

HACCP DECISION-MAKING DOCUMENTATION
For
Raw, Ground Product
Rosenthal Meat Science and Technology Center
Establishment Number 1
April 7, 2003

The following definitions from USDA's Pathogen Reduction/HACCP regulation were reviewed before the team started reviewing the hazard analysis and documenting the thought process for each response.

Food safety hazard: Any biological, chemical, or physical property that may cause a food to be unsafe for human consumption (USDA, 417.1).

Hazard analysis – “Reasonably likely to occur” ...A food safety hazard that is reasonably likely to occur is one for which a prudent establishment would establish controls because it historically has occurred, or because there is a reasonable possibility that it will occur in the particular type of product being processed, in the absence of those controls (USDA, 417.2(a)(1)).

HAZARD ANALYSIS:

The following summarizes the discussions and thought process that impacted the decisions for each step of the flow chart for the three food safety hazard categories – biological, chemical, and physical.

Receiving Meat:



Process Step Overview:

We receive chilled carcasses (beef, pork, lamb, goat) from the sales cooler into the fabrication process. The carcasses will have been through all of the CCPs for the slaughter operation and if any deviations occurred, appropriate corrective actions were taken. The carcasses meet the chilling requirements established in the slaughter HACCP plan prior to entering the fabrication area.

We also purchase domestic or imported carcasses, sides, forequarters and hindquarters from outside suppliers, as well as boxed products (fresh or frozen). We may occasionally receive combos of product. All purchased products will be from either state or federally inspected establishments and will be transported to the facility in insulated containers or refrigerated trucks. The product may be transported on commercial carriers, supplier trucks, or plant transportation.

Any product that is identified for “research only and not approved for consumption” will be identified as it enters the fabrication process and will not enter commerce.

Hazard Analysis Logic:

Chemical: We identified antibiotic residues as a potential food safety hazard, but determined that it is not reasonably likely to occur.

We addressed chemical residues for internal carcasses received from the sales cooler in the Slaughter HACCP plan. For products purchased from outside suppliers we know that all products are from either state or federally inspected establishments. These establishments are subjected to testing of high-risk livestock.

All purchased products will be transported in covered containers or closed boxes. All products will be transported in refrigerated carriers and condition of carrier will be observed at the point of unloading by the receiving clerk.

We considered lead contamination as a potential chemical food safety hazard. According to Dr. James W. Barnett, Jr., Ph.D., Diplomate, American Board of Toxicology, “If there was ingestion of one or a few lead shot or as subdivided by grinding, the estimated increase in blood lead levels (approximately 0.12 – 0.36 µg/dl/pellet) are well below levels that pose health hazards to children or adults.” [See supporting documentation.]

Physical: We acknowledge that some carcasses and meat products may occasionally have buckshot, bullets, needles, etc. However, these cannot be identified at the time of receiving and may not be found as the product moves throughout the process. There have been no reported incidences of these physical hazards from Jan. 1, 1998 to Dec. 20, 2002. We also considered that size and shape of metal will impact whether or not an object is a food safety hazard according to Olsen (1998), “... classifies hard or sharp objects over 7mm in length as potentially hazardous while objects that measure between 2 and 7 mm

are normally considered a non-hazardous defect.” [See supporting documentation.]
Therefore, physical hazards are not identified as a reasonably likely to occur food safety hazards for this process step.

We are addressing lead shot as a potential chemical hazard.

Biological: Pathogens. It is an accepted fact that raw meat is a potential source of pathogens (i.e., *Salmonella*, *Campylobacter*, and *E. coli* O157:H7). The USDA/FSIS Nationwide Beef Microbiological Baseline Data Collection Program: Steers and Heifers – October 1992 – September 1993 documents the level of *Salmonella*. The research published by Smith et al (2001) and Elder et al. (2000) documents prevalence of *E. coli* O157:H7 on beef. [See supporting documentation.]
The USDA Nationwide Beef Microbiological Baseline Data Collection Program: Steers and Heifers, October 1992 – September 1993; The USDA Nationwide Beef Microbiological Baseline Data Collection Program: Cows and Bulls, December 1993 – November 1994, and The USDA Nationwide Pork Microbiological Baseline Data Collection Program: Market Hogs, April 1995 – March 1996.

