

Statement of Opportunity

A CASA Project Team to Develop a CFO Air Quality Strategic Plan in Alberta

A Statement of Opportunity

to

The Clean Air Strategic Alliance (CASA) Board of Directors

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1. Introduction

One of the leading public issues that existing, expanding and new confined feeding operations (CFOs) face in Alberta are nuisance complaints about odor and dust and concerns about odor and dust impacts on the health of workers, neighbors and local communities. As well, numerous questions have arisen on the impact of specific CFO air emissions (e.g. NH₃, H₂S, VOC, PM_{2.5}, PM₁₀, endotoxins) on human and animal health and air/environmental quality. These air quality concerns about CFOs have received much attention lately from policy makers, media, environmental groups, local residents, and agriculture producers. The discussions on CFO air quality have been numerous and in some cases contentious. Further, there is some scientific information available on measuring and reducing odor, dust, ammonia and hydrogen sulfide from CFOs; however, little is known about the potential health impacts from CFO air emissions, particularly on neighbors and local communities.

Effectively addressing public concerns regarding CFO air emissions will improve relations between livestock producers, their neighbors, and local communities. Implementation of reasonable, scientifically sound air management practices by CFOs will improve air quality and protect human, animal and environmental health, while ensuring the economic prosperity of Alberta's livestock industry.

To address CFO air quality issues, a process is needed where major affected stakeholders can work together collaboratively to

- identify CFO air quality concerns,
- develop an understanding of each others interests,
- identify common interests, and
- identify and implement innovative solutions that meet common goals and reduce concerns.

2. Background

The Intensive Livestock Working Group (ILWG) is an “ad hoc” committee that addresses common issues facing livestock producers in Alberta. Members include the Alberta Beef Producers, Alberta Cattle Feeders' Association, Alberta Chicken Producers, Alberta Egg Producers, Alberta Hatching Egg Producers, Alberta Milk Producers, Alberta Pork, and Alberta Turkey Producers.

Environmental issues, such as air emissions, are a common issue that impacts all confined feeding operations in Alberta.

Confined feeding operations (CFOs) are defined as fenced or enclosed land or buildings where livestock are confined for the purposes of growing, sustaining, finishing or breeding by means other than grazing, and any other building or structure directly related to that purpose, but does not include residences, livestock seasonal feeding and bedding sites, equestrian stables, auction markets, race tracks or exhibition grounds. (AOPA Act, Section 1).

In Alberta, a CFO is generally thought of as beef feedlots, hog operations, dairy operations, and chicken, turkey and egg operations. Most public environmental concerns in Alberta related to CFO air quality have focused on beef feedlots and hog barns.

In Alberta, there are approximately 212 feedlots with over 1000 head capacity, 1200 hog operations, 800 dairy operations, 285 broiler operations, 40 hatching egg operations, 59 turkey operations, and 170 table egg operations dispersed throughout the province. Some types of CFOs tend to be concentrated in certain geographical areas in the province because of access to meat processing plants and natural resources, such as water and fertile soil for growing crops for animal feed e.g. feedlot industry is located predominantly south of Calgary and the swine industry is located predominantly along the Highway 2 corridor.

The public and various government agencies have expressed concerns over air emissions from CFOs. Air emissions from CFOs may create a nuisance, a potential health concern for CFO workers, neighbors, local communities or the animals themselves, and contribute to impacts on or deterioration in environmental quality, such as global warming (greenhouse gases). CFO emissions are generally diffuse, arising from non-point sources, such as feeding pens, lagoons or land after manure application. The emissions arise from the animals themselves, manure, buildings (which may be point source), and include dust from roads and cropping (e.g. tillage). Odor emissions from livestock are complex and comprised of over 160 compounds, including ammonia, hydrogen sulfide, volatile organic carbons, and particulate matter. Odor is a subjective measure and perceived differently by individuals, making it all the more difficult to resolve concerns and implement effective controls. The concentration of CFOs in certain geographical locations in Alberta has resulted in public concerns and questions about cumulative air quality impacts.

