

# Best's Underwriting Guide

## MEAT PRODUCTS PROCESSING

Line	Best's Hazard Index	Underwriting Comments
Automobile Liability	7	Large fleet of vehicles. Higher based on radius of operations.
Automobile Physical Damage	7	
General Liability	4	
Product Liability and Completed Operations	10	Food poisoning and contamination claims. Mad cow disease variant possible if insured uses meat from foreign meat packing plants and suppliers.
Workers' Compensation	7	Frequency of injuries is a problem. Possible injuries from meat preparation equipment.
Crime	6	
Fire and E.C.: Property	8	Heavy fire load, including meat.
Business Interruption	7	
Inland Marine	10	Attractive nature of goods to thieves.

Low 1-3, Medium 4-6, High 7-9, Very High 10

### SIC Codes

2011 Meat Packing Plants  
 2013 Sausages and Other Prepared Meats  
 2077 Animal and Marine Fats and Oils  
 5147 Meat and meat products (boxed beef)  
 5149 Groceries and Related Products, NEC  
 5421 Meat and Fish (Seafood) Markets, Including Freezer Provisioners (Seafood)

### NAICS Codes

3116 Animal Slaughtering and Processing  
 31162 Animal Slaughtering and Processing  
 311611 Animal (except Poultry) Processing  
 311612 Meat Processed from Carcasses  
 311613 Rendering and Meat Byproduct Processing  
 4224 Grocery and Related Product Wholesalers  
 42242 Packaged Frozen Food Wholesalers

### Related Classifications

Breeding Farms — Small Animals  
 Canning — Fish and Seafood  
 Fish and Seafood Dealers — Wholesale and Retail  
 Fish and Seafood Freezing Operations  
 Food Distributors  
 Meat Packing Plants  
 Pet Food Manufacturing  
 Poultry — Processing  
 Public Refrigerated Warehouses  
 Rendering  
 Supermarkets and Grocery Stores  
 Trucking — Long Haul  
 Warehousing

### Special Exposures

Bovine Spongiform Encephalopathy (BSE, or Mad Cow Disease)  
 Foot and mouth disease  
 Perishable foods  
 Refrigerated trucks  
 Robbery attempts, burglary  
 Drivers may be paid for delivery  
 24-hour operations  
 Foreign objects in meat products  
 Below-grade utility-storage areas  
 Smoking operations  
 Knife-related injuries  
 Cargo losses in transit  
 Usage of meat tenderizers and other chemicals, which are injected into meat

## RISK DESCRIPTION

Meat products processing companies are involved in processing meats into finished goods that are ready for final sale to the grocer or wholesaler, who in turn will sell them to households, restaurants, or institutional food services. Processing meat and meat byproducts entails cooking, dressing, cutting, canning, curing, and preserving the meat from carcasses slaughtered at other meat facilities. While many of the processing and canning operations are essentially identical to those undertaken by the animal slaughter industry or meat packing plants, the major difference is that generally meat products processors perform no slaughtering operations; they simply purchase their meats from these other facilities, such as meat packing plants and then process the meat. Very few will perform both slaughtering and meat processing operations.

It should be noted that the meat products processing industry consists of two major establishments: those that slaughter livestock and process meat are primarily the meat packing plants, and those that do no slaughtering but buy wholesale meat for further processing or final sale to consumers are the meat products processors. Also, companies that have meat facilities may also own facilities that perform "upstream" or "downstream" operations that entail getting meat products from the farm to the consumer (e.g., livestock raising, wholesale distribution), that are not considered part of the meat products industry operations. Some meat products processors may have a retail store on the premises, and process other foods including poultry and fish. This classification will focus on the processing of what is considered to be red meat (e.g., cattle, hogs, sheep, lambs, calves, and horses) for human consumption. There are 1,164 companies in the meat processing industry, and these companies own and operate about 1,300 meat processing plants. The classification should be read in conjunction with the Meat Packing Plants and Rendering classifications.

Depending on the type of operation and the variety of services offered, the size of a meat products processing company may range from small, one- or two-person operations to large insureds with hundreds of employees. Insureds are often housed in single story masonry or wood-frame buildings located in both rural and urban areas; plants may be made of prefabricated, pre-engineered structures of aluminum panel construction. The layout will include various chill and holding coolers; blast and storage freezers; a smoke-house; curing and aging rooms; space for boning, cutting, processing and wrapping; holding pens; a rendering room; a customer area; a boiler room; a machine shop; an office; and a truck sterilizing compartment. Insureds that have meat packing operations onsite will also have a slaughtering area as part of their layout. In some rare cases, a retail store may be located on the premises.

Office hours will typically be from 8:30 a.m. through 5:30 p.m., Monday through Friday. Most employees will work in shifts (such as 8:00 a.m. to 5:00 p.m., 7:00 a.m. to 3:30 p.m., 11 a.m. to 7:30 p.m., etc.). Smaller insureds may maintain more limited hours of operation, depending on the demands of their meat processing schedule. Moreover, work hours at both large and small insureds may be extended to accommodate any additional services or unusual circumstances that particular customers, or seasons may require.

The workers (some of whom may also be owners) in meat products processing make up the majority of workers in the food processing industry. For instance, 30% of all food processing workers work in plants that produce meat products. They will often include: meatcutters and trimmers, cutting and slicing machine operators, casing finishers and stuffers, bottle packers and bottle fillers, cooking machine operators, cooling and freezing equipment operators, maintenance repairers, refrigeration technicians, graders and sorters, production inspectors, and quality control technicians, hand packers and packagers, machine feeders and offbearers, truck drivers, and drivers/sales workers; in a few cases, there will be slaughterers and meat packers. A variety of managerial and professional workers that include top executives, industrial production managers, advertising, marketing, promotions, public relations, and sales managers are employed in the industry.

The biggest trend in this industry is that more insureds are now making consumer-ready meat products, also known as home-meal-replacement items, that include microwavable, oven-ready, ready-to-heat, fully-cooked, ready-to-eat (RTE) or deli meats (such as bologna, ham, salami, turkey, hot dogs), and other ready-to-cook items in order to regain profits lost as a result of customers eating out most of the time. They are geared towards consumers who want convenience and nutrition in meal preparation. These case-ready meats are trimmed, pre-cut, processed, portion controlled, (and, in some cases, seasoned and prepared), sealed directly by the processor, and sold to supermarkets ready for purchase. More insureds are moving towards producing more of these value-added items in combination with meat processing operations; while others are moving towards solely producing case-ready meals.

Some new labels that are put on meat, poultry, dairy, and egg products read, "Certified Humane Raised & Handled," to indicate proof of certification that milk and beef from livestock have been raised under humane conditions. Under the Humane Farm Treatment Certification standards, pregnant pigs cannot be kept in metal "gestation crates," egg-laying hens cannot be kept in cages, and dairy cows cannot be tied in stalls. Also, using growth hormones and turning animals that are too sick to walk into food are banned. The label certifies that producers and processors have met certain standards for animal treatment; they came about because of the growing movement and public support in the United States and abroad for better treatment of farm animals. Corporations such as Kentucky Fried Chicken (KFC) currently support the movement, and has set new standards that for the humane treatment of any chicken they use. McDonald's has been a major influence in this process since 1998 when it instituted a company-wide policy to routinely conduct inspections of every plant that it buys beef from; its auditors monitor every stage of the meat preparation process and keep track of every minor problem to make sure that any beef that it uses has been processed from cattle that is treated humanely. Other companies that have supported and have similar policies include Burger King and Wendy's fast food restaurants. These major concerns have influenced the meat industry. The Meat Institute now routinely has annual "humane-handling" seminars, and has developed guidelines for the industry on how to properly treat cows and pigs entitled "Good Management Practices for Animal Handling and Stunning," and "Recommended Animal Handling Guidelines for Meat Packers" among many others.

Proposed or legislated federal regulations concerning the use of nitrates in meat curing, the establishment of new net weight requirements for meat products, the presence of ground bone tissue in meat products when mechanical deboning machinery is used, and strict quality control measures have the potential for greatly affecting the economics and the liability of meat products processors. Some of these regulations may place a heavy financial burden on small processors, and marginal companies may not survive.

According to the American Meat Institute, approximately 6,000 meat and poultry plants are USDA-inspected; another 3,000 plants have chosen to be inspected by one of the 25 state inspection programs. While insureds can choose federal or state inspection, if they are under federal inspection, plants must comply with the Federal Meat Inspection Act of 1906 or the Poultry Products Inspection Act of 1958. A key component of these laws is a strong inspector presence and the power to shut a plant down any time

a threat to the public health or inhumane treatment of animals is noted. State-inspected plants comply with state requirements that are deemed to be the same as or equal to federal laws, but these plants may not export internationally or ship products across state lines.

The most pressing problem in the meat industry today is the return of Mad Cow Disease or Bovine Spongiform Encephalopathy (BSE), a brain-wasting disease that causes paralysis in human beings and eventually leads to death. The disease has been recently discovered in tests conducted on a cow in Canada, the first time that the disease has occurred in North America. According to *ABC World News Tonight with Peter Jennings*, 70% of U.S. imported beef comes from Canada. Since May 20, 2003, all beef imports in to the United States from Canada have been permanently banned by the United States Department of Agriculture. Due to the crisis, shares in fast food restaurants, restaurants (that serve beef dishes), meat producers and processors, and cattle prices have fallen since the ban. For instance, stocks in Wendy's International, McDonald's, and Outback Steakhouse fell (USA Today, May 20, 2003, *CNNMoney*, May 20, 2003).

The principal organizations for this industry are the American Meat Institute (AMI, which can be contacted at [www.meatami.com](http://www.meatami.com)); and the American Association of Meat Processors (AAMP, which can be contacted at [www.aamp.com](http://www.aamp.com)). Other related organizations include the National Pork Producers Council (NPPC, which can be contacted at [www.nppc.org](http://www.nppc.org)), the National Meat Canners Association (NMCA, which can be contacted at [www.meatamicom](http://www.meatamicom)), the National Food Processors Association (NFPA, which can be contacted at [www.nfpa-food.org](http://www.nfpa-food.org)), and the National Cattlemen's Beef Association (NCBA, which can be contacted at [www.beef.org](http://www.beef.org)).

### MATERIALS AND EQUIPMENT

Meat grinders, slicers, dicers, choppers and cutters; mixers and blenders; frozen meat flakers, slicers and block breakers; sausage stuffers; mechanical tenderizers; injection and pumping machines (which inject curing solution into meat); boning machinery; cookers; smokehouses; gas and electric smoke generators.  
Refrigeration equipment, coolers and freezers; and compressors.  
Knives, saws, knife sharpeners.  
Vacuum packaging machines, steam and high-pressure cleaning equipment; conveyors; overhead rail trolleys; hand trucks; lift jacks; dumps; wheeled meat tubs; racks and shelves; tables; scales; meat trees; ham forms.  
Clipsators, cook-in molds, vacuum tumblers, injection machines, stuffers, separators, brine mixers, ice generators, cryovac packers, trolleys, bins; air conditioning units.  
Pork, beef, veal; seasonings; vegetable fillers; animal intestines or synthetic casings; curing solutions; cleaning and sanitizing compounds; sawdust, beech shavings, hickory chips, charcoal; cans, packaging plastic, boxes.

### PROCESS OR SERVICE

Meat products processors have extensive buying networks in order to maintain a steady supply of meat, and depend on livestock producers and meat packers. As a result, some insureds' facilities are strategically located near large supplies of high quality cattle and hogs.

The processing operations begin with evisceration, which entails the removal of the hide, and the opening of the skinned carcasses to remove the viscera (i.e., the internal organs), as well as the splitting of the carcass. The abdominal organs are inspected and the stomach and intestines are emptied of manure and cleaned for further processing. A handsaw is used to halve the remaining carcass by cutting through the center of the backbone. Inedible materials are collected and sent to a rendering plant for the manufacture of feed materials or to be used for pet food manufacturing. (For more detailed information on rendering procedures, refer to the Rendering classification). In order to remove any remaining blood or bone dust from the carcass, one of two methods of decontamination are used — physical decontamination, which is the simplest and involves spraying with high pressure water or steam, or chemical decontamination which includes the use of acetic and lactic acids, aqueous solutions of chlorine, hydrogen peroxide and inorganic acids.

After decontamination, the clean carcasses are taken to a cold storage area for rapid chilling. This is essential within the first 24 hours of slaughtering to prevent the carcasses from becoming "sour." During this period, beef undergoes maturation, and should typically be kept for at least a week at 32 degrees F or 0 degrees C (before being conveyed to meat processing plants to be processed for retail establishments).

After refrigeration, the carcass is taken to the meat processing plants to be cut and trimmed into smaller portions, vacuum-packaged, and boxed for storage and shipment. Chilled half or quarter carcasses or primal cuts of meat are conveyed to the boning area, where bones are stripped. The meat is then cut and trimmed to sub-primal, retail, or portion cuts and wrapped or vacuum packaged. Cuts in vacuum-sealed pouches may be passed through a hot-water shrink tunnel. The cuts of meat are weighed, labeled, and stored in holding coolers or freezers.

Sausages, hot dogs, and luncheon meats are made by grinding, mixing, and blending cuts of meat with seasonings, spices, and possibly fillers. Special selected trimmings are cut and ground into small pieces and put into the mixer. Then, a high speed, stainless steel chopper blends meat, spices, and curing ingredients into an emulsion or batter. The mixture is then stuffed into synthetic or natural casings or packed into loaf forms. These products frequently are cooked in pressurized cooking tanks, as are hams.

For the specific preparation of hot dogs, the emulsion is pumped and fed into a stuffer. Shirred strands of cellulose casings are mechanically positioned on the stuffing horn. As the emulsion flows through the horn into the casing, the filled strands are linked into hot dogs of exact size, and the strand is then put on the smokehouse conveyor system. In smokehouses, under controlled temperature and humidity, the hot dog is fully cooked and hardwood smoked for texture, color and a delicious flavor. After passing through the smoke cycle, and being showered in cool water, the hot dog goes into the peeler, and the protective and smoke-permeable cellulose casing "skin" is stripped away and individual links are conveyed to the packaging line. When the hot dog is ready, it is conveyed to scales and fed into vacuum packaging equipment. The exact number and individual packages, precise weight of the materials are measured accurately and determined before they are wrapped and vacuum sealed in plastic film to protect the freshness and flavor of the hot dog.