Therefore, we acknowledge that steps must be taken to try to prevent, eliminate or reduce to an acceptable level any pathogen contamination. Based on the Federal Register Notice (Vol. 67, No. 194, Oct. 7, 2002), FSIS “considers an acceptable reduction for *E. coli* O157:H7 to be a reduction to an undetectable level” for beef. Therefore, we must address the reduction of *E. coli* O157:H7 and procedures to control the potential for growth if the microorganism is present on the raw material. To the best of our knowledge, there are no interventions that can be applied at the point of receiving the chilled product that have been proven to achieve an undetectable level of *E. coli* O157:H7. There are many interventions that are currently being evaluated and as data become available we may be able to support the use of this technology. However, at this time our best option is to rely on the validation of interventions from the slaughter operations. For the carcasses produced in our slaughter facility we have validated the interventions on the slaughter floor and have data to support them. Since some of the products may be used in grinding operations or to produce non-intact beef products, we have purchase specifications for the outside suppliers requiring them to certify the validation of their interventions to control *E. coli* O157:H7. The letters of certification for each outside beef supplier is on file. We will only use beef products from outside establishments that meet the Rosenthal Purchase Specification Program.

We know that we must take steps to control the potential growth of any pathogens, including *E. coli* O157:H7. Therefore, subsequent steps will be used to control the potential growth during the raw ground process.

###

Cold Storage:



Process Step Overview:

This step involves placing the fresh or frozen carcass, side, forequarter, hindquarter, boxed product or combo into cold storage (cooler or freezer.) Covered or boxed product will remain covered or boxed during the cold storage process. Hanging product will be stored without cover.

The facility has more than one location for storing meat products. All cold storage areas are maintained in sanitary conditions according to our SSOPs.

Hazard Analysis Logic:

Chemical: Cleaning and sanitizing solutions were identified as potential food safety hazards.

However, these are not identified as reasonably likely to occur food safety hazards because the proper use of all cleaning and sanitizing chemicals are addressed in the SSOPs. We also considered ammonia as a potential chemical food safety hazard. We determined that this is not a food safety hazard that is reasonably likely to occur because we know that ammonia is present in raw meat as a byproduct of the conversion of muscle to meat and because any contamination that occurred from an ammonia leak would dissipate overtime. Ammonia is a worker safety issue, but to the best of our knowledge a leak would not create a food safety hazard.

Physical: None identified at this time. We could not think of any potential physical food safety hazards that could be introduced, controlled or reduced during the cold storage of the raw meat products. Products that are covered or boxed will remain so during storage.

Biological: Pathogen growth is identified as a potential food safety hazard. In absence of controls, pathogen growth is a reasonably likely to occur food safety hazard.

1. Do preventive measures exist for the identified hazard (pathogen growth)? Yes
2. Does this step (cold storage) eliminate or reduce the likely occurrence of the hazard (pathogen growth) to an acceptable level? Yes

This step is a CCP based on the decision tree for pathogen growth.

We know that this is a raw product and that it may contain pathogens. At this time, our process does not include a processing step that will prevent, eliminate or reduce the pathogens to an acceptable level, or in the case of *E. coli* O157:H7 to a non-detectable level. Therefore, we are focusing our efforts on controlling the potential growth of any pathogens that are present on the raw materials.

###

Processing:



Process Step Overview:

The process step includes the actions of blade tenderizing, marinating, brine soaking, slicing, tumbling, dicing, cubing, injecting, and other mechanical actions. There are several pieces of equipment (tenderizer, slicer, tumblers, injectors, dicers, cubers, etc.) that are used during this process step. The sanitation of the equipment is addressed in the SSOPs.

Hazard Analysis Logic:

Chemical: Cleaning and sanitizing solutions were identified as potential food safety hazards.

However, these are not identified as reasonably likely to occur food safety hazards because the proper use of all cleaning and sanitizing chemicals are addressed in the SSOPs. Also, we noted that all non-meat ingredients were addressed at the point of receiving the ingredients to ensure that they are approved for use with food.

