ADDENDUM I

Food Safety and Human Health at the Caribbean Broilers Protein Recovery Plant

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ADDENDUM 1 – FOOD SAFETY AND HUMAN HEALTH CONCERNS

INTRODUCTION

The raw material that will be processed at Caribbean Broilers Jamaica Ltd Protein Recovery Facility will be classed as Category 3 Low Risk Avian By-Products that comes from chickens which have passed pre-mortem inspection and have been slaughtered for human consumption. Please note, Category 1 High Risk or Category 2 High Risk material (see definition below) will not be processed.

Raw material will be handled, transported and processed without undue delay with raw material entering the protein recovery system with in a five hour period from point of slaughter.

De-Watered Feathers, Raw Blood and Offal (comprising heads, crops, wind pipes and intestines) are kept separate during storage at the poultry processing plant and are transported to the protein recovery plant in covered trailers that have segregated compartments.

Raw by-products trailers will be clearly labeled as Cat 3 vehicles and will not be used for any other purpose and will be subject to a documented wash-down cleaning procedure after each consignment discharge within the raw material area.

FOOD SAFETY AT THE PROTEIN RECOVERY FACILITY

Question One

The primary issue relative to Food Safety is the naturally occurring microbiological flora contained in the raw animal by-products and their subsequent survival and growth or recontamination of the product following the rendering process: how will this issue /concern be addressed?

Response to Question One

To eliminate microbiological contamination that may be present in the Category 3 avian raw material and to ensure that the processed material is sterile, the by-products will be processed under strict documented operating procedures.

FEATHER-BLOOD PROCESSING

De-watered feather and raw blood will be processed together through the Feather Blood Meal Line; material will be transported from the raw material storage area under controlled conditions to the 10,000 Litres Cooker Drier. This machine is a high surface area heavy duty automatic batch rendering unit. Feathers and blood enter the machine in

natural proportions, whereby the material is subjected to a hydrolyzing phase (pressure) of 2.8 bar 'G' with a corresponding temperature of 142°C for a period of approximately 35 minute thus breaking down those materials that require pressure in order to release their full potential. This temperature and pressure will render the material as sterile. After hydrolyzing, the internal pressure within the machine is reduced to atmospheric pressure and the material is dried down to a final residue moisture content of 8% with a sterile product discharge temperature of 145°C, the machine is fitted with a process data recorder that continuously logs both temperature and time for each batch of material being processed. On completion of the cooking cycle the highly sterile processed material is discharged from the machine for onward transfer to the feather blood meal handling system.

OFFAL PROCESSING

Offal (comprising heads, crops, wind pipes and intestines) will be processed together through the Offal Meal Line; material will be pumped from the raw material storage area under controlled conditions to the 10,000 Litres Cooker Drier which is a high surface area heavy duty automatic batch rendering unit. Offal enters the machine whereby the material is subjected to in-direct heat, water is evaporated from material being cooked until the product reaches a pre-determined final moisture content of 6% with a sterile product minimum discharge core temperature of 120°C (actual 140°C) that has been achieved for a minimum period of 13 minutes, the machine is fitted with a process data recorder that continuously logs both temperature and time for each batch of material being processed. On completion of the cooking cycle the highly sterile processed material is discharged from the machine for onward transfer to the offal meal handling system.

MICROBIOLOGICAL

Microbiological requirements are as per legislation i.e.

- Clostridium perfringens absent in 1g
- Salmonella absent in 25g: n=5, c=0, m=0, M=0
- Enterobacteriaceae: n=5, c=2; m=10; M=300 in 1 g

Were,

n = number of samples

m = threshold value for the number of bacteria; the result is considered satisfactory if the number of bacteria in all samples does not exceed m;

M = maximum value for the number of bacteria; the result is considered unsatisfactory if the number of bacteria in one or more samples is M or more; and

c = number of samples the bacterial count of which may be between m and M, the sample still being considered acceptable if the bacterial count of the other samples is m or less.

Please note, to eliminate cross contamination and to ensure product integrity, the raw material area and the meal handling area are totally segregated whereby non-processed material cannot come into contact with the sterile processed material. It is also a mandatory procedure and requirement that personnel exiting the raw material cannot enter the processed material area without removing and changing overalls and foot ware and then passing through the disinfected footbath.

It should also be noted that a strict and documented mandatory hygiene regime will be implemented for all areas and equipment for and within the protein recovery system thus ensuring full product integrity.

Finished feather blood meal will be packed and stored in sealed 1000 KGs Tote Bags that will be labeled with processing date and batch number for full product traceability.

Finished offal meal will be stored in sealed containers and labeled with processing date and batch number for full product traceability. The containers will be cleaned and disinfected prior to re-use to a documented hygiene procedure.