Hams, bacon, sausages, and other meat products are cured by one or a combination of methods, which include pumping or injecting a curing solution into the meat, dry rubbing a curing substance into the meat, and immersing the meat in a brine solution or pickle. Curing solutions usually contain one or more chemicals, such as sodium or potassium nitrite, ascorbate, or erythorbate, and water. The meats are allowed to cure from 1 to more than 40 days. Curing may be followed by a period of several hours to several days in a temperature-controlled smokehouse.

Final products may be packaged, canned, placed in jars, or frozen. After packaging, all products are loaded onto refrigerated trucks for delivery.

It should be noted that the whole process from beginning to end is carefully inspected and monitored by government inspectors, together with the insureds' own quality assurance teams, according to strict federal quality, safety, and sanitation standards. The carcasses and viscera are typically inspected in order to determine if they are suitable for human consumption. This requires identifying and keeping each carcass and its components together wherever possible until the inspection is complete. Based on federal and state regulations, the daily schedule for meat processors consists of one or two eight-hour production shifts followed by a six- to eight-hour cleaning period. According to typical cleanup procedure, equipment, walls, and floor surfaces are initially rinsed with water to remove loose solids. The surface is then scrubbed with detergents and sanitizers and rinsed.

For a more detailed explanation of what happens to the meat before it gets to the meat products processing plant, refer to the Process or Service section of the Meat Packing Plants classification.

### Automobile Liability

The Automobile Liability for meat products processors will be substantial. Hazards faced by drivers will include traffic congestion, poor road conditions, and inclement weather. Most travel will heavily depend on the size and radius of the insured's operations. A number of insureds will have their own fleet of refrigerated tractor-trailers, trucks and vans for transporting meat from meat packing plants and delivering finished products to customers in various locations. Other insureds, however, will lease such trucks and other vehicles; if the hauling is subcontracted to another party, the Automobile Liability exposure will be greatly reduced. It should be noted that large insureds may carry out long haul trucking, whereas small meat processors may deliver in a local area only. Although some clarification has been made over time as to coverage for damages resulting from loading and unloading, it is still recommended that both the Automobile Liability and General Liability policies be written in the same company for the same limits.

What are the number, age, type, and condition of the insured's vehicles? The number of vehicles that the insured owns will depend on the size of its operations. Large meat products processors will own a fleet of refrigerated or freezer tractor-trailers, and trucks along with a few refrigerated and freezer box trucks, vans, and cars to deliver such products to customers. In comparison, smaller insureds may own a few refrigerated or freezer box trucks and vans, and perhaps, one or two refrigerated or freezer tractor-trailers. Since they ship meat and meat products, insureds typically require refrigerated trucks/tractor-trailers to avoid the spoilage of meat. Are refrigerated trucks/tractor-trailers ever used? Sales personnel travel daily to sales accounts, some insureds may issue company cars to sales personnel and executives. However, most other company business will be handled by employees who are driving their own vehicles, especially for smaller insureds that will compensate workers for the use of their personal vehicles for company business. If employees use personally owned vehicles for work-related travel, a nonowned vehicle exposure will exist. The underwriter should confirm the existence of underlying personal insurance at acceptable limits and conduct an MVR review.

What are the frequency of travel and the radius of operations? Insureds that handle their own pick-ups and/or deliveries will experience an increased exposure due to more frequent travel. The insured's drivers will usually follow scheduled routes. Has the insured developed route maps (i.e., maps of routes to customer locations), and are drivers required to follow them? Route maps will reduce driver confusion due to unfamiliar roads and areas. Does the insured discourage drivers from taking short cuts? Shipments may be made several times a day with delivery vehicles driven to several different locations, pos-

sibly over long distances. The same may be true for pick-ups of stock and other supplies. Depending on the insured's radius of operations, a long-haul exposure may exist. The insured's delivery schedule will depend on what type of products it distributes. Extra-large and large insureds make more deliveries per day as the processed meats and meat products are perishable; small insureds dealing in similar items may have fewer daily deliveries. How large is the insured's operations? In addition, the number of daily and weekly deliveries will depend on the number of customers the insured has. How many clients does the insured have? Determine the average and maximum numbers of deliveries the insured makes daily and weekly. Refer to the Automobile Liability section of the Trucking — Long Haul classification for more information.

If the insured engages in its own pick-up and delivery, pallets of meat and other meat products will be placed directly onto delivery trucks. Fully loaded, the weight of their cargo may cause these trucks to respond more sluggishly; also, the cargo itself may shift during transportation. All cargo should be stacked and safely secured in delivery trucks. How does the insured secure cargo to prevent it from shifting?

What are the hazards of typical routes? Drivers will face such common driving hazards as traffic congestion, road construction, and poor road conditions. Highway/environmental factors include sharp curves and limited visibility caused by inclement weather (e.g., ice, rain, snow, or fog) and obstructions on hills. Does the insured require drivers to turn on vehicle's headlights before dusk and in the rain, fog, and snow? Insureds generally begin their pick-up and delivery operations in the early morning hours, and drivers may have to travel in the dark. Aside from having to contend with reduced visibility, drivers may be fatigued at such times, which could increase the risk of accidents. The Department of Transportation (DOT) has set standards for the number of hours drivers are allowed to work per day and per week. Drivers are allowed to work 10 hours per day and 60 hours per week. Drivers must not be allowed to exceed these limits. States have the power to modify these standards for intrastate trucking, and some may have relaxed these limits. The underwriter should investigate the regulations that apply in the insured's operating states. Do drivers familiarize themselves with new routes before they travel? In their efforts to meet tight delivery deadlines, drivers may sometimes engage in reckless driving practices. Does the insured insist on a strict adherence to delivery schedules? What is the insured's practice?

What is the insured's policy regarding the use of cell phones while driving? In a growing number of municipalities, it is now illegal to use a cell phone or other handheld communications device while operating a motor vehicle. Are drivers encouraged to pull off to the side of the road while talking on their cell phones? This may be an issue of particular concern for salespeople who will spend more of their time

on the road than other employees. The use of "hands-free" technologies, such as headsets or voice-activated dialing, should be strongly encouraged. Does the insured provide appropriate hands-free cell phone devices for its drivers?

What are the ages, training, and experience of the insured's drivers? A commercial driver's license (CDL), issued by the state in which they reside, will be required for all truck drivers. Obtain evidence of insurance and MVRs on all drivers. Since the Fair Credit Reporting Act requires written permission from the driver to obtain MVRs, the insured should make obtaining this permission part of the hiring process. In addition, drivers that will drive vehicles with chemicals (such as refrigerated trucks) will need a hazardous material endorsement and/or permit. What is the insured's practice?

Does the insured have a routine maintenance program in place for all company-owned vehicles? All vehicles should be kept in good condition, repaired promptly as needed, and inspected regularly. It is a positive underwriting sign if the insured contracts out all automotive maintenance and repairs. Are any of the insured's mechanics automotive service excellence (ASE)-certified? Employees should not be allowed to repair or assist in the repair of the insured's vehicles.

#### **Automobile Physical Damage**

Due to the heavy use of tractor-trailers, delivery trucks, and fleets of vans and cars by some insureds, the Automobile Physical Damage exposure for meat processors will be substantial. Delivery drivers will be exposed to hazards related to poor road conditions, heavy truckloads, and shifting cargo (which may include meat hung from hooks within the vehicle). Vehicles will be subject to physical damage, theft, and vandalism from malcontents. This exposure will be higher for insureds that have their vehicles make long haul trips. If the insured contracts out pick-up and delivery services of products, this exposure will be reduced. For insureds that may drop off a tractor-trailer or pick up one, Trailer Interchange coverage will be necessary.

What are the number, age, type, and condition of the insureds' specialized vehicles? Insureds may operate a fleet of vehicles consisting of delivery trucks, tractor-trailers, vans, and refrigerated trucks. Are the insured's vehicles owned or leased? Most insureds will own vehicles that are used for deliveries. Some companies may lease additional vehicles for any periods of exceptional order demands, since at such times, the delivery schedule will increase.

What are the hazards involved with the insured's specialized vehicles? Drivers may be required to haul loads over great distances. What is the insured's radius of operations? Shifting of improperly loaded or poorly balanced cargo may cause a vehicle to go off balance, possibly overturning or veering into other lanes or off the road. Improperly secured loads can cause cargo to break away and fall off the trailer or to shift on turns, steep grades, or rough road surfaces, leading to the possibility that the driver will lose control of the vehicle. What is the insured's practice for loading and securing cargo onto trucks? Cargo should be properly secured before transport, and drivers should make periodic inspections of their load throughout their route, especially if traveling over long distances or rural back roads. Are drivers and cargo loaders instructed on proper packing and securing procedures? Meat and meat products may be packed on pallets and wrapped with cellophane before being loaded into delivery trucks. Large and extra-large meat should be transported with hooks; typically, the meat is hung from hooks that are attached to the vehicle (that is specially developed for that purpose). These are the safest shipping methods as the meat and meat products are less likely to shift abnormally and cause the driver to lose control of the vehicle.

Accidents involving the vehicle may be due to both direct causes, such as equipment failure (e.g., failure of brakes, tires, or lights), and indirect causes (e.g., vehicle rollover, shifting or falling loads). Highway/environmental factors include sharp curves and limited visibility caused by inclement weather (e.g., ice, rain, snow, or fog) and

obstructions on hills. Does the insured require drivers to turn on their vehicle's headlights before dusk and in the rain, fog, and snow? Drivers should also maintain sufficient stopping distance from vehicles ahead of them. Does the insured educate drivers on this safety practice? In addition, drivers should not exceed posted speed limits. Speed limits vary from state to state; some states have special speed requirements for trucks (e.g., in Texas, the speed limit during the day for trucks is 60 miles per hour; however, at night, the speed limit is reduced to 55 miles per hour). Are the insured's drivers aware of speed limits in the states in which they travel?

In their efforts to meet tight delivery deadlines, drivers may sometimes engage in reckless driving practices. Does the insured insist on a strict adherence to delivery schedules?

To avoid accidents, several loss control measures should be taken. Such measures include improved driver selection and initial training, training updates, improved vehicle design, and proper maintenance of equipment. Does the insured enforce current state and federal motor carrier safety regulations (FMCSRs)? Does the employer monitor drivers' movements by radio contact (e.g., via a dispatcher)?

What are the ages, training, and experience levels of the insured's drivers? A commercial driver's license (CDL), issued by the state in which they reside, will be required for all truck drivers. Obtain evidence of insurance and MVRs on all drivers. Since the Fair Credit Reporting Act requires written permission from the driver to obtain MVRs, the insured should make obtaining this permission part of the hiring process. In addition, drivers who operate vehicles with chemicals (such as refrigerated trucks) will need a hazardous materials endorsement and/or permit. Does the insured employ any drivers under the age of 25? If so, a youthful operator exposure will exist. It is a positive underwriting sign if there is a driver safety training program in place.

How are drivers' whereabouts and driving patterns monitored? For many insureds, drivers on the road and dispatchers in the home office are able to maintain constant contact via a dash-mounted or built-in global positioning system (GPS), which uses satellite technology to track the vehicle's whereabouts. A GPS can let dispatchers know how far drivers have traveled, their various rates of speed, and their current location. Close monitoring of drivers can help determine who is driving safely by sticking to their assigned routes and adhering to state-mandated speed limits. Dispatchers will generally rely on either cellular telephones or dash-mounted, two-way radios to communicate with drivers while they are on the road.

What types of warning devices and gauges are installed on the insured's trucks? Trucks should be equipped with a signal that provides a warning to the driver when a failure occurs in the vehicle's service brake system. Are the insured's truck tires in good condition? According to FMCSRs, a motor vehicle should not be operated on a tire that has body ply (i.e., one or two layers of heat- and impact-resistant, rubber-coated nylon or polyester cords that form the body of the tire) or belt material exposed through the tread or sidewall, has any tread or sidewall separation, is flat or has an audible leak, or has a cut to the extent that the ply or belt material is exposed. Do drivers inspect truck tires before and after each trip? Do the insured's employees perform an overall check of the vehicle at the start of their shift?

Are vehicles regularly inspected and serviced by qualified mechanics? The insured should contract out all vehicle maintenance services. Unless they are licensed mechanics, employees should not be allowed to do repair work on any vehicles. However, some large companies may hire their own mechanics to conduct vehicle servicing and repairs. Does the insured contract out mechanical services? Determine the experience and qualifications of the insured's auto repair and maintenance contractors. Are the insured's mechanics Automotive Service Excellence (ASE)-certified?

Where are the insured's vehicles stored when not in use? Specialized vehicles may be subject to vandalism from malcontents due to the fact that their sheer size causes them to attract more atten-

tion than do regular automobiles. Tractor-trailers and delivery trucks should be stored in a locked garage or fenced-in parking lot when not in use, and these areas should be well lit. Some insureds have their premises patrolled by a security service during off hours. If so, this is a positive underwriting sign. Are vehicles kept locked when left unattended, and are they equipped with anti-theft alarms?

### General Liability

Due to a small number of daily visitors to the premises, meat products processors will experience a minor General Liability exposure. Those who are likely to visit the insured's site will include delivery personnel, messengers, Food and Drug Administration (FDA) representatives, Department of Agriculture inspectors, health inspectors, OSHA inspectors, Sanitation Department inspectors, sales representatives from meat product vendors and meat packing plants, district managers, and friends and family members of employees. Claims are likely to be more frequent than severe as a large percentage of all bodily injury claims will result from slips, trips, and falls. Visitors may slip on spilled meat and meat products liquids, or they may trip over fallen merchandise or corrugated cartons. If insureds function as both meat slaughtering and meat products processing operations, it is highly recommended that this section be read in conjunction with the General Liability section of the Meat Packing Plants classification for related exposures.

What is the layout of the insured's premises? The layout of a meat processing plant will vary greatly, depending on the size and scope of the operation and on what types of meats and meat products it distributes. Most companies are housed in one-story, freestanding buildings, while some may be located in multiple-occupancy structures. The layout will often include: administrative offices; various chill and holding coolers; blast and storage freezers; a smokehouse; curing and aging rooms; areas for boning, cutting, processing, and wrapping; holding pens; a rendering room; a customer area; a boiler room; a machine shop; an office; and a truck sterilizing compartment. Insureds that have meat packing operations on site will also have a slaughtering area as part of their layout. In some rare cases, a retail store may be located on the premises.