Physical: We considered the potential for metal from the equipment as a physical food safety hazard. There have been no reported incidences of these physical hazards from Jan. 1, 1998 to December 20, 2002. We also considered that size and shape of metal that may be generated from the equipment to determine whether or not an object is a food safety hazard according to Olsen (1998), "... classifies hard or sharp objects over 7 mm in length as potentially hazardous while objects that measure between 2 and 7 mm are normally considered a non-hazardous defect." [See supporting documentation.] Therefore, physical hazards are not identified as a reasonably likely to occur food safety hazards for this process step.

Biological: Pathogen growth was considered as a potential hazard. We recognize that these mechanical actions may increase the temperature of the product. However, the product temperature is cold when entering the process and temperature increase is minimal (2-3°F). We have also evaluated the time of the process and it does not allow growth of the pathogens at these normal conditions. Therefore, we determined that this process step does not allow for pathogen growth to occur. We also considered that some of the activities may carry pathogens from the surface into the interior of the product. To the best of our knowledge there has been no documented evidence that consumption of these products having undergone these mechanical actions have been implicated in any food borne illness. Therefore, at this time we decided that we must control the potential for growth of pathogens (on the surface and in the interior of the product) throughout this entire process. Prior and subsequent steps have been identified to control pathogen growth.

###

Receive Non-meat Ingredients:



Process Step Overview:

We receive seasonings and T-pins for use in our products.

Hazard Analysis Logic:

Physical: We identified metal fragments, wood splinters, and plastic as a potential food safety hazard, but determined that it is not reasonably likely to occur. There have been no reported incidences of these hazards made at this facility from Jan. 1, 1998 to Dec. 20, 2002.

Chemical: We acknowledge that chemical contaminants could be in the seasonings we receive. We purchase our seasonings from suppliers that provide us with a letter of guarantee.

Biological: None identified at this time. We could not think of any potential biological food safety hazards that could be introduced, controlled, or reduced during receiving of non-meat ingredients.

###

Storage of Non-meat Ingredients:



Process Step Overview:

We store seasonings and T-pins for use in our products.

Hazard Analysis Logic:

Physical: None identified at this time. We could not think of any potential physical food safety hazards that could be introduced, controlled, or reduced during receiving of non-meat ingredients.

Chemical: We identified pesticides as a potential food safety hazard that was not likely to occur. All pesticides used in our facility are approved for use. We also have a letter from the pesticide company declaring our pesticides as GRAS.

Biological: None identified at this time. We could not think of any potential biological food safety hazards that could be introduced, controlled, or reduced during storage of non-meat ingredients.

###

Receiving Packaging Materials:



Process Step Overview:

We receive packaging materials such as vacuum packaging, carcass bags, casings, etc., for use in our facility.

Hazard Analysis Logic:

Physical: None identified at this time. We could not think of any potential physical food safety hazards that could be introduced, controlled, or reduced during receiving of packaging materials.

Chemical: We acknowledge that chemical contaminants could be in the packaging materials we receive. We purchase only food-grade packaging materials from suppliers that provide us with letters of guarantee.

Biological: None identified at this time. We could not think of any potential biological food safety hazards that could be introduced, controlled, or reduced during receiving of packaging materials.

###

Storage of Packaging Materials:



Process Step Overview:

We store packaging materials such as vacuum packaging, carcass bags, casings, etc., for use in our facility.

Hazard Analysis Logic:

Physical: None identified at this time. We could not think of any potential physical food safety hazards that could be introduced, controlled, or reduced during storage of packaging materials.

Chemical: None identified at this time. We could not think of any potential chemical food safety hazards that could be introduced, controlled, or reduced during storage of packaging materials.

Biological: None identified at this time. We could not think of any potential biological food safety hazards that could be introduced, controlled, or reduced during storage of packaging materials.

###

Packaging:



Process Step Overview:

We package our products using materials such as vacuum packaging, carcass bags, casings, etc., in our facility.

