 *FR* 15017; March 24, 2005. [Comments on Performance Standards for RTE Products]

Dear Sir or Madam:

This letter responds to the Food Safety and Inspection Service (FSIS or the Agency) March 2005 request for public comment relating to the proposed performance standards for RTE products with respect to two draft risk assessments, one on *Clostridium perfringens* in ready-to-eat (RTE) and partially cooked meat and poultry products and one on *Salmonella* in RTE meat and poultry products. We have prepared separate comments on the risk assessments; the focus here is on risk management decisions (such as specific performance standards) that may be implemented based on these risk assessments. These comments are being submitted jointly by the American Meat Institute, the Food Products Association, and the National Turkey Federation.

The American Meat Institute (AMI) represents the interests of packers and processors of beef, pork, lamb, veal and turkey products and their suppliers throughout North America. Together, AMI's members produce 95 percent of the beef, pork, lamb and veal products and 70 percent of the turkey products in the U.S. Headquartered in Washington, DC, the Institute provides legislative, regulatory, public relations, technical, scientific and educational services to the industry. Its affiliate, the AMI Foundation, is a separate 501(c)3 organization that conducts research, education and information projects for the industry.

The Food Products Association (FPA) – formerly the National Food Processors Association – is the largest trade association serving the food and beverage industry in the United States and worldwide. FPA's laboratory centers, scientists and professional staff provide technical and regulatory assistance to member companies and represent the food industry on scientific and public policy issues involving food safety, food security, nutrition, consumer affairs and international trade.

The National Turkey Federation (NTF) is the only national trade association exclusively representing all segments of the turkey industry. NTF represents over 98 percent of all production, processing and marketing of turkeys in the United States, representing more than $8 billion dollars in sales at the retail and food service levels.

C. PERFRINGENS RISK ASSESSMENT

Minimizing the potential for growth of *Clostridium perfringens* (and *C. botulinum*) during food processing and in handling and preparation at restaurants, retail, or in the home is important in controlling foodborne disease associated with *C. perfringens* (and *C. botulinum*). However, it is not clear that regulatory efforts beyond the existing HACCP regulations are needed to address cooling of meat and poultry products in FSIS-inspected establishments. As stated in the risk assessment, "the majority of poisonings do not appear to be from RTE products produced in FSIS regulated establishments, but rather from products prepared from raw [emphasis added] meats and poultry and from products such as chili, tacos and enchiladas prepared from raw [emphasis added] products in advance by consumers or in restaurants or institutions and held for extended lengths of time at temperatures that will support growth." Nearly 100% of illnesses (vs. the "majority" as stated in the risk assessment) related to *C. perfringens* have resulted from improper handling, cooking, cooling and storage at retail, restaurants, and homes. The conclusion is that the processing industry has successfully controlled the growth of *C. perfringens* during manufacturing in federally inspected establishments. To further reduce foodborne illnesses related to *C. perfringens*, FSIS, the Centers for Disease Control and Prevention (CDC), university extension departments, and state and local health departments should focus their resources in these venues.

The risk assessment states that the "most common vehicles implicated in outbreaks of *C. perfringens* foodborne illness have been beef and poultry." A more accurate statement would have implicated foods that are prepared outside federally inspected establishments using meat and poultry products, then subsequently temperature abused after cooking. The risk assessment cites the 1999 Mead *et al*. publication in stating that *C. perfringens* poisoning is estimated to be one of the most common foodborne illnesses in the U.S., causing an estimated 250,000 cases annually. Yet foodborne illness data show that most microbiological agents causing foodborne illnesses are not identified, and by far, the largest cause of foodborne illness in the U.S. is viruses (estimated to cause over 9 million cases of foodborne illness) that find their way into the human food supply via human carriers in retail and restaurant operations. *C. perfringens* is not a common cause of illnesses, particularly as related to other microbial pathogens in meat and poultry products (*Salmonella* is estimated to cause 1.3 million cases and *Campylobacter* almost 2 million cases from food). Mead *et al.* estimate that *C. perfringens* causes only 1.8% of foodborne illnesses, compared to 14.2% for *Campylobacter* and 9.2% for *Salmonella*. In fact, the risk assessment states that there were only 57 outbreaks reported to the CDC over the five-year period of 1992 to 1997. Although the risk assessment states that "*C. perfringens* food poisoning is frequently either not recognized or not reported," Mead *et al.* takes this into account, multiplying reported cases by 38 to obtain their estimates.