Should there be any contamination of the finished material i.e. due to rodent or insect infestation then the reject material will be subject to re-processing in accordance with legislation

Question Two

The primary issue in microbiological control during the early stages of the development of rendering procedures is the control of animal disease agents, how will this issue/concern be addressed.

Response to Question Two

Animal by-products can present a risk to human and animal health, in particular in relation to Transmittable Spongiform Encephalopathies (TSEs), dioxin contamination, and exotic diseases such as Classical Swine Fever and Foot and Mouth Disease, therefore the mandatory rules for collection, transportation, processing and storage of by-products must be carried out in accordance with mandatory regulations.

Regulation lay down animal and public health rules for animal by-products and products derived of and are categorized as:

- **Category 1 Material**

This is the highest risk and consists principally of material that is considered a TSE risk such as Specified Risk Material (those part of an animal considered most likely to harbour a disease such as BSE, e.g. bovine spinal cord).

CAT 1 MATERIAL - MAMMALIAN NOT APPLICABLE TO CARIBBEAN BROILERS

- **Category 2 Material**

Is also high risk and consist of fallen stock, manure and digestive content

CAT 2 MATERIAL - MAMMALIAN NOT APPLICABLE TO CARIBBEAN BROILERS

- **Category 3 Material**

Low Risk Avian By-Products that come from chickens that has passed pre-mortem inspection and has been slaughtered for human consumption.

CAT 3 MATERIAL – AVIAN APPLICABLE TO CARIBBEAN BROILERS

Mandatory regulations determine the circumstances under which animal by-products encompassing the above categories are to be disposed of, in order to prevent the spreading of risks for both public and animal health. With detailed rules for the handling of animal by-products and derived products such as processing methods and standards, hygiene conditions and the formatting for documentary evidence which has to accompany animal by-products for the purpose of traceability adopted by the means of implementing measures.

Therefore only Category 3 material will be processed at CBL Protein Recovery Facility and will be in accordance with documented procedures that fulfill the requirements of legislation.

Question Three

The mechanisms to control human microbial pathogens which have the potential for transmission from animals to humans during the rendering process, how will this issue/concern be addressed?

Response to Question Three

Material that have the potential for transmitting microbial pathogens are not Category 3 material as being processed and therefore will not be available for processing. (Please refer to the response to question two above).

Question Four

The mechanisms will be implemented to control and or eliminate the salmonella spp. pathogens from the final product?

Response to Question Four

Please refer to the response to question one and two above.

Question Five

The mechanisms will be instituted to ensure that there will be no recontamination of the end product?

Response to Question Five

Please refer to the response to question one above.

HUMAN HEALTH AT THE PROTEIN RECOVERY FACILITY

Question Six

Odour nuisance which may emanate from the rendering processing if delay causes the onset of decomposition.

Response to Question Six

As stated in response to question one above raw materials will enter the system within a five hour period therefore decomposition will not be an issue.

The plant is fitted with a dedicated thermal oxidizer for primary odour abatement and also primary steam raising requirements for the plant, the oxidizer will handle process vapour which includes non-condensable odorous gasses, foul air and a percentage of room air. The room air will be used as the combustion air requirement for the oxidizers' combustion chamber. The plant is also fitted with a two stage activated carbon filtration system that will process foul air from point extraction and room air in the event that the oxidizer is off line for any reason.

During the cooking cycle, water (H_2O) is being continuously evaporated from the raw material at atmospheric pressure. This vapour is continuously extracted from the cookers under controlled conditions. Vapours then enter the effluent collection vessel which is an integral part of the oxidizing system where they are integrated with room air (combustion air) and foul air from the raw material bin, press, grinder and vibrating screen.

The effluent collection vessel will be drained at the end of each shift, effluent and any solid particles will be transferred to the raw material bin for reprocessing.

The mass vapour flow being drawn through the system will contain a percentage of non-condensable gasses. These are the odour bearing gasses. Dependent on several factors mentioned below there could be as much as 5% non-condensable odour bearing gasses in the mass vapour flow leaving the cooker. The actual percentage of non-condensable gasses within the mass vapour flow at CBL Protein Recovery Facility will be approximately 5% which is due to the material being processed within a ten hour period thus eliminating decomposition of the raw material.

The mandatory processing time is within a 24 hour period. In fact, raw material at CBL Protein Recovery Facility will commence processing within a five hour period and the equipment has the capacity to process all the material in a twelve hour period.

Therefore processing of raw material within the mandatory time parameters will reduce and/or eliminate the decomposition rate of the raw material thus reducing the percentage of odour bearing gases.