What are the insured's hours of operation? Generally, meat products processing companies are open seven days a week. Hours are set up according to the responsibilities of the workers in the company. General office hours are from 8:30 a.m. to 5:30 p.m., Monday through Friday. Most employees will work in shifts (such as 8:00 a.m. to 5:00 p.m., 7:00 a.m. to 3:30 p.m., 11 a.m. to 7:30 p.m., etc.). Smaller insureds may maintain more limited hours of operation, depending on the demands of their meat processing schedule. Moreover, work hours at both large and small insureds may be extended to accommodate any additional services or unusual circumstances that particular customers, or seasons may require.

What are the average and maximum number of visitors to the premises daily? Delivery personnel from various meat packing plants and meat suppliers will stop by the premises once to several times per week, depending on the insured's volume of business and its subsequent need for replenishment. Meat suppliers and meat products suppliers will deliver goods daily. Also, some meat processors may come daily to pick up meat from insureds. Sales representatives or drivers from meat packing plants will often come into the insured's company to promote their various types of meat. Other visitors will include FDA inspectors, OSHA inspectors, and sanitation department personnel, who will often perform unannounced spot checks; sales representatives and vendors (from suppliers, food manufacturers, grocery wholesalers, food distributors, etc.); maintenance people; and the employees' friends and/or family members. Are signs posted indicating which areas are off-limits to nonemployees? "Authorized Personnel Only" or "Employees Only" signs should be posted in such areas as walk-in refrigerated areas, storage areas, and curing and aging rooms, where the general public would not normally be allowed

entrance. If they are permitted to enter these areas, visitors should be escorted by experienced employees and supervised carefully. If it is necessary for nonemployees to enter the meat processing area, they should be required to wear hard hats, safety glasses, and nonslip footwear, and of course be escorted by an employee. What is the insured's practice?

Visitors to office areas will be exposed to slips, trips, and falls. Good housekeeping practices are the main loss control measure for these hazards. What is the level of housekeeping on the insured's premises? Walkways and aisles should be well maintained and kept free of debris and clutter. Trash should be removed from the premises on a daily basis. What is the condition of the insured's floors and floor coverings? Floors should be swept, mopped, and/or vacuumed daily. Are "Caution — Wet Floor" signs displayed over affected areas? If the insured has tile or concrete flooring, are rubber-backed floor mats placed inside all entrances so visitors can wipe their feet as they enter the main structure? This can help reduce the possibility of people slipping on rainy or snowy days when individuals with wet shoes will be entering the building. Worn, torn, or loose floor coverings should be repaired or replaced immediately. Any mat or rug kept at the entrance of the premises should be checked frequently for upturned edges and changed as needed. A rug mat or runner should also be kept in areas where wet spills may be common. Electrical and telephone cords within the building should be routed away from heavily trafficked areas and covered with rubber or metal slippguards wherever this is not possible to keep people from tripping over them.

If there are steps into the premises or within the facility, they should be kept in good repair. Do the steps have handrails and nonslip treads? Are they well lit? If the insured has an elevator, determine who is responsible for inspecting and maintaining it, and assess that individual's level of experience. Some insureds may contract out these services while others will rely on their own maintenance crew to perform them. What is the insured's practice?

Visitors, such as government regulators and computer repair technicians may sustain electrical shocks from improperly grounded or maintained electrical equipment, computers, lighting fixtures, or other electrical appliances. Wires may fray or crack and cause machinery to malfunction. Is all electrical equipment properly grounded and NRTL-listed? How often is it inspected and serviced? All such maintenance work should be conducted by a licensed professional.

Maintaining constant vigilance with regard to proper sanitation is an essential loss control measure for meat products processors. Some meats will be prepackaged and wrapped tightly in cellophane upon arrival at the warehouses, so spills will be rare. Nevertheless, accidents can happen. In loading docks and storage areas, for example, tears in bags of meat could create spills. Also, leakage from ruptured boxes of meat as well as smashed or damaged meat, could lead to wet and sticky spots on warehouse or loading dock floors. Are spills swept or mopped up immediately and "Caution — Wet Floors" signs placed over affected areas? It is a positive underwriting sign if the insured employs a full-time sanitation supervisor whose job it is to oversee proper sanitation practices for the entire warehouse. What are the qualifications and experience of the insured's sanitation supervisor? At least one full-time sanitation worker should be designated for each of the insured's warehouses. Does the insured maintain strict compliance with OSHA standard 1910.141, Sanitation?

Frostbite could occur if inspectors or visitors are not suitably attired for the colder temperatures they will be exposed to in refrigerated storage areas. If visitors are allowed to enter climate controlled storage areas, management should ensure that they are appropriately dressed to withstand the temperature of the room they are entering. Does the insured have an adequate supply of protective clothing (e.g., face masks, gloves, quilted coveralls, etc.) on hand? Are inspectors expected to provide their own? For more information on related exposures, refer to the General Liability section of the Public Refrigerated Warehouses classification.

Meat processors will have large loading docks on site for receiving and shipping out goods. Truck drivers may sometimes assist with loading or unloading procedures and could sustain injuries as a result. Are all of the insured's forklifts equipped with backup alarms? What are the training and experience of the insured's forklift operators? Convex mirrors should be in place at any blind corners and at the beginnings and ends of aisles so operators can see pedestrians in time to stop. A safe, well-organized loading dock can also help minimize the potential for injuries to delivery personnel. Are trucks chocked during loading and unloading procedures to prevent them from rolling? Traffic patterns should be clearly established for loading docks, and truck drivers should be cautioned to avoid walking down aisles between storage racks. Are speed limit and warning signs (e.g., "Proceed with Caution" or "Keep Clear of Aisles") posted where necessary?

Although rare, some insureds may have retail stores on the same premises as their meat products processing operations. If that is the case, for detailed information regarding exposures in such circumstances, refer to the General Liability sections of the Supermarkets and Grocery Stores and Convenience Stores classifications.

Are deliveries generally made through the same entrance that is used by visitors, or are they made through a separate rear entrance? If delivery personnel carry products through the building's front entrance, proper materials-handling equipment should be used (e.g., hand trucks, dollies, etc.) to prevent visitors from possibly being injured by toppling cargo. Delivery personnel should also be encouraged to park their vehicles in an area that will not block customers' access to the insured's main entrance. A separate rear entrance for deliveries is preferred to reduce possible collisions between visitors and delivery personnel.

Some insureds may have a combination of both slaughtering operations and meat products processing operations. If slaughtering is part of the operation, livestock may be kept in outdoor holding pens. It is important to ensure that the stockyards are not accessible to retail customers or other members of the public. Fencing of the plant grounds and providing security guards are possible controls. For detailed information on exposures with regard to slaughtering operations, refer to the General Liability section of the Meat Packing Plants classification.

What is the condition of sidewalks and parking lots on the insured's premises? Are they kept in good repair? They should be free of cracks, potholes, debris, and clutter that could cause visitors to slip, trip, or fall. Maintenance of all exterior areas is particularly important during bad weather and the winter season. Freezing rain, sleet, ice, blizzards, and other severe winter conditions will increase the potential for visitors to slip and fall. Have arrangements been made for the prompt removal of ice or snow? Water should be kept off sidewalks, and puddles should not be allowed to accumulate. Exits and entrances should also be clearly marked to permit smooth traffic flow. At night, parking areas and sidewalks should have flood lighting. What is the insured's practice?

#### Product Liability and Completed Operations

For meat products processors, the Product Liability exposure will be severe. The majority of the livestock is typically slaughtered at meat packing plants at other locations, and then delivered to the insured. However, insureds will usually be named in lawsuits alone or along with the meat packing plant meat suppliers. In addition, insureds will be named in lawsuits along with their customers, most notably fast food restaurants, restaurants, and other establishments that may use the insured's processed meat products. Such claims will result from consumers who could become ill after eating meat products which are spoiled, contaminated or diseased; are improperly cooked or canned; contain harmful or improperly mixed ingredients; contain foreign substances; or have been cured with an improperly mixed solution of chemicals. Foreign objects in processed meat products also can cause broken teeth or cuts. The insured could also face

claims that will occur as a result of poor storage and/or delivery that could allow food spoilage and contamination that can cause illness and possibly death. There is also the possibility of outbreaks of such foodborne illnesses as *Escherichia coli* (E. coli), salmonella, listeria, and Mad Cow Disease (or Bovine Spongiform Encephalopathy, BSE) that eventually lead to death. Product Recall Expense Coverage may be necessary. This section should be read in conjunction with the related classifications of Meat Packing Plants and Rendering; other food-related classifications, such as Fish and Seafood Dealers — Wholesale and Retail, Canning — Fish and Seafood, Poultry — Processing, and Food Distributors may be of interest as well. It should be noted that those insureds that slaughter animals will face an exposure for contaminated meat.

What are the types and amounts of meat products processed by the insured? Insureds in this industry process what comes under the category of red meats, such as beef. Meat products processors include large commercial butchering companies that supply freezer-ready meats; hotel/restaurant supply companies that produce packaged portion cuts of fresh or aged meat for large commercial and institutional accounts; manufacturers of sausages, franks, bologna, loaf meats, and convenience foods; producers of ham and bacon; and meat canners. Does the insured sell any other items besides processed meat? Some larger insureds may process and sell other types of meat, such as poultry and pork, as well as various food items. In addition, insureds further process beef and pork trimmings into a variety of value-added food items such as pre-cooked pizza toppings and taco meat for food service customers. These companies may produce products that include pizza crusts, appetizers, Mexican and Italian foods, soups, sauces, and side dishes. Some of these items may be pre-cooked meats and prepared foods like burritos, deli meats, desserts, quality hors d'oeuvres, hot dogs, lunch meat, hams, and sausage, and roast beef. High quality meat that is used from beef trimmings is sold to food companies by insureds to be used as an ingredient for beef patties, processed steaks, chili, pizza toppings and other products. What is the insured's practice?

The most serious Product Liability exposure will come from contamination through improper storage, underprocessing, and cross-contamination with other raw meat. Discoloration, bad odor, and mold are all signs that the meat is unfit for human consumption. Foreign objects (e.g., glass bits, dirt, insects and insect parts, animal feces, hair, metal and other debris) could be introduced as the meat goes through the production process. This is particularly true with value-added meat products because they go through several stages before the finished products are ready. Going through such stages exposes the finished products to several contaminants. Claims may be filed by consumers that could be injured if such products are ingested. Even if the insured is not held liable for the Product Liability claim, the insured could still incur sizable defense costs. What measures does the insured take to remove metal and other debris from meat and meat products? To prevent broken glass from falling into the meat and meat products, are light bulbs shatterproof and protected by a metal shield? Cutting blades, grinders, and the like should be examined regularly for nicks or worn spots that could cause metal fragments to fall into the product. Magnets should be used and are typically installed throughout the insured's conveyance systems to remove or pull any metal and undesirable metallic objects or other large contaminants from the meat mixtures; screens are also used to remove rocks and other nonferrous debris.

Quality control is of the utmost importance. What type of quality control program does the insured have in place? A strict quality control program must be implemented to maintain product purity, integrity, and safety. Does the insured comply with all regulations and standards set by the United States Department of Agriculture (USDA) and other pertinent regulatory agencies? The majority of meat processors, including all that engage in interstate commerce, are regulated by the Food Safety and Inspection Service (FSIS), a division of the USDA; many other processors are under state inspection. However, a

number of small processors are not inspected by any authority. Although an insured under federal or state regulation has to comply with strict sanitation and product safety guidelines, it is unwise to become complacent. Special attention should be paid to noninspected risks. Assess the attitude of the plant management toward establishing good voluntary controls.

Does the insured have a testing laboratory on the premises? If so, this is a positive underwriting sign because it allows the insured to determine any problems with their products before they are shipped out to consumers. Large processing plants usually have an in-house testing laboratory and a comprehensive quality control program. Ideally, the program should include: written quality control specifications for each product; documentation of test results; microbiological monitoring of products through batch testing; in-process temperature controls; bacteriological testing of the effectiveness of cleaning operations; and testing of curing solutions. Has the management looked into any mishandling that could arise during the distribution of the product?

Who supplies the insured with raw meat and meat materials? What are the reputation and loss history of all raw material suppliers with whom the insured does business? Meat packing plants may occasionally sacrifice meat quality for profit. Using contaminated or substandard meat would of course result in contaminated meat products. Insureds will face considerable exposure through their contracts with meat packing plants, meat suppliers and distributors that deliberately ignore meat safety regulations. Such activities have resulted in injuries and death to customers nationwide. Does the insured impose strict quality standards on all raw materials and component suppliers? It is critical that the insured establish explicit ingredient specifications with suppliers and ensure that all raw meat and meat materials meet those standards. A sample of incoming raw meat and meat materials shipments should be inspected thoroughly by the insured before they are accepted. Any shipments that do not meet contract specifications should be refused. If the sample fails to meet the insured's quality standards, does the insured refuse to accept the shipment? The insured should require all of its meat suppliers to abide by the American Meat Institute's "Good Management Practices for Animal Handling and Stunning" and meat safety guidelines from the USDA and other regulatory agencies. It is highly recommended that to make sure that the insured's meat suppliers are maintaining standards, the insured should conduct annual audits of all its meat suppliers. Insureds should send their representatives to request invitations to the meat packing plants that it does business with in order to have the insured's quality assurance staff and plant managers specifically conduct their own humane slaughter audits of the packing plants and review all animal handling practices. If the insured conducts such visits, does the insured's meat suppliers openly welcome the insured's visits? Determine if all incoming raw meat and meat materials are stringently inspected. Shipping and receiving records should be maintained so that defective raw materials can be tracked back to their original suppliers. As the insured may incur sizeable defense fees in defending a product liability lawsuit, good recordkeeping may help mitigate these costs by subrogating them to the original supplier. Determine the quality control measures used by the insured's suppliers. Do the suppliers offer any quality guarantees on their products?

Does the insured use any foreign-based meat packing plants and suppliers? Determine if the insured engages in such a practice. If so, who are the insured's suppliers? What steps are taken to ensure that foreign meat is up to US standards? Some insureds will import their beef and meat materials directly from foreign countries; therefore, lawsuits against foreign meat packing plants and suppliers may be difficult to pursue, and, as a result, customers may bring claims against the insured as the manufacturer's and supplier's agent. It is a positive underwriting sign if the insured requests that the supplier indemnify or otherwise protect them via a hold-harmless agreement, or by naming them as an additional insured on their policy. What is the insured's practice?