Alberta Agriculture, Food & Rural Development is responsible for legislation and associated environmental regulations for all livestock operations in Alberta, to ensure that they meet the needs of the livestock industry and public. The Agriculture Operation Practices Act (AOPA) was passed in the 2001 fall session of the Legislative Assembly of Alberta and came into effect on January 1, 2002, launching a new standard for environmental management of Alberta's livestock industry. In June 2004, AOPA was amended to provide further clarification of the requirements for the livestock sector.

AAFRD is responsible for AOPA and takes a lead role in providing extension services, information materials and technology transfer of applied research related to AOPA. The Natural Resources Conservation Board (NRCB) is responsible for administering the regulations under AOPA and reports to the Minister of Sustainable Resource Development. Under AOPA, the NRCB is responsible for reviewing and processing applications for new and/or expanding CFOs as well as for compliance monitoring and enforcement of permit conditions and the regulations. The Farmer's Advocate of Alberta deals with nuisance cases, such as odor or dust resulting from agricultural operations that are in compliance with the legislation.

Over the last few years, the ILWG has worked proactively with AAFRD to put in place provincial environmental regulations that establish minimum standards for all confined feeding operations. The regulations are intended to ensure the wellbeing of

the public is protected, as well as to support a growing and economically sustainable livestock industry in Alberta. In addition, the ILWG has worked with AAFRD to increase producer awareness of beneficial management practices that can be implemented on farm to reduce CFO air emissions e.g. Beneficial Environmental Management Practice (BMP) manuals, Environmental Farm Plans, conferences focusing on manure management and CFO air emission issues.

The ILWG and AAFRD have conducted numerous literature reviews to better understand the sources of agriculture emissions, including the impact of CFO air emissions on environmental quality and human and animal health. One noteworthy review is the Texas A & M University literature review which looked at the impacts of CFO air emissions on human health. The results of this review indicated that there were few scientific studies regarding this relationship.

The ILWG and AAFRD have also worked to identify the source of emissions from livestock operations as well as practical, cost-effective technologies that can be applied on farm to reduce air emissions. The AAFRD/AE agriculture emissions inventory put into perspective the relative contribution of specific air emissions from various types of livestock operations, other types of agriculture (e.g. cropping), and other industries. It was shown that agriculture (livestock, cropping) was a major emitter of ammonia, but livestock were a minor emitter of other compounds e.g. sulfur, PM.

The industry and AAFRD have also conducted research in areas where gaps in knowledge have been identified e.g. impacts of barn air emissions on hog and poultry workers, accurate measurement of odor, odor dispersion modeling, methods to reduce odors, sources of dust emissions and methods to reduce dust, measurement of greenhouse gases and methods to reduce GHG emissions. New research information has been disseminated to producers through government and industry newsletters, websites, and workshops.

Following a September 2002 CASA Board planning session, CASA requested a meeting with the ILWG and AAFRD, to explore CASA's potential role and determine whether other stakeholders were interested in addressing CFO air quality concerns. On June 4, 2003, members of the ILWG and AAFRD met with interested members of CASA to update them on activities related to CFO air quality and discuss the potential role of CASA in addressing public health concerns. The ILWG members indicated that they were in the process of developing a strategic business plan to address CFO air quality issues and it was agreed that the ILWG would present the strategic business plan to CASA once completed.

The ILWG strategic business plan was completed in early 2004 by a group of independent local and international consultants specializing in livestock production, engineering, medicine (human and veterinary), epidemiology, law, and social sciences. The strategic business plan included the following: 1) CFO air quality concerns, 2) current knowledge, 3) gaps in knowledge, 4) potential stakeholders to address concerns, 5) potential organizational structures to address concerns, 6) draft mission statement and short/long term goals, 7) guiding principles, and 8) potential research to address gaps in knowledge. One of the four organizational structure options identified in the ILWG business plan to address CFO air quality

concerns in Alberta was the development of a new working group and project team under CASA.

A summary of the ILWG strategic business plan was presented by the ILWG CFO Air Quality Committee, a subcommittee of the ILWG, and AAFRD to the CASA Board in March 2004. Following the CASA meeting and based on a suggestion from the CASA Board, the ILWG CFO Air Quality Committee and AAFRD met with CAPP to discuss how the petroleum industry addressed flaring issues through CASA using the Comprehensive Air Quality Management System (CAMS).