We were encouraged when FSIS determined it was time to revisit the standards for growth of *C. perfringens* during stabilization. Under current standards, verifying whether a one-log increase has occurred, or will occur, is very challenging, *e.g.*, obtaining accurate (and reproducible)

counts of cells and spores to determine the extent of growth, if any. Also, given that high numbers of *C. perfringens* are associated with foodborne illness, a strict one-log increase standard does not account for initial numbers of cells and spores, *i.e*., a one-log increase from 0.00001 cells per gram presents a much different risk than a one-log increase from 10,000 cells per gram. AMI worked with the risk assessment team to provide evidence that the initial number should be considered in establishing performance criteria for stabilization. Recent publications have demonstrated that raw meat and poultry generally contain low levels of *C. perfringens* vegetative cells and spores, especially when cooked (Kalinowski *et al*. *J. Food Protect*. 66: 1227-1232, 2003; Taormina *et al.*, *J. Food Protect.* 66: 72-81. 2003). Data from commercially-produced products that have deviated from FSIS cooling guidelines have consistently shown low levels of *C. perfringens* (Kalinowski *et al*. *J. Food Protect.* 66: 1227-1232, 2003). Inoculation studies have clearly demonstrated that spores of *C. perfringens* in raw meat and poultry products can survive cooking and multiply during cooling, but this is dependent on the product and cooling profile. However, the current requirement that products be cooled such that there is no growth of *C. botulinum* and only 1-log increase in *C. perfringens* is unnecessarily restrictive, especially given the absence of epidemiological data indicating illness related to improper cooling at an FSIS-inspected establishment. The risk management team examining the risk assessment should first consider whether a performance standard for stabilization is even needed and, if so, that a performance standard for stabilization should not be limited to 1-log growth of *C. perfringens* (as discussed below under industry recommendations).

Risk Assessment Assumptions and Research Needs

In general, risk assessments provide useful information to inform risk management decisions, and this risk assessment is no different. Overall, the risk assessment provides extensive insights into the uncertainties and assumptions associated with the many decisions that embody this risk assessment. The risk assessment states that "many sources of uncertainty have not been incorporated, and that the total size of the unincorporated uncertainties is unknown." The risk assessment concludes that the "absolute size of the risk estimates depends crucially on some of the assumptions made in the modeling. All of the results depend on the model being an accurate representation of what happens in reality, and there are many places in the modeling where what happens has not been adequately investigated (or, in some cases, investigated at all)." A review of the entire risk assessment, leads to the conclusion that there are simply too many unanswered questions and data gaps in the science needed for an accurate risk assessment to achieve more than a logical conclusion, *i.e*., that the more *C. perfringens* present, particularly as spores germinate and vegetative cells grow in foods that are temperature abused, the greater the likelihood of illness. This, food microbiologists knew already. The relative comparison in numbers of predicted illnesses supports the logical conclusion; but the actual numbers, largely based on assumptions, likely are inaccurate as true predictors of risk.

The "Research Needs" section is a well-written and important part of the risk assessment. These needs define many of the serious limitations of the risk assessment and should be used to define research sponsored by the United States Department of Agriculture (USDA). Establishing

performance criteria for *C. perfringens* for manufacturing processes should be done cautiously when data show the human health risk is extremely low. The "Research Needs" section points to the following uncertainties and assumptions that need to be addressed if the performance criteria are to be set based on relevant scientific data.