At the time of this writing, there has been an occurrence of Mad Cow disease in Canada. As a result, the USDA banned all imports of cattle, beef, and beef products from Canada on May 20, 2003. In 1985, it was meat from Britain that carried strains of the Mad Cow Disease. 129 people from Britain, 6 from France, and 1 each from Italy, Ireland, Canada, and the United States died from eating the British contaminated meat. People get infected with the Mad Cow Disease, or a variant of it called Creutzfeldt-Jakob disease (vCJD), both of which result in fatal brain diseases or brain-wasting; these have long incubation periods that can last for several years, and can eventually result in paralysis and death. Cattle get infected upon eating feed made with protein and bone meal from rendered cattle or sheep. Does the insured's meat packing plants and suppliers feed their cattle with rendered beef or sheep meat parts? It is highly recommended that all insureds that use meat from foreign meat packing plants and meat suppliers audit the suppliers to determine what procedures are used in the preparation of the meat. What type of feed does the insured's foreign suppliers feed their cows? Beef from cows that are fed with protein feed made up of dead cattle parts infect the cows with the deadly Mad Cow disease that eventually infect people who eat the contaminated meat. If the insured uses meat from countries from which beef imports have been banned has the insured recalled the meat and destroyed any remaining batches?

Contaminated meat that is shipped into supermarkets and grocery stores, hotels, restaurants, fast food restaurants, convenience stores, or other establishments may be traced back to the processing plant where it came from. Has the insured ever been held liable for shipping contaminated meat? Even if the insured is not held liable for a Product Liability claim, the insured could still incur sizable defense costs.

What kind of testing program does the insured have in place? Throughout the entire process, all meat batches should be constantly examined for impurities, contaminants, chemical irregularities, or any other defects that could affect the quality or efficacy of the final meat product. All batches should be bar coded and serial numbered. Before any further processing of meat into finished products, unprocessed meat should be screened for discoloration, odd sizes, and odd smells. To avoid cross-contamination, some insureds may separate process machines by distance or by physical barriers. How often does the insured conduct in-process quality testing? Determine the training and experience of the insured's quality control staff. It is imperative that insureds maintain accurate records of formulas, mixtures, and quality control testing as a defense in the event of a claim. Does the insured maintain records of all batches and any contaminants they contained? To monitor purity, the insured should also test batches periodically during all processing. Batch records and numbers should be kept; if a batch is found to be contaminated, the process machinery should be sanitized and the batch destroyed. Is the insured's quality control testing performed in house, or is it contracted out to a reputable testing laboratory? Since many small meat processors do not have the capital resources or staff expertise to implement a sophisticated quality control program, it is essential to examine the loss history, sanitation program, and process controls carefully in such a risk.

What is the condition of the insured's meat products processing equipment, storage areas, and process machinery? All meat products processing equipment should be thoroughly sanitized and inspected for damage prior to use. Storage and warehouse areas should be emptied, inspected, and carefully cleaned out frequently as well. Before being further processed into the finished meat and other meat products, the raw meat should be sampled to ensure its quality.

Housekeeping is important in preventing the insured's meat products from becoming contaminated with foreign objects, such as dirt. Does the insured have a comprehensive sanitation program in place to monitor the cleanliness of its meat processing, packaging, and storage areas? Unsanitary conditions in storage and processing areas, especially in or near various meat processing machineries and work areas, could easily contaminate a meat or meat product batch. All product

batches should be stored under conditions that protect their integrity from contamination or deterioration, and all laboratory equipment should be cleaned and sterilized. What is the level of hygiene of the insured's workers? Strict hygiene (e.g., handwashing) should be enforced, especially before shifts and after any breaks. In addition, workers with long hair should be required to tie it back or wear a hair net or cap. Are the premises kept clean, and is all trash placed in appropriate containers and removed on a daily basis? Who is responsible for the training and supervision of workers? Plant managers should require production workers to inspect and clean their work areas daily. The insured should implement a cleaning schedule for the entire facility including a weekly inspection of equipment and production areas by qualified personnel. Also, production equipment should be cleaned and inspected before the start of every product batch. Production equipment should be checked specifically for accumulations of contaminants that could taint product batches (e.g., soil, grease build-up, or stagnant water inside pipes where harmful bacteria could grow). The insured may hire a sanitation consultant to inspect the premises regularly and to point out existing sanitation problems and methods to rectify them. Records should be kept of all such inspections. What is the training of all sanitation consultants that inspect the premises?

Although often excluded from coverage, spoilage may also result from rat or insect infestation. Maintaining constant vigilance with regard to proper sanitation is an essential loss control measure. USDA inspectors can immediately shut down any meat products processing company for any sanitation violation. It is a positive underwriting sign if the insured employs a full-time sanitation supervisor whose job is to oversee proper sanitation practices for the entire facility. What are the qualifications and experience of the insured's sanitation supervisor? Does the insured employ at least one full-time sanitation worker for each of its warehouses? Pest control services should be contracted out to a reliable and reputable firm. Duplicates of all contracts and records of application dates should be kept off site for an indefinite period. Should a claim arise, such documents could prove invaluable in demonstrating that the insured was not negligent in its efforts to control pest infestation. Strict compliance with OSHA standard 1910.141, Sanitation must be maintained.

Despite stringent quality control measures, the possibility of distributing defective meat and meat products will exist. If meat or a meat product recall has to be conducted, an effective product recall program will help minimize losses that may result from these types of claims. The program should outline a system for identifying the location of the affected products and for halting their continued sale, distribution, and consumption. Has the insured ever had to perform a product recall or market withdrawal in the past? If so, what were the reasons for the recall(s)? Due to pressure from the government, insureds may ask retailers and consumers to return a product after federal inspectors find evidence that a batch of meat can harm the general public. Also, a failure by the insured to meet its own set standards could result in the insured calling a recall. Detailed records of customer orders and shipments should be kept to trace contaminated shipments and to assist with recalls from a manufacturer supplying stock to the insured. Does the insured have a strict policy of not distributing products which show obvious signs of contamination? Are boxes inspected upon arrival for obvious signs of spoilage or contamination? Such boxes must immediately be rejected and sent back to the manufacturers or suppliers. Does the insured maintain accurate distribution records? This will be effective in the event that any recall is necessary; the insured will be able to locate the tainted product quickly and inform the customer to pull it from the shelf. This quick response will be effective in minimizing liability in this line. What is the insured's practice?

What methods does the insured have in place for informing food distributors, retail stores, and consumers of recalled items? Most insureds should have an easily accessible, interactive website and/or

telephone customer service staff to respond to questions or problems with products, as well as to provide general company information. In the event of a recall, are insureds informed about such meat products before they can be distributed to customers by mistake, or so no one else will have access to these products?

Furthermore, it is highly recommended that when conducting recalls, insureds contact the following resources: the Food and Drug Administration (FDA), and the Food Safety and Inspection Service (FSIS) of the U.S. Food and Drug Administration (USDA) have published guidelines for proper procedures on meat and meat products recalls under their jurisdiction, the Center for Food Safety and Applied Nutrition (CFSAN) of the USDA at [www.fda.gov/opacom/7alerts.htm](http://www.fda.gov/opacom/7alerts.htm); (<http://www.fda.gov/>); Hazardous Analysis Critical Control Points Database (<http://vm.cfsan.fda.gov/%7Elrd/haccp.html>); and the U.S. Department of Health and Human Services (<http://www.hhs.gov/-drugs/index.shtml>). Does the insured have recall or market withdrawal in place? Is the plan in compliance with FDA and USDA guidelines? Most product recalls arise out of noncompliance with federal regulations. Nonetheless, an effective recall program is important in recovering products that could become the basis for a Product Liability claim.

Product Recall Expense Coverage will be necessary since insureds will be liable for meat and meat products that are spoiled due to their negligence, such as not maintaining the appropriate temperature for refrigerated products. Also covered under the product recall coverage will be expenses to advertise recalls, to remove the product from the market, and to dispose of it. Meat and meat products could be contaminated by outside substances, such as refrigerants, machine fluids, or leaks from other stock. Grain and rice can attract vermin or rodents. Consequently, the insured would be held liable if it did not notice contamination before the customers were shipped their products. Although, meat spoilage or tampering on the meat packing end would be the meat packing plant's responsibility; the insured may nevertheless incur defense costs.

Proper storage methods will help alleviate claims for contaminated meat and meat products. The insured will store pallets of meat and meat products on metal storage racks in the warehouse or in walk-in refrigerators and/or freezers. The insured will not take individual pieces of meat or meat products out of their cases; it will transport the received product, in their original cases, on loaded pallets if they are packaged, or hanging from hooks in refrigerated vehicles if they are unpackaged to the proper storage areas. All meat and meat products should always be stored by keeping them off the floor and away from dirt, dust, and damage.

In order to prevent possible spoilage of customers' meat and meat products due to storing them at improper temperatures, the insured must keep its refrigeration equipment in peak working order. What is the age of the insured's freezers and/or refrigerators used to store products until they are shipped to clients? Assess the condition of the insured's refrigeration equipment, and determine how often it is inspected. Is it on a routine maintenance schedule? What are the training and experience levels of the insured's refrigerator maintenance and repair crew? Key personnel should be on call around the clock in the event of an emergency. Is emergency electrical power available? Determine whether temperatures in the different storage areas are controlled and monitored either by computer or manually. How much training has been provided for workers who monitor and operate the insured's temperature controls? If computerized systems are used, have operators received any training directly from the system's manufacturer or the software company? Even if the facility is not open to receive shipments around the clock, a worker who has been trained in the operation of the insured's temperature control system should be stationed on the premises at all times to monitor the temperatures in each of the separate storage areas.

How does the insured monitor its refrigeration system to ensure that temperatures do not drop below the acceptable levels? Meat and meat products are extremely sensitive to temperature changes; ade-

quate refrigeration is essential. Warehouse managers must be aware of the storage temperature for all incoming meat and make certain that any stored product is assigned to an area of the facility that is maintained at the manufacturer's recommended temperature range for proper short- or long-term storage. How is such information tracked? Is bar coding used for assigning all batches to a particular storage location? Bar codes will lessen this exposure because they provide product data that is available at all points in the supply chain at all times. What is the insured's practice? For related exposures on meat and other meat-related products, refer to the Product Liability and Completed Operations sections of the Meat Packing Plants and the Fish and Seafood Dealers — Wholesale and Retail classifications.

To lessen this exposure, it is highly recommended that insureds implement a Hazard Analysis and Critical Control Points (HACCP) program as recommended by the American Meat Institute. A brochure describing the program as well as several food safety tips and information are listed on its website at [www.ifdaonline.com](http://www.ifdaonline.com). An insured using a HACCP plan will be able to analyze its processes in order to determine where any problems will occur in its procedures, and be able to then apply all its monitoring and prevention resources to the most serious problems. If the insured's company is federally inspected, then having a HACCP plan is mandatory. Determine how and who inspects the insured's facility.

What provisions are made for weekends and holidays? Delivery schedules must be tailored to the customer's business hours and schedule. Meat and meat products delivered to a customer when he or she is not prepared to receive them may spoil if they must be held for any length of time.

Since insureds have refrigerated warehouses and storage areas, the insured may also wish to add an endorsement that would cover possible losses resulting from refrigerant leaks in areas of the facility where their products are stored. Warehouses may be operated using ammonia-based refrigerants or a newer, more "environmentally friendly" version of Freon. (Production of the older type of Freon has been banned in the United States after it was discovered that it was having harmful effects on the ozone layer.) If the insured stores ammonia on the premises, does it comply with OSHA standard 1910.111, Storage and Handling of Anhydrous Ammonia? For more information, refer to the Warehouse Operators' Legal Liability section of Public Refrigerated Warehouses classification.

Some insureds may make the necessary arrangements to use common carriers for transportation of meat and meat products from their warehouses to other locations, at the customer's request. What is the reputation and loss history of the trucking companies that the insured deals with most often? In the event that a loss occurs due to an error or negligence on the part of the shipping company with whom such arrangements were made, the insured could be named as a co-defendant in any ensuing claims. The insured is always viewed as potentially liable to the consumer. The consumer has no way of knowing about a third party shipper. The insured's risk manager needs to determine if appropriate risk transfer has taken place with the shipper protecting the insured; also, this is what the underwriter will want to determine. How often does the insured make such arrangements? Some insureds have their own fleet of vehicles that they use to deliver customers' stored meat and meat products. Where this is the case, Motor Truck Cargo Coverage will be necessary. Refer to the Inland Marine section of the Moving and Storage classification for additional information on this type of policy and what it entails.

Not only that, it is possible that processed meat materials (that are being shipped by the insured to its customers) may become contaminated during transport by common carriers if delivery vehicles or containers are not adequately clean. The insured should have some means of assurance from contract carriers that delivery vehicles (e.g., tractor-trailers, trucks, vans, etc.) are adequately clean. Although, there is no federal law requiring truck drivers to use refrigeration, the USDA and various state laws require meat processors to keep meat refrigerated

during transportation. What procedures does the insured have in place to make sure that meat is kept cool during transportation? Also, the insured should inform the carrier about what levels of cleanliness are expected. Most courts will recognize that it is the reasonable and logical responsibility of the contract carrier to provide clean and refrigerated vehicles/containers for the transportation of the meat commodity in question, since it is the rail carrier or trucking firm that will be in the position to know and monitor the prior use of a truck or railcar. However, in the event of a serious claim, the insured could still be held liable. It is essential, therefore, that insureds communicate their needs to common carriers. The underwriter should note that it is illegal to carry meat and any food ingredients in rail cars or trucks that have been used to transport toxic substances. Does the insured obtain a certified, written guarantee from the carrier stating that the containers were never previously used for carrying chemicals?

Adulteration or contamination of finished products could occur from employee or customer tampering. For instance, an employee can intentionally contaminate a meat supply by poisoning several pounds of ground beef or any other meat product. Value-added meat products that are sold in vacuum-packed packages or cans present very little opportunity for tampering; products sold in plastic bags, cardboard boxes, glass jars, or bottles present a more serious exposure. What steps does the insured take to prevent tampering? Containers prone to tampering should include a label warning consumers not to use the product if the safety seal has been punctured or removed.

