

REPORT OF THE CORPORATE RESPONSIBILITY COMMITTEE OF THE BOARD OF DIRECTORS OF McDONALD'S CORPORATION

Regarding the Feasibility of Implementing Controlled Atmosphere Stunning for Broilers

June 29, 2005

INTRODUCTION

In November 2004, People for the Ethical Treatment of Animals ("PETA"), owners of 199 shares of the McDonald's Corporation ("McDonald's" or "the Company") common stock, submitted a shareholder proposal for inclusion in the Company's 2005 Proxy Statement requesting McDonald's Board of Directors to issue a report to shareholders on "the feasibility of McDonald's requiring its chicken suppliers to phase in controlled-atmosphere killing within a reasonable timeframe, with a focus on the animal welfare and economic benefits that this technology could eventually bring to all our Company's slaughter facilities." PETA agreed to withdraw its proposal after the Board agreed to issue such a report on or before June 30, 2005.

The Company's Board of Directors has delegated the responsibility for the preparation of this report to its Corporate Responsibility Committee. The Corporate Responsibility Committee consists of four members, all of whom meet the independence requirements of the New York Stock Exchange. The Committee acts in an advisory capacity with regard to the company's policies and strategies related to issues of corporate responsibility, including (but not limited to) matters related to health and safety, and the environment. In fulfilling its charter responsibilities, the Committee has reviewed McDonald's animal welfare program and policies as part of its regular review of the Company's Corporate Responsibility Reports and other social responsibility initiatives. In addition, the Committee has recently reviewed and discussed the feasibility study regarding controlled atmosphere stunning for broilers prepared by McDonald's management (the "CAS Study")*. The CAS Study is attached to this report of the Committee.

McDONALD'S ANIMAL WELFARE INITIATIVES

The Committee and the Board support management's leadership efforts in the area of animal welfare. Although McDonald's is not directly involved in the raising, transportation or slaughter of animals, we understand the importance of the Company's role as a responsible purchaser. We know that safety and quality of food products begin at the farm and continue across the front counter of our restaurants. McDonald's animal welfare program, which is described in the CAS Study and on the Company's website, is

* The PETA proposal refers to controlled atmosphere killing (CAK). We use the term "controlled atmosphere stunning" as it is the more common term in scientific discourse.

an integral part of the Company's overall quality assurance program, which is designed to ensure the quality and safety of every McDonald's product served in over 30,000 restaurants around the world each day.

The Committee notes and is pleased that the Company has established an independent expert Animal Welfare Council to assist in educating our supply chain management on important technical issues and areas of priority that affect McDonald's and its food suppliers. We believe the use of established independent experts to guide the development and improvement of the Company's animal welfare program is appropriate and useful, given, among other things, the emerging and diverse nature of technology in all areas of food supply.

It is in the spirit of continuous improvement that the Board agreed to review issues with regard to the feasibility of requiring the Company's chicken suppliers to phase in controlled atmosphere stunning within a reasonable timeframe. To assist in its review, the Committee directed McDonald's management to prepare the CAS Study.

CAS STUDY

The CAS Study provides a thorough review of the development of CAS technology, animal welfare considerations and the experience of McDonald's European poultry suppliers that have used CAS at their plants. In preparing the CAS Study, management sought the advice of and received input from the independent Animal Welfare Council, and the CAS Study is consistent with their feedback and counsel. The Study summarizes areas of general consensus related to CAS, as well as issues that McDonald's management believes require further study, testing and other clarification as the CAS technology continues to emerge. We have reviewed and discussed the CAS Study with members of McDonald's Animal Welfare Team and executive management of the Company, and believe the Study provides a balanced assessment of current CAS technology and use.

CONCLUSION

Based on our review of McDonald's animal welfare program and the CAS Study, we have concluded that the Company's current standards for animal welfare are appropriate for the Company's global supply chain at this time. We believe that the application of CAS in commercial environments is still in the early stage of development, and therefore, it is premature to make any commitment on future actions at this time. Further, we believe it would be speculative at best to attempt to quantify the economic effect of this science on the Company or its suppliers at this time. We are confident, however, in management's commitment to monitor CAS technology. The Committee will continue to review and discuss future assessments in this and other areas of animal welfare improvements that are appropriate and sensible for the McDonald's business and will report to the full Board of Directors as needed to ensure oversight of these important issues.