- As the risk assessment states, not all *C. perfringens* are equally capable of causing disease; "only 5% are capable of producing the toxin." There is a need to determine to what extent the population of *C. perfringens* in raw materials, cooked and chilled product, and products produced at retail, restaurants and in the home are enterotoxin-producing *C. perfringens* type A capable of causing illness. (A recent survey showed that approximately 4.3% of all *C. perfringens* isolates obtained from meats, poultry and seafood were type A strains positive for the enterotoxin gene (*cpe*), but only about 1.4% of the isolates had characteristics essential for causing foodborne illness (Wen and McLane, *Appl. Env. Microbiol.* 70: 2685-2691. 2004).
- The exposure assessment is seriously limited by the lack of knowledge regarding the number of servings of ready-to-eat (RTE) and partially cooked meat and poultry products produced in FSIS-inspected establishments, including servings of foods that contain such products.
- The risk assessment states that the "actual percentage of foods that are hot-held is unknown." As stated in the risk assessment, temperature abuse in institutional, restaurant or home settings is associated with most instances of *C. perfringens* food poisoning. As stated in the risk assessment, temperature abuse defined as improper hot-holding is a key factor in *C. perfringens* food poisoning related to retail, restaurant and in-home preparation and storage of RTE and partially cooked meat and poultry products, causing as many as 97% of outbreaks. Other causes include inadequate cooking; but neither of the primary causes is related to stabilization in inspected production facilities. Making an assumption that only 1% of meat-containing RTE and partially cooked food servings from Categories 1 and 4 are hot-held may be misleading. In addition, the assumption that in-home hot-holding times range from 0.5 to 8.0 hours (with a median of 2 hours) may be equally misleading. Data to improve the predictions of the impact of hot-holding, proven to be a critical factor in foodborne disease outbreaks, should be a top priority so that resources for monitoring and verification actions can be appropriately placed in the food production-service continuum.
- Understanding what comprises formulated meats that contain spices, and to what degree the spices contain *C. perfringens* cells or spores, is very important because foods containing spices, particularly those prepared outside of processing establishments, have been reported as vehicles of *C. perfringens* in numerous foodborne outbreaks. The "Research Needs" section calls for a national survey to update old, incomplete data on the role of spices and herbs used in food preparation today. FPA has confirmed with a spice company member that industry does not have data on *C. perfringens* in spices.
- The risk assessment does not distinguish between manufacturer, distributor, and retail storage, including transportation between these locations. This lack of differentiation

leads to inaccuracies and is especially important when the risk assessment assumes that 1999 data on retail products represent storage time data for all products from manufacturing and retail. The risk assessment states that approximately 93% of the illnesses predicted by the model occur as a result of growth of *C. perfringens* vegetative cells during storage, primarily between manufacturer and retail, with some also during home storage. The risk assessment fails to acknowledge the cold chain management instituted by manufacturers and the distribution system. Furthermore, the risk assessment states the need to improve the understanding of storage times for in-home storage of RTE and partially cooked meat and poultry products. Temperature is controlled by manufacturers because it is critical to shelf life; and, in most instances, this control extends into distribution, where temperature requirements are monitored as part of distribution HACCP plans or standard operating procedures, serving as the basis for acceptance or rejection of shipments. There are more limited controls in place at the many retail and restaurant levels, and in the home, where households are dependent upon the quality, setting, and maintenance of the home refrigerator. More data are needed on times and temperatures at specific points in the distribution chain to more accurately assess where the risk lies.

- The risk assessment clearly articulates a need to better understand the many aspects of germination of spores and growth of vegetative cells of *C. perfringens*. These aspects include the effects of salt and nitrite, food matrices, product formulations, frozen storage of raw materials used in fresh products destined for cooking, and rates of changes in temperatures experienced by the spores and cells during the food manufacturing and preparation processes.

Application of the Risk Assessment

The risk assessment defines its objective as determining "how the number or rate of illnesses is affected by growth during stabilization." The risk assessment states that this requires an estimate of how regulatory changes affect actual growth during stabilization, then concludes that such "estimates are impractical due to lack of information." Instead, the risk assessment evaluates the effect of "fixed amounts of growth applied uniformly to every serving." This approach is not realistic considering the billions of servings of meat and poultry products consumed each day, either as RTE or further-processed, partially cooked meat and poultry products. The conclusion from the risk assessment, that increasing the numbers of *C. perfringens* in meat and poultry products consumed by the public will increase the potential for foodborne illnesses related to *C. perfringens*, is no surprise. What is important are the many variables, assumptions, and uncertainties that were the basis for predicting not only the baseline number of illnesses, but the direct relationship between cell numbers at consumption and illnesses. Unfortunately, the data gaps described by the authors of the risk assessment are too many for an accurate prediction of risk. Even though general risk numbers were mathematically generated from the model, they are limited greatly in predicting specific risk from the wide variety of RTE and partially cooked meat and poultry products, as well as from the many formulated products made from these meat

and poultry products.