The insured's labeling is also a consideration, but it will be regulated by the USDA's Labeling and Consumer Protection Staff (LCPS), which develops policies and inspection methods and administers programs to protect from misbranding. All labeling must be approved by the USDA, and is subject to the federal Fair Packaging and Labeling Act. All labels must include: all forms of product identification and nutrition; claims; net quantity statement (e.g., weight, volume, or count); species identification and nutrition related to the meat; a product freshness date; the numbers of fat, carbohydrate, and protein grams; the number of calories generated from fats; and the name and location of the manufacturer, packer, or distributor. Also, all pre-packaged meat products must carry ingredient statements that are regulated by law. Incorrect labeling or misbranding occurs occasionally, either by fraud or by accident. All labels must be truthful and not false or misleading in any manner. All labels must identify what the meat grade is, and what the meat product is. With regard to value-added meat and meat products where there may be a blend of ingredients, the label should indicate each component, particularly if the blend includes salt, fats, or carbohydrates. With such meat foods, a statement of "guaranteed analysis" that indicates the percentage of fat, fiber, moisture, and protein, and all ingredients (in descending order of importance) should be listed. The word "fresh" may not be used to designate a product that contains sodium/potassium nitrate/nitrite or has a brine concentration of 10% or more, and the words, "farm" or "country" should not be used on labels if the products are not prepared in those places. Sausage containing cereal should not be labeled "farm style" or "country style." With ready-to-eat and value-added meats, all handling instructions should be on the labels. For bulk shipments, the contract will contain the information that would normally be on a label. Nutrition information should be provided at all retail stores that carry the meat and meat products. Is the insured in compliance with all federal labeling requirements? All labeling information on the meats must be in compliance with the labeling requirements of the Food Safety and Inspection Service of the USDA.

In government and industry circles, there is concern over both the use of nitrites and nitrates in processed meats (due to the alleged risk of cancer) and the presence of ground bone tissue in products prepared with mechanically deboned meat. Nitrates have historically served two purposes: helping to prevent the growth of certain bacteria that can cause an outbreak of botulism and to give cured meat a pink color. When added to meat, nitrates break down after a while to form

nitrites, that are eventually added directly to the meat to speed up the curing process. During curing, nitrites prevent the development of rancidity and off-odors and off-flavors during storage. Also, they prevent warmed-over flavor and preserve the flavors of spices or smoke of the meat. However, according to the Environmental Protection Agency (EPA), the use of nitrates presents a danger in that they are converted to nitrites during digestion. Nitrites can combine with amines, a by-product of protein digestion, to form nitrosamines that after a long exposure, such as a lifetime of eating meat with nitrite added to it, will cause the development of dangerous carcinogens in the body that can cause malignant tumor growth. According to the EPA, young children, and especially nursing babies less than three months old are more susceptible to exposure with nitrates. Resolution of these issues could have a significant effect on the liability of meat processors. Products cured without nitrites would be more susceptible to spoilage and botulism contamination.

Currently, some insureds in the industry have decreased and actually eliminated their use of nitrate. For instance, in sausages which are always brown after the use of nitrate in curing now have the pink color of cured meat. Some insureds now stringently sanitize their tools before and after use based on the HACCP management systems principle for keeping food safe. In addition, an insured uses natural alternatives such as using an unrefined salt mixture that contains sodium lactate, a natural bacteria inhibitor derived from corn or beets. Does the insured cure meat? If so, what alternative procedures to nitrate use in meat curing has the insured developed? Determine if the insured is taking any steps towards developing alternatives to nitrate use. In some cases, some insureds have used nitrates to mask lower standards or production.

It should be noted that the USDA has not banned the use of nitrates and nitrites in meat because they are still used to ensure food safety and stability. Instead, the USDA has limited their use to very small amounts in order to reduce its exposure. However, in order to stave off any future claims, current regulations and their implications for product liability should be monitored constantly by the insured.

### **Workers' Compensation**

For meat products processors, the Workers' Compensation exposure will be substantial. In general, machinery hazards present the greatest concern. Such exposures will depend on the machines the insured uses, the training given, and the types and amounts of dusts and chemicals to which the workers are exposed. Claims under this line of coverage may arise from injuries caused by slips, trips, or falls. Also, frostbite, hypothermia, burns, electrical shocks, cuts or lacerations, back strains and injuries, and eye injuries from falling objects or dust could result. Severe or fatal injuries may occur in some instances from the improper use of materials, equipment, and tools and may range from minor cuts and crushed or amputated limbs that occur when knives, cleavers, and power tools are used improperly to burns, back strains, hernias, and even death. Respiratory diseases are possible from exposure to chemicals and solvents that are used in the processing of the insured's meat and meat products. Long-term exposure to excessive noise levels above 85 decibels can lead to hearing loss. Also, there is a possibility of electrocution, during the servicing and repair or use of meat products processing equipment. Repetitive slicing and lifting often leads to cumulative injuries, such as carpal tunnel syndrome. Employees in office areas will face standard office environment exposures, such as slips, trips and falls, electrical shocks, and repetitive motion injuries (RMIs). However, it should be recognized that this exposure will be higher for insureds that engage in slaughtering operations onsite as well.

The meat industry is one of several fields with the highest rates of job-related injuries and illnesses. Although meat products processing has become safer over the years, it still remains one of the most hazardous industries in the country. Accidents are both frequent and

severe, and could result in the loss of limbs and even death. Although both the meat packing and meat products processing areas have a high frequency rate and a severity rate of injury, the frequency and severity of injuries are lower in meat processing than in meat packing.

What is the layout of the insured's premises? Insureds are often housed in single story masonry or wood-frame buildings located in both rural and urban areas; plants may be made of prefabricated, pre-engineered structures of aluminum panel construction. The layout will include various chill and holding coolers; blast and storage freezers; a smokehouse; curing and aging rooms; space for boning, cutting, processing and wrapping; holding pens; a rendering room; a customer area; a boiler room; a machine shop; an office; and a truck sterilizing compartment. Insureds that have meat packing operations onsite will also have a slaughtering area as part of their layout. In some rare cases, a retail store may be located on the premises.

Office hours will typically be from 8:30 a.m. through 5:30 p.m., Monday through Friday. Most employees will work in shifts (such as 8:00 a.m. to 5:00 p.m., 7:00 a.m. to 3:30 p.m., 11 a.m. to 7:30 p.m., etc.). Smaller insureds may maintain more limited hours of operation, depending on the demands of their meat processing schedule. Moreover, work hours at both large and small insureds may be extended to accommodate any additional services or unusual circumstances that particular customers or seasons may require.

What are the number, age, and duties of the insured's workers? Depending on the type of operation and the variety of services offered, the size of a meat products processing company may range from small, one- or two-person operations to large businesses with hundreds of employees. Workers in meat products processing form the majority of employees that work in entire the food processing industry. According to the Occupational Outlook Handbook, red meat production is the most labor-intensive food processing operation, and 30% of all food processing workers are employed in plants that produce meat products. There are several different workers involved in food processing operations who perform various tasks. Since animals are not uniform in size, slaughterers and meat packers (for meat processing companies) skin, eviscerate and cut each of the carcasses into large wholesale cuts, such as rounds, loins, ribs, and chucks to make the handling, distribution, and marketing of meat more convenient. They further process these primal parts into cuts that are ready for retail use, and produce hamburger meat and meat trimmings, which are used to prepare sausages, luncheon meats, and other fabricated meat products. Also, they clean and salt hides, and make sausages.

Meat cutters and trimmers use hand tools to break down the large primary cuts into small retail cuts or individual size servings; they will often cut meat into steaks and chops, shape and tie roasts, and grind beef for sale as chopped meat. Also, meat cutters may weigh, wrap, and label the cuts of meat and arrange them in refrigerated cases for display, and prepare special cuts of meat to fill unique orders (if the insured has a retail store on its premises).

Cutting and slicing machine operators slice bacon and other foods. When insureds process other food toppings that are used with other meat products, mixing and blending machine operators produce dough batters, fruit juices, or spices. Casing finishers and stuffers make sausage links and similar products. Cooking machine operators steam, deep fry, boil, or pressure cook meats. Cooking and freezing equipment operators place meat in freezers or refrigerators. Supervisors direct the activities of meat production workers. Graders and sorters, production inspectors, and quality control technicians evaluate meat before, during, or after processing. Workers who make sure that all equipment is working adequately include repairers who perform routine machinery maintenance, such as changing and lubricating parts, and specialized mechanics.

To prevent meat spoilage, food has to be packaged and promptly delivered by freight, stock, and material movers, machine feeders and offbearers (who feed meat materials into the machines and remove goods at the end of the production line), industrial and tractor opera-

tors (who drive gasoline or electric-powered vehicles equipped with forklifts, elevated platforms, or trailer hitches to move meat goods around a storage facility), truck drivers who transport and deliver live-stock and materials, and driver/sales workers who often drive company vehicles over established routes to deliver and sell meat goods.

Management and professional positions will include executives who make policy decisions, warehouse managers, transportation managers, and industrial production managers (who organize, direct, and control the operation of the meat processing plant itself). Insureds with test laboratories will have workers that include chemists, and food scientists. Also there would be other technical service experts who are part of teams that perform quality assurance tests and have the authority to approve or disapprove any supplier who fails to meet the insured's quality standards.

It is a positive underwriting sign if the insured has safety seminars and warning posters around the premises that address whether standards are being met and guidelines are being followed. Is there a safety officer who oversees the work and safety practices of all workers and provides safety education classes on the job? The insured is required to post OSHA Form 300. This form is a list of all work-related accidents that have occurred within the past year. It should be noted that larger insureds with many employees may need to appoint more than one person in this capacity. The safety officer should be someone with good field experience who can understand and identify potential problems and be able to recommend and implement procedural or equipment changes. Safety officer(s) should conduct both weekly and monthly meetings to promote an exchange of ideas between management and employees. During such meetings, the safety officer should facilitate important demonstrations by the employees on specific safety topics.

Does the insured have a designated team of employees who vigilantly monitor the premises — particularly all production areas — for safety? Insureds should keep records of any violations of safety rules, reports of company safety meetings, medical injury reports, defective equipment reports, vehicle safety checklists and inspections, and accident investigators' checklists. Are reports of all accidents and injuries recorded and kept on file? These records can often play a vital role while performing loss control surveys of the facility. Is the insured in compliance with OSHA standard 1904.2, Log and Summary of Occupational Injuries and Illnesses?

How much experience do the insured's workers have? Most workers acquire their skills on the job through formal and informal training programs. Training lengths will vary depending on the task; simple cutting operations will require a few days to learn, while complex tasks like eviscerating will require a month to learn. On-the-job trainees will begin by doing less difficult jobs, such as simple cuts or removing bones. Guided by experienced workers, the trainees will learn the proper use of tools and equipment and how to prepare various cuts of meat. When they have demonstrated that they have learned various skills by using meatcutting tools, then they are taught to divide carcasses into wholesale cuts for retail and individual portions. Trainees are also taught to roll and tie roasts, prepare sausage, and cure meat.

Some jobs, such as inspectors and quality control workers, may need specialized training and education. Such workers are often trained in meat safety and will require a certificate to be employed in those positions in a meat products processing plant. Formal educational requirements for managers will range from two-year degrees to master's degrees. Employees with research positions may need a master's or doctoral degree. If the insured has delivery truck drivers, they will require a commercial drivers license (CDL) issued by the state in which they reside.

Does the insured supplement its in-house training program by sending workers to educational seminars and conferences that focus on various aspects of the industry, such as food handling and storage or refrigeration methods? Determine who is responsible for overseeing worker training. Are less experienced workers paired with more

seasoned employees until they have demonstrated an acceptable level of competence at their assigned tasks?

The primary hazard for the insured's employees are machine-related. Many insureds have meat-cutting operations on the premises. Workers may be injured through the improper use of knives, cleavers, and power tools. Slaughterers, meatcutters, and butchers may sustain cuts or more serious injuries from knives that slip during boning; most cuts are on the hand or arm, but very serious injuries may occur if the knife stabs the upper thigh. These workers are more apt to apply more pressure on a dull knife. Are knife blades sharpened regularly? Suitable protective clothing — such as an apron of thick leather, wire mesh, or plastic material — to cover the femoral area should be provided in addition to wire mesh gloves and wrist and arm protection. Cuts, lacerations, and dismemberment injuries are also possible for employees who work with meat slicers in preparing various other processed meat products. How much training do the employees receive before being allowed to operate these meat slicers unsupervised? Employees may suffer cuts and lacerations from opening boxes or bags of meat supplies with a box cutter, knife, or razor blade. Inexperienced workers involved in meat preparation should be paired with a more experienced employee until they become familiar with insured's equipment and machinery.

Also, cuts can result in longer-than-usual lost work time because employees cannot return to work if there is any danger that the wound would contaminate the meat. Knives should be kept sharp and have guards to prevent workers' hands from slipping onto the blade. Sharpening steels should be equipped with a protective disk at the hilt. When not in use, knives should be kept in a scabbard or pouch preferably on the workers' belt. Work stations can be positioned to minimize the chance of one worker cutting another. If not needed, points should be removed from knives to prevent stab wounds.

To what extent are cutting operations automated, if at all? Fingers and hands may be cut, punctured, or crushed by various cutting or grinding equipment. Are workers required to wear hand protection when working closely with cutting machines? Standard impact-resistant safety glasses should also be provided for employees.

Power saws, slicers, grinders and other power equipment may cause very serious injuries. Are all of the insured's machines properly guarded? Efficient machinery guarding must be maintained at all times to prevent contact of hands with the dangerous parts of the equipment to prevent hands or limbs from being pulled into the grinding mechanism. All meat-cutting machinery and other similar devices must be equipped with power interlocking mechanisms. An interlocking system should be installed on all machines to prevent their operation if guards are removed. It is a positive underwriting sign if all automated machinery is fully enclosed and guarded. Does the insured comply with OSHA standard 1910.212, General Requirements for All Machines? Employees should be furnished with heavy-duty rubber or leather work gloves to prevent hand injuries while handling raw materials or finished products that may have sharp edges, or when working with machinery that may have sharp parts.

Some employees may remove guards or continue to operate a faulty machine by shorting out the switch, often with disastrous results. A formal safety program should stress the importance and necessity of proper machine guarding. Are operators instructed never to clean machines while they are in motion? Distractions have contributed to many injuries; socializing, therefore, should be kept to a minimum where employees use hazardous equipment.