Hazard Analysis Logic:

Physical: None identified at this time. We could not think of any potential physical food safety hazards that could be introduced, controlled, or reduced during packaging.

Chemical: None identified at this time. We could not think of any potential chemical food safety hazards that could be introduced, controlled, or reduced during packaging.

Biological: None identified at this time. We could not think of any potential biological food safety hazards that could be introduced, controlled, or reduced during packaging.

###

Cold Storage:



Process Step Overview:

This step involves placing the fresh or frozen carcass, side, forequarter, hindquarter, boxed product or combo into cold storage (cooler or freezer.) Covered or boxed product will remain covered or boxed during the cold storage process. Hanging product will be stored without cover.

The facility has more than one location for storing meat products. All cold storage areas are maintained in sanitary conditions according to our SSOPs.

Hazard Analysis Logic:

Chemical: Cleaning and sanitizing solutions were identified as potential food safety hazards.

However, these are not identified as reasonably likely to occur food safety hazards because the proper use of all cleaning and sanitizing chemicals are addressed in the SSOPs. We also considered ammonia as a potential chemical food safety hazard. We determined that this is not a food safety hazard that is reasonably likely to occur because we know that ammonia is present in raw meat as a byproduct of the conversion of muscle to meat and because any contamination that occurred from an ammonia leak would dissipate overtime. Ammonia is a worker safety issue, but to the best of our knowledge a leak would not create a food safety hazard.

Physical: None identified at this time. We could not think of any potential physical food safety hazards that could be introduced, controlled or reduced during the cold storage of the raw meat products. Products that are covered or boxed will remain so during storage.

Biological: Pathogen growth is identified as a potential food safety hazard. In absence of controls, pathogen growth is a reasonably likely to occur food safety hazard.

3. Do preventive measures exist for the identified hazard (pathogen growth)? Yes
4. Does this step (cold storage) eliminate or reduce the likely occurrence of the hazard (pathogen growth) to an acceptable level? Yes

This step is a CCP based on the decision tree for pathogen growth.

We know that this is a raw product and that it may contain pathogens. At this time, our process does not include a processing step that will prevent, eliminate or reduce the pathogens to an acceptable level, or in the case of *E. coli* O157:H7 to a non-detectable level. Therefore, we are focusing our efforts on controlling the potential growth of any pathogens that are present on the raw materials.

Distribution:



Process Step Overview:

We distribute our products

Hazard Analysis Logic:

Physical: None identified at this time. We could not think of any potential physical food safety hazards that could be introduced, controlled, or reduced during distribution.

Chemical: None identified at this time. We could not think of any potential chemical food safety hazards that could be introduced, controlled, or reduced during distribution.

Biological: None identified at this time. We could not think of any potential biological food safety hazards that could be introduced, controlled, or reduced during distribution.

###

Rework:



Process Step Overview:

For our operation we have defined rework as any product that moves backwards in the process. All rework in this operation is on the same production date and there is no carry-over of product from one production day to another. Rework is usually generated due to quality characteristics such as misshapen products, weight deviations, packaging defects, and other factors that are not related to food safety. Rework may be generated at several locations throughout the process any may reenter the process flow at multiple locations. For example, some products may be removed following packaging and be reintroduced at the point of grinding.

Hazard Analysis Logic:

Chemical: None identified at this time.

Physical: None identified at this time.

Biological: Pathogen growth. We acknowledge that this is still a raw product and may contain pathogens. The fact that it is being reworked for quality defects does not impact the potential for pathogen growth. The product will be subjected to the subsequent CCPs for controlling pathogen growth.

###

Returned Product:



Process Step Overview:

This process step includes any product that has left the premises of the establishment and is returned for any reason. The establishment has a written procedure for evaluating the returned product and determining product disposition.

Hazard Analysis Logic:

Chemical, Physical and Biological: None identified at this time. The products were subjected to all CCPs prior to shipping the product. There are various reasons that product can be returned and each will be evaluated on a case-by-case basis. This is raw product and as identified previously it may contain pathogens; however, it will re-enter the process flow and be subjected to subsequent CCPs for pathogen control.