Another meeting of members of CASA, the ILWG, and AAFRD, who had met the previous year, was held on June 29, 2004. The purpose of this meeting was for the ILWG and AAFRD to learn more about the CASA process and to explore opportunities to work with CASA to address CFO air quality concerns. The outcome of the June 2004 CASA meeting was an agreement among participants that the ILWG and AAFRD would draft a Statement of Opportunity to develop a CFO Air Quality Strategic Plan. The Statement of Opportunity would be presented for review by the CASA Board in the fall of 2004, once it had been approved by members of the ILWG at their September meeting. It was also agreed that CASA and CAPP would make presentations at this next meeting to explain to all members of the ILWG how the CASA process worked, providing an example from the petroleum industry.

3. Clean Air Strategic Alliances' Key Role

CASA is a non-profit partnership of diverse stakeholders from three sectors – government, industry and non-government organizations (NGOs), such as health and environmental groups, who have a shared responsibility for strategic air quality planning, organizing and coordinating resources, and evaluating results in Alberta through a collaborative and consensus-based process. CASA provides core funding to support infrastructure and looks to members of working groups to identify and secure additional funds to cover project costs. The proposed multi-stakeholder project team herein would facilitate the development and implementation of a strategic plan to address CFO air quality concerns in Alberta.

4. Alignment with CASA Core Business

a. CASA Vision

The vision of CASA is “that the air will be odourless, tasteless, look clean and have no measurable short or long-term adverse effects on people, animals or the environment”.

CASA's goals are

- pollution prevention and continuous improvement to protect air quality,
- prevention of short and long-term adverse effects on human, animal and ecosystem health due to air emissions, and
- assurance that air quality recommendations optimize social, economic and environmental benefits and minimize costs to Albertans.

The development of a strategic plan to address concerns related to CFO air emissions fit within the role mandated to CASA. Additionally, the statement

of opportunity herein calls for a strategic approach to the issue, as the issue has been raised province-wide and there are many stakeholders with an interest in this issue. Thus, the development of a multi-stakeholder project team to create a strategic plan to address CFO air quality concerns meets the criteria of CASA and falls within CASA's purview.

b. Comprehensive Air Quality Management System

CASA teams work through the Comprehensive Air Quality Management System (CAMS) toward the CASA vision. CASA is a leader in defining innovative approaches for air quality management in Alberta. The CASA Board initiated a strategic planning process in September 2002 where members identified nine air quality issues that needed to be addressed and could be addressed by CASA. At a subsequent meeting in March 2003, board members discussed each issue in detail to determine an appropriate role for CASA. The result was a decision to pursue opportunities to form new project teams, including a new team potentially on confined feeding operations (intensive livestock operations). Thus, this proposal is consistent with CASA's mission and core business of enabling strategic air quality planning through a collaborative process as outlined in the CASA Business Plan 2003-2005.

c. Why should CASA endorse this proposal for livestock operations?

There is no other multi-stakeholder, consensus based process in Alberta that strategically addresses public air quality issues. The ILWG and AAFRD both believe that by using CASA's consensus based process it will help ensure that relevant stakeholders are involved in the development of the strategic plan to address CFO air quality concerns to ensure that there is buy-in and support from these same stakeholders. CASA's involvement in the development of the strategic plan for CFO air quality will lend credibility to the process and project outcomes in the public eye. While some work in Alberta is ongoing to minimize CFO air emissions, there is no existing comprehensive strategic plan developed and endorsed by all interested stakeholders that pulls together existing information, identifies gaps in knowledge, and outlines short and long term action plans to address public concerns. For these reasons, the ILWG and AAFRD believe that CASA provides the best organizational process to help develop a comprehensive credible plan that addresses CFO air quality concerns strategically, while balancing the interests of major stakeholders.

5. Goals of the ILWG and AAFRD

The confined feeding industry in Alberta and AAFRD want to move forward proactively to address CFO air quality concerns in a collaborative process. Specifically, the ILWG goals are

- to continually improve our understanding and management of CFO air emissions in order to reduce our impact on the environment and improve relationships with our neighbors and local communities,
- to ensure that measures to reduce air emissions from CFOs are necessary, practical and effective,

- to ensure that CFO regulations and policies are fair, based on sound science, address the concerns of Albertans and do not reduce the competitiveness of Alberta's livestock industry, and
- to ensure the economic viability of the livestock industry in Alberta.