Pinched or even amputated arms, hands, or fingers may occur when machines that are used by operators for meat slicing are being adjusted. Serious or fatal injuries may occur if any of the machine parts are cracked, or if employees' extremities come into contact with moving parts. In the meat products processing industry, a common cause of machine-associated accidents is the failure of workers to follow lock-out procedures when making the frequent adjustments, clearing, or other actions outside of mechanical maintenance work

that are required when working with meat processing and packaging machines. In Montgomery, Alabama, workers for S&C, a meat processor, dismantled a meat grinder, and turned it over to BMS (a contractor) for cleaning. There was a shift change, and an S&C worker started the grinder without knowing that the BMS employee was inside the meat grinder cleaning it, resulting in the employee's legs getting caught in the machine and being amputated. As a result, OSHA fined S&C (the beef processor insured) for \$22,500 for willful safety violation and BMS (the contractor) was fined \$77,000 for one serious and two repeat violations. According to OSHA, the amputation could have been prevented if any of the companies had used its own lockout program and properly transferred control of the equipment. Is all equipment inspected regularly and maintained carefully? Do the insured's employees perform any maintenance work on the process machines, or is such work contracted out? What are the training and experience of the individuals who maintain the insured's machinery? Power should be shut down and machines should be locked and tagged out before any inspection, maintenance, or repair work commences. Is the insured in compliance with OSHA standard 1910.147, The Control of Hazardous Energy (Lockout/Tagout)?

In addition to the obvious physical hazards of butchering operations, workers may be subject to diseases from working with bacteria-ridden meat. Primary dermatitis and other skin irritations often are caused by abrasions of the skin by fat-soiled clothing or contact with brine solutions. Wounds, particularly those caused by bone pricks are also more likely to become infected. Workers may be susceptible to tularemia, a flulike illness caused by bacteria from infected animals entering small cuts and scratches on the hands. Prompt and proper attention to puncture wounds and cuts is essential to prevent infection. Full first aid facilities must be available in the meat-cutting area.

Meat wrappers may be exposed to polyvinyl chloride (PVC) vapors, which are created when meat wrapping film is cut with a wire that is too hot. Prolonged exposure to PVC fumes has been found to cause an asthma-like respiratory condition in meat wrappers. Adequate temperature control on these machines to prevent the cutting wire from becoming hot enough to vaporize the wrapping film will reduce the potential for respiratory problems. For more information on meat-related exposures, refer to the Workers' Compensation sections of the Meat Packing Plants, Rendering, and Supermarkets and Grocery Stores classifications.

The cleaning, repair, maintenance, and inspection of meat products processing machines and production machinery and/or boilers may require some employees to enter confined spaces. Working in confined spaces can be extremely hazardous. Does the insured inform workers of the hazards associated with working in confined spaces and provide adequate training in safety procedures? All OSHA standards must be followed for work in confined spaces, especially concerning the use of proper respiratory equipment, confined space attendants, communication equipment, and rescue personnel. Does the insured comply with OSHA standard 1910.146, Permit-Required Confined Spaces?

Automated production machinery, such as packaging and filling systems, presents many potential hazards to workers. Workers may be injured during machine maintenance and cleaning operations of such equipment. Although air blowers clean most machines, some machines must be disassembled for more thorough cleaning. Does all equipment have stationary lubrication fittings so employees do not have to reach inside a machine to lubricate it?

During meat processing, insureds use strong chemical cleaners that can be very toxic or corrosive. Ammonia is used extensively in meat processing operations as a refrigerant in the processing and storing of beef. Exposure to ammonia and other chemical cleaners may be acute (i.e., a single incident that causes a rapid onset of symptoms) or chronic (i.e., repeated low-level exposure over a prolonged period of time — weeks or months). Prolonged use exposure to ammonia levels can cause permanent lung and eye problems while frequent exposure to

small amounts can lead to bronchitis, persistent cough, and excess mucus production. With recurring use, the presence of some chemicals can often build up in the body until they reach levels that can cause both reversible illnesses (such as skin rash, nausea, eye irritation, fatigue, soreness in joints, blurred vision, injury to the liver, etc.), and irreversible illnesses (including birth defects, severe injury to the nervous system, and certain types of cancer). Problems are most frequently encountered if these chemicals are inhaled, ingested, or absorbed through the skin. Some chemicals are especially dangerous when they are quickly absorbed through certain parts of the body, such as the eyes, ear drums, scalp, or groin area. The splashing of chemicals into an employee's eyes and face is a possibility, and may cause serious injury or blindness. The use of safety glasses, goggles, and face masks will help prevent splattered or splashed chemicals from reaching a worker's eyes. Is the insured in compliance with OSHA standard 1910.133, Eye and Face Protection? Workers who handle hazardous chemicals should be discouraged from wearing contact lenses, as chemicals can become trapped between the lens and the eye. Are emergency eyewash stations and showers available in areas where potentially irritating chemicals are used, particularly on job sites?

Workers' lungs can become irritated if chemical fumes are inhaled. Over time, the inhalation of chemicals and toxic gases, such as chlorine and ammonia, may cause inflammation of mucous membranes and respiratory ailments could result. Workers may also be exposed to ammonia gas leakage.

Depending on the kinds of hazardous chemicals that are stored and/or handled on the premises, various types of personal protective equipment may be required. Since many chemical hazards are respiratory in nature, two of the most common forms of chemical protection equipment are: personal protective equipment (which consists of chemical-resistant, waterproof hats and washable hard hats with no absorbing liner); and chemical-resistant breath masks and self-contained breathing apparatus (SCBA, such as respirators, air-purifying respirators, dust/mist-filtering respirators, and air-supplying respirators), along with an adequate ventilation system. Determine the age, type, and condition of the insured's respiratory and ventilation equipment. Is the insured in compliance with OSHA regulations 1910.134, Respiratory Protection and 1910.94, Ventilation? Have all employees who are engaged in such work been trained in the proper use of respiratory equipment? Are employees who work in close proximity to these processes provided with air filter respirators, face masks, and safety goggles?

Workers could poison themselves if they inadvertently ingest food or beverages, or even smoke cigarettes, that have become contaminated with hazardous substances through contact with their own chemical-soiled hands. As a precaution, chemicals should never be stored near food or other items intended for human consumption, and vice versa. A good supply of detergent or soap, hand cleanser, and water must be provided for employees who work with chemicals and solvents, or in chemical storage areas. Is frequent hand washing strongly encouraged, particularly for workers who handle chemicals?

Some cleaners may be carcinogenic or cause occupational dermatitis or respiratory distress. Workers typically handle cleaning compounds or solvents, which may result in dermatitis. Systemic poisoning may occur through skin absorption. Work clothes could become contaminated. What types of cleaners are used on the insured's premises? How, where, and in what amounts are such materials stored? Certain cleaning substances used in tanks may be very caustic and cause severe burns; emergency eyewash fountains and showers should be available in areas where employees work with chemical cleaners. Do the insured's employees perform cleaning operations, or is this work contracted out? If employees do perform these operations, those workers should wear protective clothing, such as rubber gloves and appropriate eye and respiratory protection when mixing or applying chemicals. Is the insured in compliance with OSHA standard 1910.132, Personal Protective Equipment? Does the

insured issue and require employees to use the appropriate personal protective equipment, such as gloves and respirators, during cleaning operations? When mixing substances, chemical-resistant, long rubber gloves or chemical-resistant gloves with gauntlets should be worn, not leather or cloth gloves. Hard hats and chemical-resistant protective clothing of wool or cotton must also be worn.

Personal protective equipment may vary from task to task, and must be supplied to workers when appropriate. What are the age, type, and condition of personal protective equipment issued to the insured's employees? All personal protective equipment should be NIOSH-approved. What measures has the insured taken to enforce the use of personal protective equipment? The insured should be in compliance with OSHA standards 1910.135, Occupational Head Protection and 1910.138, Hand Protection. To prevent serious foot injuries, workers should be issued unlined, thick-soled, chemical-resistant, steel-toed work boots that cover the ankles. Leather boots should not be worn. In warmer climates where chemical-resistant boots are too hot to wear, chemical-resistant overboots with washable shoes (such as sneakers or layered socks) should be issued. The insured should be in compliance with OSHA standard 1910.136, Foot Protection. What is the insured's practice?

Are workers made aware of hazardous substances that they are working with? Material safety data sheets (MSDSs) must be available for workers to read. It is highly recommended that all employees who work for the insured have a thorough knowledge of the chemicals they use or are exposed to on the job sites at their main facility. Workers have the "right to know" and insureds must provide all relevant information to their employees. Determine if the insured is in compliance with OSHA standard 1910.1200, Hazard Communication.

It is important that insureds comply with all federal, state, and local laws and regulations regarding chemical usage. Does the insured follow all relevant Environmental Protection Agency (EPA) guidelines? The EPA mandates that certain procedures must be followed when using various chemicals and solvents. In addition, as employees who work with chemicals and solvents are consistently exposed to these chemicals (as described above), a medical surveillance program should be set up to monitor employees' blood levels frequently and consistently so that they may be treated accordingly, in compliance with OSHA standard 1910.1020, Access to Employee Exposure and Medical Records. The program should entail giving workers blood tests in order to detect any indications of poisoning in their blood and determine their levels of exposure. All new employees should participate in a pre-employment medical examination. Also, determine if the insured performs any pre-employment drug testing of its employees. What is the insured's practice?

Meat products processing plants often use augers and/or conveyor belts to move raw materials and finished products to and from the production, loading, and shipping areas to storage areas. What is the insured's policy regarding auger and conveyor use? Employees must neither ride on nor climb over or under a moving conveyor belt. Are conveyors equipped with guards to prevent contact with the nip points of the belts, rollers, and trains? Is the conveyor belt height designed to minimize the necessity of stressful movements? Emergency shutdown switches should be placed at conspicuously marked, strategic locations along the length of the conveyor and must be easily accessible to all production employees. Are conveyors regularly inspected and serviced?

Slips, trips, and falls are common exposures in both office and meat processing areas. Good housekeeping practices are the main loss control measure for these hazards. What is the level of housekeeping on the insured's premises? The office and reception areas should be kept free of debris and clutter. Trash should be removed from the premises on a daily basis. What is the condition of the insured's floors and floor coverings? Floors should be swept, mopped, or vacuumed daily. Worn, torn, or loose floor coverings should be repaired or replaced immediately. Telephone and electrical cords should be routed away from aisles, hallways, and doorways; cords that must cross doorways should be covered to keep people from tripping over them.

In meat processing areas, floors are often wet. As a result, water may drip onto the floor from some of the equipment that is used for meat processing operations. Have drains been installed in any areas where spills are common? Rubber mats with nonslip treads should be used in these areas as well. Spills should be mopped up promptly.

Electrical shocks could result from wiring that is worn, damaged, or exposed. All wiring should be double insulated, and loose or exposed wiring should be disconnected from its power source, especially in areas where floors may be wet. A licensed electrician should periodically inspect all wiring and power cords on electrical equipment. What is the experience level of the electrician who services the insured's equipment?

Workers in meat production areas may receive shocks from ungrounded or malfunctioning electrical machinery. This is particularly important in wet areas, common in most plants due to the vast amounts of water used and wastewater created as a result of the meat processing operations. In meat processing plants, an independent, green color-coded equipment ground wire is preferable to other types of conductors, such as metal conduits or bonding to water pipes. In wet locations, weather-tight covers should be used on wall-mounted outlets. Plugs and cords for machinery that is frequently moved for cleaning should be inspected regularly. Is all electrical equipment properly grounded, NRTL-listed, and connected to ground fault circuit interrupters (GFCI)? Electrical wiring should be checked frequently for cracks and fraying by a qualified professional. Is the insured in compliance with NFPA 70, National Electrical Code?

Meat production workers who prepare value-added meat meals could be burned by coming into contact with hot cooking surfaces or vat contents. What measures are taken to prevent workers from accidentally touching hot machinery? In more automated operations, this exposure will be relatively slight. Heat-resistant personal protective equipment should be provided to employees working around hot surfaces. Steam burns are another source of injury because of the volume of steam cleaning that is done and the use of steam jackets on cookers. Steam-cleaning hoses and steam-water mixing valves require frequent inspection to ensure that they are in good working order. Employees working with steam should wear insulated, heat-resistant gloves. Are all steam pipes insulated?

Workers will be exposed to excessive noise levels for prolonged periods of time. Workers exposed to a time-weighted average (TWA) of 85 dB of noise must be provided with NIOSH-approved hearing protection devices if they request them. OSHA mandates that insureds must provide and require employees to wear hearing protection (e.g., NIOSH-approved earplugs or earmuffs) when noise levels reach or exceed a TWA of 90 dB. Are employees provided with NIOSH-approved hearing protection? Are employees given pre-employment and annual audiometric tests as a baseline against which future tests can be compared? Annual audiometric exams must be conducted on all employees who are exposed to a TWA of 85dB. Is the insured in compliance with OSHA standard 1910.25, Occupational Noise Exposure?

Does the insured require employees to participate in a pre-employment medical examination? It is a positive underwriting sign if employees are examined by a medical practitioner prior to assuming their work duties to assess whether they are physically capable of fulfilling their responsibilities.

Slaughterers, meatcutters, butchers, materials equipment handlers, and cleaning personnel all engage in work requiring extreme physical exertion. These workers are expected to handle large cases of meat and meat products, as well as huge bales and rolls of meat packaging paper. Back, neck, and shoulder injuries may result. Any employees who are required to lift heavy loads should be provided with back support belts and harnesses. Determine if workers are instructed on the proper lifting methods help to prevent back injuries. Proper materials-handling devices (e.g., hand trucks, dollies, hoists, wheelbarrows with dual wheels, lifting straps, hydraulic lifting aids, hydraulic pallet jacks for smaller loads, etc.) should also be issued if necessary. Is the

insured in compliance with OSHA standard 1910.176, Handling Materials — General? Workers should be encouraged to get help before attempting to lift or move heavy objects. Dropping or lifting objects while moving them can cause serious foot injuries. Workers exposed to this hazard should be issued steel-toed work boots. A corporate-sponsored exercise program for employees, emphasizing stretching and strengthening exercises for the back and legs, is a positive underwriting sign. Employees should be instructed to ask for assistance when an item is too heavy or awkward to lift alone.

Most stored goods will be tightly wrapped with cellowrap to avoid the possibility of boxes of meat toppling onto persons who are riding on forklifts or walking through the aisles below them. However, accidents have been known to happen. As a precaution, hard hats and steel-toed boots should be worn by employees who work on loading docks or in storage areas where shelves are elevated to heights of six feet or more. What is the insured's practice? Are all goods checked that they are securely wrapped before they are moved to their designated storage location in the warehouse? Assess the experience level of the person who oversees the insured's wrapping operations. Does an employee doublecheck all incoming meat to ensure that the cellowrap is tight and there are no loose boxes or crates?