The assumptions are numerous for the dose-response modeling and are well characterized in the risk assessment (5.4). Many are highly unlikely to be true, *e.g.*, the dose-response is non-threshold or there is no effect of the food matrix. The risk characterization is summarized succinctly as "most illnesses are predicted to occur as a result of what can only be described as broken refrigerators," and that "growth during stabilization has only a small overall effect." The risk assessment demonstrates that the focus on stabilization at federally inspected facilities will not drop the number of illnesses as much as a focus on measuring and improving temperature control at retail, in restaurants and in the home. We believe that, as the risk assessment is improved over time, predictions based more on facts and less on assumptions will provide even more convincing evidence to support this conclusion.

In addressing the key question, *i.e.*, how does the amount of growth allowed through regulations affect the risk to consumers, the risk assessment states that this would "require knowledge of a mapping between the regulatory level of growth allowed, and the distribution of the amount of growth achieved in practice in all RTE and partially cooked foods." The risk assessment (3.12) makes clear that the mapping is not available because of a lack of information on such inputs as the cooling curves used by industry under various regulatory regimes. The result is that the risk assessment provides "some information, although not necessarily the exact information desired." FSIS should work cooperatively with industry to develop the necessary data to improve the model.

In the end, the predictions of the number of illnesses per year due entirely to growth during stabilization serve as comparative numbers, but very likely do not represent reality because of all the assumptions and unknowns acknowledged in the risk assessment. The predicted numbers are incredibly small (predicted to be <1 in 100 million servings for one-log of growth during stabilization to about 1 in 10 million servings for three-logs of growth during stabilization), and do not contradict data that show that RTE and partially cooked RTE meat and poultry products leaving federally inspected facilities do not pose any significant risk to public health. If, as stated in the risk assessment, approximately 93% of the illnesses predicted by the model occur as a result of growth of *C. perfringens* vegetative cells during storage, primarily between manufacturer and retail, with some also during home storage, then it might be assumed that 93% of illnesses could be addressed by requiring temperature monitoring and verification in transportation, storage, and food service operations. This approach would have more impact than focusing on growth during stabilization which has been shown to contribute negligibly to public health risks because of controls at processing establishments. The risk assessment stated that the "extent to which abusive hot-holding contributes to *C. perfringens* food poisoning cannot be accurately estimated by this risk assessment." This is unfortunate because, as stated in the risk assessment, improper holding temperature (including improper hot-holding) was cited by CDC as a contributing factor in 69 of 74 (93%) of outbreaks from 1988-1997 where a contributing factor was acknowledged.

Industry Recommendations Related to Stabilization Performance Standards

We believe that the historical safety of products produced under FSIS inspection warrants a change in the existing performance standard. FSIS should strongly reconsider the need for any stabilization performance standard. Establishments should address the potential hazard of growth from *C. perfringens* in the hazard analysis for their HACCP plan and implement appropriate controls.

However, if FSIS determines that a performance standard is needed for RTE meat and poultry products, a performance standard allowing a two- or even three-log increase in *C. perfringens* for stabilization would provide an appropriate safety margin based on the very low initial levels of *C. perfringens* spores and cells in raw meat and poultry. Regardless of the level of increase allowed in a performance standard, in the event of a cooling deviation, especially when modeling indicates that growth may have been only slightly above the allowable increase (*e.g.*, ≤ 0.5 log higher), an establishment should be able to test product using a scientifically valid sampling plan for *C. perfringens* to demonstrate that *C. perfringens* is present at levels not exceeding 1000/g. In addition, FSIS should not apply a performance standard to products that do not support growth of *C. perfringens*.

In addition, we believe that consideration should be given to changing the performance standard with respect to *C. botulinum.* We recommend that this issue be treated in the same manner as the lethality performance standards with respect to pathogens other than *Salmonella* – although the lethality performance standard targets *Salmonella*, it also requires the reduction of "other pathogens and their toxins or toxic metabolites necessary to prevent adulteration." Thus, if a performance standard is set for *C. perfringens*, it could also specify that establishments ensure control during cooling of other pathogens and their toxic metabolites necessary to prevent adulteration. This would give industry the flexibility of applying various control measures to assure product safety during cooling of cooked meat and poultry products. Although "no growth" is an ideal risk management goal to assure no *C. botulinum* hazard, a performance standard specifying this presents practical issues.