**McDONALD'S ANIMAL WELFARE FEASIBILITY STUDY
CONTROLLED ATMOSPHERE STUNNING FOR BROILERS**

**REPORT PREPARED FOR McDONALD'S MANAGEMENT
BY McDONALD'S ANIMAL WELFARE TEAM
JUNE 2005**

Introduction

In keeping with McDonald's commitment to animal welfare leadership, we continuously seek opportunities to ensure humane animal handling practices in our supply chain. In this effort, we are assisted by the advice and counsel of our Animal Welfare Council—a panel of independent experts specializing in relevant aspects of animal welfare science and animal welfare issues.¹ We also collaborate with our global meat suppliers to identify best practices, evaluate emerging technologies, and develop initiatives to advance our animal welfare commitment.

McDonald's is not directly involved in the raising, transportation, or slaughter of animals. Our role, therefore, is to work with our direct suppliers—those that take raw meat and process it into hamburgers, chicken filets, and other food products—to understand the relevant issues and collaboratively evaluate potential enhancements to our animal welfare program. Their practical experience makes them subject matter experts on what is feasible and what can advance humane treatment of animals at the processing stage.

After the formation of the Animal Welfare Council, in 2000, and in collaboration with our meat suppliers, we began to study the feasibility of incorporating controlled atmosphere stunning (CAS) into our animal welfare program.² Consistent with our commitment to continuous improvement and in response to supplier and other stakeholder interest, we recently undertook, at management's direction, to expand and update our examination of the relevant research and practical options.

The following report has been prepared for McDonald's management by McDonald's Animal Welfare Team—a cross-functional group of McDonald's internal experts on the issues. Consistent with management's direction, it reflects a variety of sources, including reports of third-party expert consultations and

¹ A listing of current Animal Welfare Council members, with their credentials is available on our corporate Web site at http://www.mcdonalds.com/corp/values/socialrespons/resrecog/expert_advisors0/animal_welfare_council.html.

² Controlled atmosphere stunning is also sometimes called controlled atmosphere killing (CAK). We use the former term as more common in scientific discourse.

commissions, the experience of the McDonald's poultry suppliers in Europe that use CAS in some of their facilities, views of other poultry suppliers to the System, and input from McDonald's Animal Welfare Council. The report also draws on an extensive review of the scientific literature conducted for us by Dr. Simon Shane.³

The purpose of the report is to present our understanding of CAS and the feasibility of incorporating it into McDonald's global supply chain.

The report briefly:

- Places broiler stunning within the context of McDonald's global animal welfare program.
- Provides an overview of stunning technologies.
- Outlines the history of the development of CAS and related research.
- Summarizes our European poultry suppliers' views on the advantages and disadvantages of CAS.
- Identifies areas of expert consensus and areas where questions remain.

Management has reviewed and approved the report. The final section presents management's conclusions and direction for further action.

McDonald's Animal Welfare Program

McDonald's has a longstanding, publicly-recognized commitment to animal welfare. Four years ago, with the guidance of our Animal Welfare Council, we issued global Animal Welfare Guiding Principles. These principles set forth basic commitments that govern programs in all the countries where we do business.

We have established standards to articulate specific animal welfare expectations for our suppliers. They require, among other things, that "all animals be rendered insensible (unconscious so as not to experience pain) prior to and during the slaughter process." Our interest in the potential of CAS is thus an outgrowth of well-established corporate policy and our commitments to quality and humane animal handling practices.

Frequent staff and third-party audits verify adherence to our standards and promote continuous improvement. The audit protocol for poultry processing facilities includes a number of objective measures of proper bird handling and stunning efficiency. Last year, more than 140 poultry processing facilities were audited—most of the facilities that supply the worldwide McDonald's System.