Most meat processing workers will often use materials-handling devices, such as forklifts and hydraulic lifts to move and palletize finished products or raw meat materials. What types of forklifts does the insured use? If gasoline or propane forklifts are used, proper ventilation during refueling is required. Because explosive gases may escape from a forklift battery during recharging, this procedure should take place outdoors and away from ignition sources. When forklifts are unattended, control levers should be placed in neutral, emergency brakes set, forks lowered, and power cut. If the lift is parked on an incline, chocks must be placed in front of or behind wheels to prevent rolling. Are forklifts equipped with backup alarms? Is the insured in compliance with OSHA standard 1910.178, Powered Industrial Trucks?

What are the training and experience of the insured's forklift operators? Thorough training in the safe operation of forklifts is essential. Prior to their operation, do the insured's forklift operators use a written checklist to assess the condition of their vehicles?

Improper operation of forklifts could result in the operator or other workers being injured by toppling loads or the vehicle overturning. Is the rated load capacity clearly marked on all forklifts, and have employees been instructed not to exceed it under any circumstances? All forklifts should be equipped with overhead protection, such as a roll cage. Are the insured's forklifts equipped with backup alarms? Convex mirrors should be placed at the ends of aisles and at all blind corners. Have traffic patterns been established and clearly marked in all loading docks and storage areas? Aisles in between storage shelves should be of sufficient width to accommodate the maneuverings of the type of forklift used in that particular storage area. Forklift operators should be particularly alert to the presence of pedestrians when maneuvering palletized goods onto and off of racks that are stacked "double deep" since removing or placing a pallet to the rear of the shelf requires first removing and lowering to the ground level any pallet that may be situated in front of it. How much training do the insured's forklift operators have in working on double deep storage configurations?

Most meat products processing company facilities will include loading docks, each of which may have as few as 5 or as many as 20 or more docking bays where delivery trucks can back up and have their goods unloaded from the cargo bay. Forklifts will actually be driven onto the truck beds to remove pallets and cartons of goods, transferring them onto the loading dock. Employees could be hit by moving forklifts in the course of these procedures, possibly resulting in serious injuries. A safe, well-organized dock will effectively help reduce this exposure. Employees who work on loading docks should be required to wear OSHA-approved reflective, orange vests to increase their visibility to delivery truck drivers and forklift operators.

Trucks should be chocked during loading and unloading to prevent them from rolling. The dock's traffic flow, including the arrival and departure of trucks, forklift operations, manual materials-handling equipment, and pedestrian traffic, should be closely regulated. Are all pickups and deliveries of goods scheduled in advance to allow for a smooth, well organized flow of traffic? If so, this is a positive underwriting sign. Traffic lanes for both pedestrians and vehicles should be clearly marked on loading docks. Good communication, both verbal and with signage, is essential for a safe loading dock. Are speed limit and warning signs (e.g., "Sound Horn" and "Proceed with Caution") posted throughout the area? A loading dock may also have blind corners that can contribute to an accident. Have convex mirrors been installed at corners and at the beginnings and ends of aisles?

Although some insureds may contract with a meat distributor to pick up finished products, other businesses may perform delivery operations themselves. In addition, truck drivers will face the possibility of being injured in motor vehicle accidents. How strongly does the insured encourage its drivers to meet their delivery deadlines? Strict adherence to delivery deadlines may encourage reckless driving practices. Refer to the Automobile Liability section of this article for more information on loss control measures for vehicular accidents.

Drivers could be injured during robbery attempts. Are drivers told to cooperate with robbers and their demands and not to offer any resistance?

Although many of the production functions in the meat products processing industry have been computerized and a good number of insureds use fully automated assembly lines, employees may still be required to work on a line in order to complete the operations at hand. These duties often require workers to perform repetitive motions for extended periods of time. As a result, workers may sustain repetitive motion injuries (RMIs) such as thoracic outlet syndrome, which affects the neck and shoulders, and rotator cuff injuries of the shoulders. Are workers educated about the early signs and symptoms of these types of injuries? What measures has the insured taken to minimize cumulative trauma injuries? Frequent rest breaks are recommended.

Moreover, workers bending over machines or using chairs with inadequate support for long hours will be subject to back problems. Are workstations ergonomically designed? Is there adequate space to move around the production areas? Crowded workstations will increase the Workers' Compensation exposure. What is the quality of lighting in the facility? Poor lighting can contribute to accidents.

Office employees are also subject to cumulative trauma disorders (CTDs), such as carpal tunnel syndrome, resulting from working with calculators, computers, and word processors. Employees working with computer monitors may also experience eye fatigue. It is recommended that they look away from the screen frequently to focus on distant objects and take a 15-minute break every 3 hours. Employers should follow ANSI standard ANSI/HFS 100-1988, which provides ergonomic design guidelines for visual displays, keyboards, and workstations.

Maintaining constant vigilance with regard to proper sanitation measures is vital. It is a positive underwriting sign if the insured employs a sanitation supervisor whose job it is to oversee proper sanitation practices for the entire facility, as well as full time workers for each individual warehouse. What are the qualifications and experience of the insured's sanitation workers? Is the insured in strict compliance with OSHA standard 1910.141, Sanitation?

The risk of frostbite and hypothermia will be a serious concern for employees who spend extended periods of time in the insured's refrigerated storage rooms, such as those performing inventory. Protective clothing that has been designed specifically for those who work in colder environments is available. Are workers issued such clothing in the proper sizes to ensure a comfortable fit? Depending on the temperatures to which they are exposed, such clothing may include: gloves; hats, earmuffs, and/or face masks; thick socks; work boots; long underwear (preferably thermal); quilted coveralls; and hooded jackets or ¾-length parkas. Does the insured use forklifts that have heated cabs? The

amount of time workers spend in extremely cold storage areas (e.g., -20 F or colder) should be strictly limited to no more than 2 hours without a break to warm themselves up. What is the insured's practice? Are hot beverages in insulated thermoses provided for workers, or are they expected to bring their own? In addition, any doors leading into walk-in refrigerators/freezers should be equipped with safety latches so workers cannot accidentally lock themselves inside.

Workers could be injured while engaged in routine equipment maintenance or while performing repairs on the insured's refrigeration equipment. They will be exposed to high voltage, and may have to enter confined spaces as well in order to service the equipment. How much experience do the insured's service technicians have in dealing with industrial refrigeration equipment? Are they certified in HVAC repair from a reputable institution? In addition, workers may receive electrical shocks from malfunctioning refrigeration equipment. Is all equipment properly grounded, NRTL-listed, and connected to ground fault circuit interrupters (GFCIs)? Most refrigeration equipment is likely to be hardwired to the main electrical service wiring, and it will not need to be plugged into an outlet with an electrical cord. Is the insured in compliance with NFPA 70, National Electrical Code?

What type of refrigerant does the insured use in its facility? Many insureds with refrigerated warehouses will utilize ammonia-based refrigerants. Workers who service refrigeration equipment or assist in cleaning up leaks will be exposed to ammonia leaks. Ammonia gas has been known to cause lung damage and, in high concentrations, can even lead to death. When cleaning up leaks, workers should be required to wear self-contained breathing apparatus (SCBA) equipment to protect their lungs from exposure to the gas. Emergency respiration equipment should be stored in at least two separate on-site locations that are easily accessible to all workers. Also, it is essential that at least one of these designated storage sites be situated in an area of the insured's facility that would remain unaffected in the event of an ammonia leak. Does the insured have an ammonia leak detection system installed in all refrigerated areas that have interior exposed pipes? In addition to respiratory distress, exposure to high concentrations of ammonia vapors could result in skin burns. The insured should have the proper protective clothing on hand to issue to workers if necessary.

Under normal conditions, ammonia is a very stable compound, and modern technology has greatly increased the safety of its use as a refrigerant. The refrigeration system is typically a closed system, so there is no single spot where ammonia is fed into or siphoned out of the system. Therefore, any leaks would be the result of an accidental rupture or crack in pipes or fittings that are part of this closed system. Because ammonia has a strong, unpleasant odor, it is detectable to the human nose even in concentrations as small as approximately 5 — 50 parts per million, thus allowing plenty of time for workers to vacate any affected areas before the concentration would reach levels that may be cause for serious concern. In order for an explosion to occur, ammonia must reach an air concentration level of 16 — 28% (i.e., 160,000 to 280,000 parts per million), and there must also be an ignition source of at least 1204°F. If insureds have refrigerated warehouses and storage areas, it simply will not provide the type of environment in which critical temperature and concentration thresholds are likely to be reached. And even with these required parameters, it is extremely difficult to create the exact conditions necessary for ammonia to ignite. Is the insured in compliance with OSHA standard 1910.111, Storage and Handling of Anhydrous Ammonia?

Though uncommon, some insureds may operate a retail store on site where regular food is sold to the general public. Does the insured operate a retail or discount store on the premises? Refer to the Workers' Compensation section of the Supermarkets and Grocery Stores classification for more information.

What is the availability of emergency health care and first aid? The insured should be in compliance with OSHA standard 1910.151, Medical Services and First Aid. Are first aid kits located throughout

the premises and on all of the insured's vehicles? The telephone numbers for local emergency medical teams should be posted prominently throughout the premises. Determine if any employees have been trained in cardio-pulmonary resuscitation (CPR) or first aid. It is a positive underwriting sign if all employees are required to undergo first aid training. Have any employees received training in emergency first aid, particularly in how to treat symptoms of hypothermia or frostbite?

### Crime

There will be little cash kept on hand at meat products processing companies; most customers will be billed by invoices and will send their payment in the form of a check. With this type of operation, employee dishonesty is a major concern due to theft and collusion with outsiders. Overall, the Crime exposure will be significant. Third party theft exposure will be covered under the Fire and E.C.: Property section.

What forms of payment does the insured accept? Most of the insured's customers will pay by check after invoices have been presented for payment. Are all checks stamped "For Deposit Only" immediately upon receipt? How often are bank deposits made? If possible, the insured should make deposits at varied times using different routes to avoid suggesting a routine. Are all cash, checks, and credit card receipts stored in a tool-, torch-, and explosive-resistant, NRTL-listed, time-delay safe until they are deposited?

Do the insured's drivers accept payment for deliveries? Smaller insureds are more likely to have their drivers collect payment after delivery. Are "Drivers Carry No Cash" signs posted on all trucks? Are trucks equipped with NRTL-listed, fire-resistant drop safes? When returned to the insured, the safe should be opened only by a supervisor. Does the insured have a secured collection room? Is the room equipped with a panic button wired to a central-station alarm monitoring center? What is the insured's practice?

Employee dishonesty may be a concern. How are the insured's workers screened before employment? Are all references checked and previous employment verified? Employee collusion may exist as employees may tamper with shipments for personal profit. Determine the insured's shipment practices. Does the insured offer employees a discount on products? Does the insured perform periodic, unannounced financial audits? Ideally, accounting functions should be performed by more than one employee.

Furthermore, large losses stemming from collusion between employees and suppliers during deliveries may be reduced through proper managerial supervision and closed-circuit television cameras. It is not unusual for shipments of such high-value items as meat to be only partially complete. Are all invoices and receiving records kept in the office safe? Employee collusion with vendors increases this exposure, but theft can be detected with careful attention to vendor invoices and a specific policy for checking in meat shipments the moment it arrives. Determine who is responsible for keeping inventory records. More than one employee should be responsible for inventory control. What is the insured's practice?

Loading docks and platforms should be monitored at all times to prevent employee theft or collusion with outsiders. It may be possible for a dishonest employee to hide merchandise in a discreet location and retrieve it later on at the end of his or her work shift. What is the level of supervision on the insured's loading dock? If loading docks and storage areas are equipped with closed circuit surveillance cameras, this is a positive underwriting sign. The employee parking lot should not be near the loading or unloading area. Loading and unloading areas should be physically separated from each other. Is any storage done on docks or outside the building? Moreover, incoming and outgoing meat shipments should be monitored carefully by management. Information about incoming and outgoing shipments should not be made general knowledge; prior knowledge by certain employees or persons may make those shipments easy targets for loss. Long-term relations with clients and/or a guard service can increase the possibil-

ity of insider-outsider collusion. It is highly recommended that a full-time worker be hired to oversee security for the entire facility. Some insureds may have their premises surrounded with perimeter fencing, possibly with a manned booth to monitor all incoming and outgoing vehicle traffic. Where this is the case, do booth workers stop all outgoing employee and passenger vehicles and visually inspect their trunks and/or backseats for stolen goods? Such precautionary measures can be seen as yet another excellent way of helping to prevent possible losses due to theft.

The insured may also wish to have some protection against unexplained losses or shortages that become evident at the time when a scheduled or unscheduled inventory is taken or when goods are removed from storage for transportation to the customer. Such losses could result from inadequate training and inventory tracking methods, from the unintentional discharge of stored meat goods to an unauthorized party, or even from more nefarious causes, such as employee dishonesty. What methods does the insured employ to keep track of the goods that are stored in its warehouses? If bar coding and computerized tracking methods are used, this is a positive underwriting sign. How much training have workers received in verifying bills of lading on incoming goods? Are warehouse receipts issued when goods are received?

What is the level of security on the premises? All exit doors should be equipped with double-cylinder, deadbolt locks, and windows should have tamperproof locks. Most insureds will have an employee whose job is to oversee premises security. Does the insured have such a person on staff? If the facility is not open for 24 hours, then it is a positive underwriting sign if security guards are hired to patrol the facility during off hours. Have any arrangements been made with local police for routine patrols of the facility? It may be advisable to have closed circuit cameras strategically placed at all entrances to help monitor who is entering the premises. If the property has perimeter fencing, it should be in good repair. Are all outdoor areas well lit at night?

Determine the location of the nearest police station. What is its response time?

#### Fire and E.C.: Property

There will be a serious Fire and E.C.: Property exposure for meat products processing companies. The fire load will consist largely of stored food and products, packing and storage materials (e.g., cardboard boxes and various paper supplies), paper, and trash. Ignition sources will include inadequate or faulty wiring systems, malfunctioning electrical or overheated refrigeration equipment, ammonia leaks, and smoking. Beyond the ignition sources and fuel loads, the primary concern is the susceptibility of the products. In almost any fire, the United States Department of Agriculture (USDA), and the Food and Drug Administration (FDA) are apt to declare the stock a total loss, either due to fire or smoke. Theft by third parties may also be a concern.

What are the age, type, and condition of the insured's building? Larger and middle-sized insureds may occupy at least several floors within a multi-story facility or complex, and may also have more than one office or storage facility in various locations. The facility may be freestanding. Is the insured located in a renovated structure? In renovated buildings, concealed spaces may be left between walls or above suspended ceilings where fire may spread rapidly and undetected. If there are adjacent facilities, what hazards do they pose? Have firewalls been erected in multi-occupancy buildings to help prevent the spread of fire? Adjacent operations should be separated by a firewall that extends to the ceiling. Are the premises owned or leased?