The *C. botulinum* cooling model in the USDA-Pathogen Modeling Program (version 7.0), by its very design (fitting the Gompertz function to data obtained at different temperatures, Juneja and Marks 1999), will predict some growth even when experimental data show that there is no growth. In light of this limitation, it has been suggested that if the PMP model predicts ≤0.3 log growth of *C. botulinum*, it could be interpreted that *C. botulinum* cells are in lag phase and have not multiplied (although there is no written Agency policy on this). From an industry perspective, process control during cooling can be designed in such a way that adequate control of *C. perfringens* will assure the hazard of *C. botulinum* (specifically, its toxin) is not reasonably likely to occur. During cooling, when temperatures are above 28 ^{o}C, because *C. perfringens* has a faster growth rate and shorter GOL (germination, outgrowth and lag) time than *C. botulinum* (Figure 3-4, in the *C. perfringens* risk assessment; Juneja and Marks 1999; Juneja et al. 1999),

growth of *C. perfringens* may be a conservative predictor for *C. botulinum* growth. (Given that only data in broth culture are available for *C. botulinum*, more research is needed to validate that this is true in meat and poultry products.) Between 25°C and 28°C the growth rates for the two organisms appear to be similar (Figure 3-4), but *C. botulinum* has a longer GOL time (Juneja and Marks 1999; Juneja et al. 1999). Since at 25 ^{o}C GOL time is considerably longer for *C. botulinum* (19.2 hr (Juneja and Marks 1999) vs. 7.4 hr for *C. perfringens* (Juneja et al. 1999)), for certain products with a prolonged cooling process, critical limits may include a limit on the time that product is held below 25 ^{o}C at no more than the GOL time for *C. botulinum* to assure adequate control. Finally, we concur with the recommendation made in the risk assessment on research need 7.2 regarding data on growth characteristics of *C. botulinum* to determine lag time, growth rate, and time to toxin products in heat-treated products.

SALMONELLA RISK ASSESSMENT

Risk Management Question Posed to the Risk Assessment Team

The risk management question posed to the risk assessors relates to the public health impact of alternative lethality standards of 5.0-log and 6.5/7.0-log reductions of *Salmonella* (7.0-log reduction for poultry). We presume the risk management question was derived, at least in part, from industry comments that sound science supports a 5-log reduction of *Salmonella* as an adequate level of safety for cooked meat and poultry products. A fundamental question not asked is whether or not differentiation between 6.5 and 7.0 log reductions is practical or necessary. FSIS has previously provided the basis for such a distinction, i.e., 6.5 for meat vs. 7 logs for poultry, which were derived from hypothetical contamination levels in 143 g of raw product. The hypothetical worst-case product numbers were based on overly conservative statistical derivations that are not likely to represent actual situations. It would be a benefit if the risk assessors, or FSIS, would substantiate that such a difference is measurable and significant in practical applications or simply a mathematical exercise that can lead to different regulatory standards based solely on modeling.

Limitations of The Risk Assessment due to Uncertainties, Assumptions and Data Gaps

The authors of the risk assessment are to be commended for their open and honest approach to the data gaps, uncertainties and assumptions associated with the risk assessment. They repeatedly acknowledge the absence of, or limited availability of, data useful to the estimation of risk associated with RTE products and *Salmonella*. The authors provide an extensive list of important limitations and assumptions in Section 1.5 that points to the limited usefulness of the conclusions from the risk assessment. Some of the key limitations include the lack of current pathogen burden in raw materials, the uncertainty in growth rates and storage conditions (increased by the need for broad groupings of products), and the uncertainty in risk associated with small numbers of pathogens (particularly important when considering the small number that

are assumed to survive the process). With so many limitations and assumptions, one must view the results of the risk assessment with caution, particularly with respect to using this risk assessment as a basis for any policy action by the Agency.

Given the significant uncertainties and data gaps that clearly limit the conclusions, it is interesting to note that, even with the lowest lethality performance standard (5-log reduction for all meat and poultry products), the estimated number of cases of salmonellosis is <66,000. While this number is not trivial, it is low, considering that CDC estimates over 1 million cases occur every year. Under the "split" or all "6.5/7.0" performance standard scenarios, there are < 2,000 cases (0.2% of the estimated salmonellosis cases). The number of cases for these two scenarios cannot be considered significantly different given the data limitations and uncertainties.