Alberta Agriculture, Food & Rural Development's goal is to improve environmental stewardship. This goal recognizes that it is the responsibility of the Ministry to support the agriculture and food industry to maintain or improve Alberta's air for the well-being of current and future generations. The Ministry contributes to this goal through essential policy, legislation, information and services related to air quality. Strategies that support this goal include:

- transfer integrated technology and knowledge to assist the industry in becoming more environmentally sustainable,
- support and conduct applied/adaptive research and evaluations to find economically sound, environmentally friendly technologies and management practices for livestock production, and
- in consultation with the industry and other involved ministries, provide guidelines, standards, regulations and legislation for environmental performance requirements to sustain the quality of Alberta's air.

Following meetings with CASA and CAPP, both the ILWG and AAFRD recognize the value of CASA's multi-stakeholder consensus based process and believe that the Comprehensive Air Quality Management System is a sound decision-making tool to address potentially controversial issues, such as CFO air emissions, in an objective and consistent manner to help make informed and innovative decisions affecting air quality that will meet the common interests of diverse stakeholders. It is also believed that such a tool will help put into context the relative contribution of CFO air emissions to total air emissions and emissions from other sources.

6. Recommendations

The ILWG and AAFRD believe that there is an opportunity for CASA to help them, through the CAMS process, develop and implement a strategic plan to proactively and collaboratively address the common interests of interested stakeholders in relation to CFO air quality concerns.

The terms of reference for the project team, upon approval by the CASA Board, will include:

- gather information on CFO air quality concerns in Alberta to better understand the interests of affected stakeholders in Alberta. For example, what are the social (e.g. nuisance, quality of life), environmental, public health, and economic concerns about odor, dust, and specific CFO air emissions (NH₃, H₂S, VOC, PM₁₀, PM_{2.5}, endotoxins) and what impact do stakeholders perceive these concerns and emissions have on producers, workers, livestock, neighbors, and local communities,
- identify common interests and goals of interested stakeholders in Alberta,
- conduct a comprehensive scientific literature review on the current state of knowledge about CFO air emissions and their impact on air quality and human and animal health, including types of emissions, measurements of

emissions, impacts of emissions, and technologies/practices to reduce emissions and improve air quality,

- conduct a review of existing and proposed CFO air quality regulations and CFO air quality monitoring, in Alberta, Canada and USA,
- identify information gaps about CFO air quality, including types of emissions, measurement and monitoring of CFO air emissions, impacts on human, animal and environmental health, emission reduction technologies, and regulations to improve air quality,
- put into context the contribution of emissions from CFO relative to total air emissions from all sources,
- develop an action plan that meets common interests and goals of interested stakeholders and helps to resolve CFO air quality concerns in Alberta.

Include in the action plan:

- actions that can be taken based on current knowledge,
 - actions to address identified gaps in knowledge,
 - identification of an implementation team or existing mandated agency,
 - identification of fiscal and human resources needed to implement action plan,
 - identification of timelines to implement actions.
- develop a process to keep CASA informed of implementation progress,
 - develop a communication plan to communicate with interested stakeholders throughout the CAMS process,
 - evaluate and review the CAMS process once the implementation plan has been completed.

7. Potential Stakeholders on the Proposed Project Team

- a. Alberta Agriculture, Food & Rural Development (AAFRD)
- b. Cattle feedlot producers (Alberta Cattle Feeders' Association, Alberta Beef Producers - Cattle Feeder Council, Feeder Associations of Alberta)
- c. Chicken producers (Alberta Chicken Producers)
- d. Hatching egg producers (Alberta Hatching Egg Producers)
- e. Hog producers (Alberta Pork)
- f. Laying egg producers (Alberta Egg Producers)
- g. Milk producers (Alberta Milk)
- h. Turkey producers (Alberta Turkey Producers)
- i. Natural Resources Conservation Board (NRCB)
- j. Alberta Environment (AENV)
- k. Alberta Health & Wellness (AHW)
- l. Regional Health Authorities
- m. Air shed groups
- n. Environmental non-government organizations
- o. Farmers Advocate
- p. AAMDC
- q. Environment Canada
- r. Health Canada