³ Dr. Shane is the author of numerous publications on poultry science issues and Professor *Emeritus* of the School of Veterinary Medicine, Louisiana State University. He is currently an Adjunct Professor in the Department of Poultry Science, North Carolina State University.

Stunning Technologies

The standard in modern poultry processing plants is to render birds insensible—that is, unconscious and incapable of feeling pain—prior to slaughter. The process is known as “stunning.”

There are two basic technological approaches to stunning—electrical stunning and CAS. With the former, stunning is achieved by wetting the birds’ heads in a brine bath and creating an electrical circuit between their heads and the shackle holding their feet. CAS achieves insensibility by exposing broilers to either a mixture of inert gases (nitrogen and argon) or concentrations of carbon dioxide. The gas mixture deprives birds of oxygen, causing them to lose consciousness.

The technologies involve differences beyond the methods used to render birds insensible. For example, in electrical stunning systems, birds are removed from the delivery crates and shackled before stunning. In CAS systems, birds are exposed to the gases while still in the delivery crates or after being unloaded onto a conveyer belt. This, among other differences, has animal welfare implications and thus must be considered in assessing technological alternatives for stunning.

Development of CAS Technology

CAS was developed in the UK in response to dissatisfaction with electrical stunning, as practiced in the 1980’s. Because early stunners were ineffective, a high AC voltage had to be used to achieve reliable stunning. This ensured insensibility prior to further processing, but it impaired meat quality. Questions were also raised about the animal welfare aspects of electrical stunning, principally because the process could be inconsistent and thus not render all birds insensible prior to slaughter.

Such problems stimulated research to develop CAS as an alternative to electrical stunning. Much of the work has been conducted at Bristol University by Dr. Mohan Raj and colleagues. In a lengthy series of studies, commencing in 1990, they and later others measured the reliability of various gas mixtures as agents to induce unconsciousness and the exposure times that different combinations of gases required for effectiveness.⁴

Successive studies evaluated various mixtures of carbon dioxide, nitrogen, and oxygen. Others evaluated the use of an argon environment with variable small amounts of oxygen. Researchers also tested a two-stage induction of insensibility using successively higher concentrations of carbon dioxide and a

⁴ As part of his work for us, Dr. Shane provided an account of the technical aspects of these studies and others focused on certain animal welfare aspects of CAS.

three-part mix of carbon dioxide and oxygen in argon. These studies progressively refined CAS options, effectively eliminating some mixtures as inefficient and identifying others as preferable.⁵

Still other studies compared carbon dioxide stunning, at various concentration levels, to high-voltage electrical stunning. A simulation study of this sort found that both carbon dioxide mixtures at higher levels and high-voltage electrical systems were effective as stunning methods but that each produced distinctive types of carcass injury.

Another U.S. study, by scientists at the University of Georgia, addressed the issue of aversion, *i.e.*, negative responses to concentrations of carbon dioxide. They reviewed the two-stage carbon dioxide approach and found that, at a 30% concentration, the two-phase combination optimized stunning efficiency, minimized aversion and convulsions, and was irreversible. Several studies in the U.S. focused on the relative effects of different stunning gases (nitrogen, argon, and carbon dioxide) on meat quality and found no significant difference.

Animal Welfare Considerations

Concurrent with other CAS research, certain studies examined particular animal welfare aspects of various gas mixtures proposed for CAS. These studies looked at respiratory responses, head shaking, and other signs of apparent distress or used EEG tracings.

In 1998, the European Commission's Scientific Committee on Animal Health and Animal Welfare reviewed available research and issued a report on the suitability of CAS from an animal welfare perspective. It concluded that the use of gas mixtures for stunning or killing birds can eliminate stresses associated with electrical stunning, but that none of the major gas mixtures in current use had been sufficiently researched to permit "firm recommendations."