As described in Table 6-13 of the risk assessment and on p.83, the largest contributor to risk of salmonellosis for all lethality standard scenarios is cooked chicken (nuggets, tenders, non-deli). Cooked chicken is responsible for 62% of the cases under the "all 5" scenario, 22% under the split scenario and 36% under the 6.5/7 scenario. This suggests that resources should target cooked chicken to impact public health. Table 6-13 of the *Salmonella* risk assessment suggests that if resources are to be focused for public health reasons, and if the lethality standard were not reduced to 5-logs, then, in addition to cooked chicken products, summer sausage, thuringer, cooked pepperoni, salami, uncooked pepperoni, chorizo, soudjuk, meat sticks, and beef jerky should be targeted by FSIS, rather than the entire spectrum of RTE meat and poultry products. By focusing on these products, between 78 and 87% of the cases of salmonellosis predicted by the risk assessment for RTE meat and poultry products would be potentially impacted. The risk assessors caution, however, that due to the uncertainties, the "relative ranking (or attribution of total risk) among products should not be considered robust." If the uncertainties are such that the relative rankings are questionable, we wonder about setting a performance standard based on the risk assessment as well.

In the supplementary document to the risk assessment, the risk assessors respond to a question about the public health impact if only roast beef, cooked meat patties and cooked poultry have codified performance standards while all other RTE products remain non-codified. The risk assessors point out that "currently for non-codified products, processes may be designed, even if not yet required, to approach compliance with a 6.5-log standard." We concur with the risk assessors. Under the HACCP regulations, establishments, which are required to establish validated controls for hazards such as pathogens, have in many cases adopted the performance standards, or the lethality guidance that FSIS accepts as valid to meet the performance standards, in order to simplify compliance with FSIS requirements to document they are using valid controls. Thus, it is likely that establishing regulatory requirements for performance standards for other RTE products will have no measurable impact on public health.

Furthermore, in comments on the *Salmonella* risk assessment (attached) we took issue with the approach to 'scale up' from CFU/g to CFU/MKg that was done to emphasize that "although the majority of servings will not be contaminated, this level of contamination [1 CFU per 1,000,000 g of products] is sufficient to pose a non-negligible risk of illness to the consuming population." We indicated that each unit should be viewed independently with respect to the lethality treatment. If the lethality treatment is delivered properly, this results in the practical destruction of all pathogens of concern, although there will be a theoretical probability of some small fraction surviving. Since this fraction surviving is less than one, there are no survivors in the unit of food (whether this is a can of beef stew, a chicken breast or a hamburger patty). We ran a scenario analysis using the raw material pathogen burden per serving, rather than per Mkg, as the input. The predicted cases per year indicated that survivors in a serving (assuming the lethality is properly applied) pose a negligible level of risk to consumers – the estimated total number of cases for the 5-log, split, and all 6.5/7 log lethality standards was 0.03, 0.0009, and 0.0005 cases per year, respectively. This is the equivalent of 1 illness every 33, 1000 or 2000 years, respectively.

Industry Recommendations Related to the Lethality Performance Standard

We strongly recommend that additional baseline data on pathogen levels (e.g., *Salmonella*, *Campylobacter*, *C. perfringens* etc.) be obtained in accordance with guidelines provided by the National Advisory Committee on Microbiological Criteria for Foods prior to implementation of any new lethality performance standards. There is no need to extend the lethality performance standards to additional products unless a revised risk assessment and epidemiological data indicate there would be a public health benefit from implementing new standards. However, should FSIS feel it is necessary to proceed with performance standards for additional products at this time, we see no justification for any lethality performance standard to exceed a 5-log reduction for *Salmonella*.

As an additional matter, in March 2005, FSIS issued Notice 16-05 on Time and Temperature Tables for Cooking Ready-to-Eat Poultry Products that included 12 pages of time/temperature values for both chicken and turkey with varying fat contents. Establishments apparently had been utilizing the cooking temperatures and times outlined in Appendix A (compliance guidelines containing time/temperature tables designed for beef) for poultry for a number of years. The compliance guidelines for poultry are a single temperature for uncured (160°F) and (155°F) for cured poultry. We recommend that the compliance guideline for poultry in Appendix A be retained as guidance for poultry processors if new regulations are issued.

We appreciate the opportunity to comment on Agency plans to use the *C. perfringens* and *Salmonella* risk assessments as the basis for setting new lethality and stabilization performance standards.

Sincerely,

American Meat Institute
Food Products Association
National Turkey Federation