The Committee also identified additional research needs and set forth types of scientific evidence that would be required for approval of a gas mixture. The factors it said should be considered were:

- Aversion to the method, *i.e.*, its potential for causing distress, as determined through observations of behavior, hormonal changes, and/or other means.
- Exposure times required to stun or kill effectively, based on evidence of unconsciousness or death.
- Neck-cutting intervals required to avoid recovery of consciousness.

⁵ For example, these studies and others that followed have led to a general consensus that, for carbon dioxide mixtures, a two-stage induction process is preferable to initially exposing birds to a concentration level high enough to ensure continuing insensibility.

- Effects on carcass and meat quality.
- Effects on worker safety.
- Practicality of the method.

Unresolved issues the Committee noted are still subjects of research and debate.

In December 2000, a symposium on CAS was held in Oldenburg, Germany. Reported research included a trial conducted under the auspices of the EU Volair Study. In this study, EEG data and behavior were monitored during successive phases of anesthesia and euthanasia using a variety of gas mixtures. Animal welfare was also evaluated on the basis of physical signs of agitation, discomfort, or distress during the period of consciousness. The symposium ultimately endorsed several versions of two-phase and three-phase carbon-dioxide systems.

In June 2004, the Scientific Panel on Animal Health and Welfare of the European Food Safety Authority (EFSA) issued a report on the main systems of stunning and killing commercial species, including poultry. The panel indicated its preference for CAS technology, but noted the need for further research to determine the appropriate gas mixture and other specifications, *e.g.*, the duration of unconsciousness after stun. More generally, the panel concluded that “there is an urgent need for further detailed investigations of the mechanisms and effects of the different stunning methods, their technical and organizational performance in practice and improved and continuing education of the staff to ensure good animal welfare.”

Also in June 2004, the Humane Slaughter Association (HSA) and the Universities Federation for Animal Welfare (UFAW) held a workshop on CAS in poultry processing to disseminate information and potentially forge a consensus about the state of the art and future direction. Participants included representatives from academia, manufacturers of CAS systems, the poultry industry, and the UK Department for Environment, Food, and Rural Affairs (DEFRA).

Discussion focused on research into the effects on birds of the two main approaches to CAS—CO₂ mixtures and anoxic (argon/nitrogen) mixtures. The consensus was that the studies “provide important information but don’t seem to resolve all the issues related to current CAS systems. They also have the limitation of not being carried out in commercial conditions.” More specifically, the group found that:

- Commercially, there may be some birds that show signs of recovery before killing and that this issue may have to be resolved if CAS is to be widely adopted in Europe.

- “There seems to be a question mark about the experience of birds flapping in anoxic gas mixtures,” *i.e.*, whether the birds are still conscious or have periods of consciousness and, if so, whether the flapping is distressful or painful.
- There is “undoubtedly unpleasantness associated with the most common CO₂ mix.... We seem to have a better understanding of the problems of the CO₂ mix, but it does not meet all the criteria we would like in a CAS system.”
- “The choice may be between an unpleasant or painful initial phase but apparent calm subsequent transition from unconsciousness to death or a non-aversive initial phase but with a potentially violent or distressing transition to death.”⁶

In December 2004, at a seminar sponsored by the U.S. Department of Agriculture, Dr. Raj reiterated his view that argon/nitrogen gases are superior, from an animal welfare perspective, to carbon dioxide. The key difference, he argued, is that they induce death through anoxia (oxygen deprivation) rather than suffocation. However, earlier in the year, a comparative laboratory-scale trial using carbon dioxide mixtures at the University of Georgia found no negative welfare concerns associated with carbon dioxide use.

In the UK, DEFRA is currently in the final stages of a CAS study that will address, among other issues, whether CAS is a humane approach, particularly as compared to electrical stunning, and whether any gas mixtures are preferable or, alternatively, so inferior as to merit prohibition. This study is expected to influence new animal welfare legislation in the UK and at the EU level.

There are other pending regulatory developments that may have practical implications for CAS feasibility. The European Commission is working on a directive that will provide further stunning guidance for poultry suppliers in all member countries. The directive will presumably reflect the June 2004 EFSA Scientific Panel report.

At the global level, the UN Office International des Epizooties (OIE)—the lead agency for global guidance on animal health and animal welfare policies—has just adopted guidelines on humane slaughter. These cover, among other things, uses of electrical stunning and of CAS, both with CO₂ mixtures and inert gases. The guidelines express no preference for one method over others. Rather they identify, for each method, animal welfare concerns and/or implications and key animal welfare requirements. OIE guidelines serve as a source of scientific expertise for national governments, industry, and other stakeholders.

There are thus uncertainties from both a research and a regulatory perspective. In an as-yet unpublished paper, Dr. Temple Grandin observes, as did the

⁶ The foregoing is based on a summary of workshop highlights provided by HSA. A report on the proceedings was published in *Animal Welfare 2005*, 14:63–88.

HSA/UFAW group, that the translation of research results into commercial use introduces additional factors.⁷ “Inert gas mixtures that may work in a small box in the lab,” she writes, “may not work out in the commercial plant.”

Experience of McDonald’s European Poultry Suppliers

McDonald’s has learned about the practicalities of CAS technology through the direct experience of some of our poultry suppliers in Europe. They have been using the technology at a few of their plants—in one instance for as long as seven years—and are considering potential expansion. We are continually assessing their feedback on the process.

Benefits they have noted thus far include improvements in:

- Bird handling, because birds are not shackled while conscious or subject to certain irregularities incident on electrical stunning e.g., pre-stun shocks.
- Stunning efficiency.
- Working conditions due to reduced needs for physically handling live birds.
- Meat yield and quality.

Supplier input also indicates certain disadvantages to CAS, specifically:

- Gas control systems are more complex than electrical stunning systems. They require specialized worker training and ongoing monitoring to maintain the proper proportion of gases and avert safety risks.⁸
- Initial capital costs and gas supply costs are high.
- Gas systems require more space in processing plants than electrical systems. Reconfiguring smaller plants to accommodate a gas system may be difficult.
- Feather removal can be more difficult, and there may be scratching and/or wing damage.

⁷ Dr. Temple Grandin is an Associate Professor of Animal Science at Colorado State University and a member of our Animal Welfare Advisory Council. Further information about Dr. Grandin and her work, including findings and recommendations on stunning, is available on her Web site, www.grandin.com.

⁸ Electrical stunning systems must also be monitored, but gas systems are subject to greater and more frequent fluctuations. In her aforementioned paper, Dr. Grandin notes the need for frequent adjustments in a CAS gas mixture, based on direct observations of bird reactions. “Slight changes in the mixture can cause birds to flap violently.... Changes in wind direction around the plant or fans turning on in the plant can change the gas composition.”

Other Technological Developments

While CAS technology was developing in Europe, electrical stunning technology was evolving in the U.S. As a result, U.S. poultry processing plants commonly use low-voltage AC or DC electrical stunners that can render birds insensible before slaughter without affecting meat quality.

In 1997, a further improvement was introduced, based on research on electro-anesthesia for humans. This technology uses a low-voltage, pulsed DC current followed by a constant low-voltage AC current, rather than a constant low-voltage

current of either wave type. The pulsed DC current is used to stun the bird. The AC current then prolongs the stun while the bird is moved down line for further processing. The two-phase technology is commercially available and is used in some plants that supply McDonald's in the U.S. and the UK, as by well as other poultry suppliers.

Assessment of Existing Knowledge

Research and practical experience to date have led to widespread consensus on certain issues. Other issues remain unsettled. These await further research and/or testing in actual commercial environments.

Areas of General Consensus

Experts seem largely to concur on the following basic premises related to CAS:

- When compared to stunning with a high-voltage AC current, CAS has advantages from both an animal welfare and a meat quality perspective.
- CAS obviates potential distress and injury resulting from the physical handling and shackling of unstunned birds.
- Certain other potential causes of distress are eliminated, *e.g.*, premature shocks, cases of inadequate stunning.
- Properly designed and operated CAS systems can expeditiously and effectively stun and kill broilers with relatively low rates of aversion or other distress.

Issues Requiring Further Study, Testing and/or Other Clarification

- *Appropriate gas mixture.* As indicated above, researchers and CAS manufacturers differ on the appropriate gas mixture to use. From an animal welfare perspective, the debate is critical because at least one well-recognized authority, Dr. Raj, maintains that use of carbon dioxide causes pain and panic reactions, while other experts have concluded that multi-phase carbon dioxide systems are humane.

- *Regulatory environment in Europe.* The unresolved debate about gas mixtures is reflected in the regulatory environment and thus has implications for feasibility. For example, country-level legislation in Europe would, at this point, preclude the universal adoption of any CAS system for McDonald's poultry supply chain. Great Britain permits only single-phase systems, while France permits only two-phase carbon dioxide systems. Although most European countries have no explicit legislation on the issue, their *de facto* permissiveness is not necessarily long-lived and so cannot be relied on. The pending EU legislation noted above could establish new limits on CAS options.
- *Design of current major CAS systems.* The design of major CAS systems in current use also raises unanswered questions with potential implications for animal welfare. For example, the OIE guidelines cite possible recovery of consciousness with systems using inert gases, *i.e.*, argon and nitrogen.⁹ It has also been found that, when exposed to oxygen-depriving environments in commercial settings, some proportion of birds will respond with strenuous wing-flapping. Researchers differ on whether the birds are still conscious when the flapping begins and, if so, whether the flapping is associated with distress or pain.
- *Worker health and safety issues.* There are also worker health and safety risks associated with the use of pressurized gas systems, particularly those designed to induce oxygen deprivation. It is unclear that these risks have been adequately assessed and appropriate safeguards developed.

Management Conclusions

Based on our review of this study by McDonald's Animal Welfare Team, we agree that CAS has potential. We will continue to explore the practical experience of our European suppliers who use CAS systems. We will also support efforts to improve understanding of the technological issues involved in commercial CAS applications and act to accelerate further developmental work.

Given the remaining unanswered questions, however, it would be premature to require adoption of what is still an emerging technology.

We can see that there have been significant laboratory trials related to different types of gases, mixtures, exposure times, and concentrations. Yet unresolved issues remain for both principal gas mixture types, including the possibility that birds may experience pain or distress before insensibility is achieved. Significant

⁹ The guidelines also note animal welfare concerns for CO₂ mixtures—specifically, aversive reactions to high CO₂ levels, respiratory distress, and possibilities of inadequate exposure.

new research and reports are expected in the near future. We need to consider them before making any definitive conclusions or commitments.

There is also still much to learn about the application of CAS in commercial environments. As a responsible company, we must have higher confidence that any significant investment we require of our suppliers will not prove problematic or be rapidly superseded by improved technology.

Like all McDonald's supply chain quality systems, our animal welfare program aims toward continuous improvement. In that spirit, staff will, at our direction, continue their efforts to learn more about CAS. While still monitoring CAS technology advances in Europe, they will also study the results of our poultry processing facility audits. These, we believe, can be a useful source for assessing the animal welfare implications of different stunning systems and potentials for improvement.

Concurrently, McDonald's Animal Welfare Team will continue work with our U.S.-based poultry suppliers to improve the effectiveness of their electrical stunning processes. We recognize animal welfare issues in the existing technology. Working with our suppliers, researchers, and other scientific experts, we will explore newer, emerging systems and methods that may address such animal welfare concerns as pre-stun stress, cases of inadequate stunning, and potential stresses and injuries related to bird catching, transportation, and shackling. We do not want, at this point, to rule out the possibility of further technological advances that would obviate these animal welfare concerns.

Anticipating additional experience, further evolutions in the scientific research, policy developments, and perhaps developments in commercial applications as well, we have directed staff to closely monitor developments in CAS technology and to conduct a follow-up assessment of CAS no later than the end of 2006 and sooner if new developments warrant.

APPENDIX I LITERATURE REVIEW¹⁰

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¹⁰ Prepared for McDonald's Animal Welfare Team by Dr. Simon Shane.

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