What is the layout of the insured's premises? Depending on the type of operation and the variety of services offered, the size of a meat products processing company may range from small, one- or two-person operations to large insureds with hundreds of employees. Insureds are often housed in single story masonry or wood-frame buildings

located in both rural and urban areas; plants may be made of prefabricated, pre-engineered structures of aluminum panel construction. The layout will include various chill and holding coolers; blast and storage freezers; a smokehouse; curing and aging rooms; space for boning, cutting, processing and wrapping; holding pens; a rendering room; a customer area; a boiler room; a machine shop; an office; and a truck sterilizing compartment. Insureds that have meat packing operations onsite will also have a slaughtering area as part of their layout. In some rare cases, a retail store may be located on the premises.

Faulty or inadequate wiring systems, malfunctioning electrical or overheated refrigeration equipment, and ammonia leaks are key ignition sources. What are the age, type, and condition of the insured's wiring? Wiring should be in compliance with NFPA 70, National Electrical Code. If the insured operates out of a converted or renovated structure, check if any rewiring has been done. Is the insured's wiring system sufficient to meet its electrical needs? It is recommended that a planned program of scheduled inspection and preventive maintenance for all wiring be implemented.

What are the number, type, age, and condition of all electrical equipment used by the insured? Office areas may contain such standard office equipment as computers, copiers, printers, and fax machines. Are cords and wires on all electrical equipment periodically inspected for fraying and cracking? Worn or frayed cords and wires could spark, and should be repaired or replaced promptly. Refrigeration equipment is thermostatically controlled, but a malfunction could cause it to overheat. Is all electrically powered equipment properly grounded, NRTL-listed, and in good repair? Does the insured have a routine maintenance and inspection plan in place for its electrical equipment? Determine the experience and qualifications of the person who maintains this equipment. Is all refrigeration equipment carefully monitored?

Does the insured have a smokehouse located on the premises? Smokehouses either have the smoke-generating unit within the smokehouse itself or in a separate unit connected to the smokehouse by ducts. The smokehouse should be a fire-resistive enclosure with metal doors. An entrance outside the building is preferable. Makeshift smoking rooms generally are unacceptable and should be considered for coverage only if they are physically separated by some distance from the main building. An acceptable smokehouse will have: steam jet protection or approved fire extinguishers; thermostatic controls; standard clearance for the smokehouse vents; adequate venting; baffles to prevent the meat from dropping on the flame and to protect the burners from drippage (where the burners are inside the unit); baffles or water screens to prevent sparks from entering the smokehouse (where the smoke-generating unit is outside); and safety pilot lights that will shut off in case of pilot failure or interruption of gas service. Separate smoke-generating units should have a high-temperature cut-out thermometer bulb in the path of air from the blower that will switch off current to the blower, gas burner, and sawdust feeder if the temperature exceeds an upper limit. Are all smokehouses cleaned of grease, soot, and tar frequently?

Some insureds have test laboratories on-site for testing various ready-to-heat and ready-heat meat products in order to find out if they can be prepared according to the insured's safe handling directions. As a result, meat preparation equipment may present an additional ignition source. Is the kitchen area fully equipped or not? Determine the age, type, and condition of all food preparation equipment on the premises. Are all employees who are involved in food preparation properly trained in the use of any stoves, ovens, or grills? The use of electric appliances is preferred to gas appliances since they do not have open flames. Who inspects and maintains the insured's kitchen area equipment? Is the insured in compliance with NFPA 70B, Recommended Practice for Electrical Equipment Maintenance? Refer to the Fire and E.C. section of the Restaurants classification for more information on kitchen exposures and loss control measures. If the insured does not have a fully equipped kitchen area, are microwaves, coffee makers, or other such devices present in the area?

Does the insured permit cigarette smoking on the premises? If so, smoking areas should be separated from meat production and storage areas and should be located in a separate fire division to prevent the contamination of the meat. Smoking should be strictly prohibited in all working and production areas as well as warehouse and meat materials storage areas. "No Smoking" signs should be posted in all areas where smoking is prohibited. Self-closing, fire-resistant receptacles should be provided in any areas where smoking is allowed. Are they emptied regularly? It is highly recommended that smoking not be allowed at all on the premises because of the presence of meat. What is the insured's practice?

What is the insured's fire load? Along with the large volume of stored meat and meat products, the abundance of ammonia that will be stored and used for refrigeration purposes will combine to create an unusually high fire load for meat processing companies. Materials-handling equipment, such as forklifts, will also be subject to loss, along with wooden or plastic pallets and other packaging materials (e.g., insulated padding, styrofoam, cardboard boxes, plastic, and others), trash, documents, office furniture, and oil and grease in the insured's vehicle maintenance area. For insureds that store most of their documents and files off-site, the fire load for office areas will be reduced. The meat itself, particularly dry meat goods will contribute to the fire load. The extent of the fire load will vary greatly depending on the size and scope of the insured's operation.

Ammonia, commonly used as a refrigerant in the meat products processing industry, is combustible in high concentrations that can reach within inches or feet of a broken pipe or leaking valve. In addition, ammonia systems contain a substantial quantity of flammable vaporized oil from the compressors. Welding on or near the equipment is hazardous. If the insured uses ammonia-based refrigerants, what type of ammonia detection system does it have in place? Generally, there are two types of ammonia detection systems that may be used, both of which involve a central control panel with sensors placed in strategic locations where leaks may be expected. A fixed system, which is always on and constantly monitors the air in the facility, should be connected to trigger emergency ventilation and shutdown electrical equipment when it detects a leak. Portable units, on the other hand, can be used to monitor the air quality during the course of responding to a leak so it can be determined when the situation is once again safe for normal operations.

It is essential that certain measures be in place to properly respond to ammonia leaks. Key personnel must be fully trained in how to respond to such situations, and have the right equipment on hand and ready for immediate use. According to a report from FM Global, the "first line of defense" for refrigerated warehouses is to ensure that any areas where ammonia leaks could occur are equipped with an appropriately designed ventilation system; that is, one that uses negative air pressure by having fans exhaust air from one end of the area while drawing fresh air through an inlet at the opposite end. Have workers been trained in the proper procedures for venting any areas in which an ammonia leak has occurred so that the concentration levels in the air can be quickly reduced? Secondly, if possible, the insured should apply a mixture of carbon dioxide (CO<sub>2</sub>) and water (in the form of a light spray or fog) to the affected area along. With the presence of water vapor, ammonia reacts with the CO<sub>2</sub> to form a harmless white powder known as ammonium carbonate. Thirdly, emergency shut-off valves must be in place, and all workers should know where they are located and how to operate them since a large amount of ammonia could be released in a matter of minutes, possibly with devastating results. Are all ammonia pipes and control valves clearly labeled? It is highly recommended that the insured post schematics in prominent locations showing exactly where the ammonia shut-off valves are located throughout the facility. Are these valves easily accessible to all workers? The insured should be in compliance with NFPA 30, Flammable and Combustible Liquids Code. Has the local fire department been informed of the location and amounts of ammonia that are kept on the premises at any given time?

Proper training for forklift drivers is also essential since ammonia leaks commonly occur when drivers attempt to maneuver the vehicle after having neglected to lower their fork, resulting in the fork impacting with an overhead pipe, rupturing, and causing an ammonia leak. How experienced are the insured's forklift operators? It is a positive underwriting sign if the insured conducts random drug and alcohol testing on its forklift operators. Having impact barriers in place around the ammonia piping can help to minimize this risk. Has the insured's piping system been designed to ensure enough clearance with raised forklifts?

Good housekeeping can be an effective loss control measure for this hazard. Office areas should be kept clean and free of debris and clutter. Are all floors and floor coverings swept or vacuumed daily? All work surfaces should be kept neat and well organized in order to eliminate clutter. Trash should be removed and disposed of daily. All electrical wiring should be properly insulated and run inside the walls. There should also be adequate aisle space between all meat storage units, and all meat products processing machinery.

Boxes of trash and debris should not be temporarily stored near exit doors. Packaging materials should be neatly stacked. A fire is more likely to spread in other directions where merchandise is stacked closely together on racks/shelving units. In all storage and office areas, paper goods, packaging, and storage items should be well organized and stacked neatly on shelves that do not block any entrances, exits, hallways, or aisles. Are the insured's shelves constructed of wood or metal? Metal shelves are preferable since they will not burn as readily as wooden ones. It is a positive underwriting sign if shelves do not touch the ceiling or obstruct any fire detection or suppression devices. Are packaging materials stored neatly and at a safe distance from potential ignition sources?

Some of the meat products the insured stores on site are packaged in plastic. Other materials include polystyrene foam "peanuts," foamed-in-place plastic, or shrink wrap. Products encased completely in plastic packaging have been found to burn as if the product itself was plastic. Plastic materials and components will be flammable and can produce dense, toxic fumes when burned. This smoke could impede fire fighting efforts. In addition, plastic wrappings prevent prewetting of the product, and thus diminish fire control.

What are the average and maximum values exposed to loss? Valuable items exposed to loss will include the entire inventory of meat and meat products, various office equipment and furniture, computers, and valuable documents, such as contracts with manufacturers and suppliers. Computers and valuable papers and records will both be covered under an Inland Marine policy.

The underwriter should note that, in the event of a fire, the insured's entire inventory will be condemned by the USDA and the Food and Drug Administration (FDA). The value of the insured's inventory may be difficult to determine because it fluctuates from day to day and the type of meat distributed by insureds will vary. What type of meat and meat products does the insured distribute?

What are the age, type, and condition of the insured's fire detection and suppression equipment? Smoke detectors should be located throughout the premises. Both the fire detection and suppression systems should be tested periodically, especially in areas where contracts and documents between meat packing plants and meat suppliers are stored. Automatic sprinkler systems are recommended. Early Suppression Fast Response (ESFR) sprinklers are a viable loss control measure for any occupancy. What type of sprinkler system does the insured have? Annually tagged, Class ABC fire extinguishers should be located throughout the premises, and all employees should be properly trained in their use. Are smoke and heat sensors installed in the appropriate locations? Do sensor systems shut off air circulation blowers under smoke and fire conditions, and do they transmit an alarm signal to the local fire service or central monitoring facility? Determine if the facility is connected to a central station alarm monitoring system. Does the insured have a fire emergency plan in place?

How often is this plan practiced and updated? All employees should be aware of emergency procedures should a fire occur.

Pre-fire planning is a critical loss control measure for this industry. How often are emergency drills conducted? Employees should be aware of all emergency procedures in the event of a fire. There should be regular evacuation drills, and since workers may not be in the same place each time a drill takes place, they should be trained to exit the facility through the closest doorway. How often is the insured's evacuation plan practiced and/or updated? Pre-assigned employees and/or emergency response teams should be equipped with radios or bullhorns for more effective communication. Is the meat products processing facility equipped with a public address system so emergency instructions can be heard by everyone? Are emergency contact numbers displayed throughout the premises? If the local fire department participates in such drills, this is a positive underwriting sign.

Determine the location and response time of the local fire department.

It is also possible that a moral hazard may exist. Determine how long the insured has been in business. What is the level of competition? The underwriter should examine the insured's financial situation for the last three to five years to determine any possible problems.

### Business Interruption

Both a meat product processing plant's location and reputation will be vital to its continued business. Basic processing machinery, materials, supplies, and equipment should be easy to locate. However, damage to the refrigeration equipment of the building structure could cause extensive downtime. Overall, the Business Interruption exposure for meat products processing companies will be substantial.

Although reputation is important for this industry, location is essential since often these warehouses will be strategically situated so they are close by or adjacent to various transportation terminals (e.g., railroads, piers, etc.). In the event of a loss, is the insured more likely to repair, rebuild, or relocate? The space requirements of a meat products processing facility would make rebuilding the best option for most insureds. Does the insured own or lease the premises?

Determine how long it would take the insured to rebuild or repair the premises in the event of a loss. Rebuilding could take several months since large, industrial-type refrigeration equipment and generators would have to be brought in and set up, and storage shelves may need to be rebuilt as well. A long-term shutdown could result in the loss of repeat clientele. What is the availability of replacement equipment and supplies? Materials-handling equipment (e.g., forklifts) could be easily rented or purchased from local dealers. However, refrigeration equipment may take some time to replace since it may need to be custom-built to suit the insured's needs.

Could any part of the facility continue to operate, even on a limited basis, while one or more warehouses and storage areas are undergoing repairs? Some insureds may operate more than one meat processing plant, either on the premises or in a different part of the state or geographical region. Determine if the insured owns a meat processing facility at another location. This could prove highly beneficial in the event of a loss since additional storage space may be readily available should the need arise. This is because plants that fill large regular orders from customers such as hospitals, restaurants, and schools would lose a significant amount of business in the event of a loss unless alternate processing facilities were available.

How quickly could the insured replace stock? Loss of earnings may occur if the supply of carcasses or primal cuts received from slaughterhouses is interrupted. When writing coverage for Contingent Business Interruption, determine whether the meat processor has access to alternate sources of supply. However, where this is not the case, a contingency plan should be in place. Have any arrangements been made with a competing facility to temporarily sublet additional refrigerated storage space in the event that one of the insured's ware-

houses must undergo lengthy repairs? Determine how many customers the insured has. For insureds with a few large accounts, losing one account could be financially devastating and could put the insured out of business; Contingent Business Interruption coverage may be warranted for the loss of a large client.

In addition, the duration of the business interruption may be extended by the time required to return products to the state of processing they were in when the loss occurred. This would be the case in establishments that use lengthy curing processes for meats. Some cures require several weeks. What is the insured's practice?

In the event of a serious loss, prefabricated refrigeration units or prefabricated processing plant structures of aluminum panel construction could minimize the time required for replacement. Investigate how quickly prefabricated materials could be made available.

It is desirable for the insured to have an alternate emergency power source to run its production and refrigeration equipment in the event that a loss causes a power failure. Power outages could lead to a short-term business interruption, but the resulting losses could be severe. Does the insured have a backup power supply (e.g., on-site generators or arrangements with an alternate power company) that it can rely on in the event of a power outage? Determine who is responsible for testing, servicing, and maintaining these backup generators. What is that person's level of training and experience? How familiar is he or she with the insured's power-generating equipment?

How reliant is the insured on its refrigerated and/or freezer trucks? If the insured distributes meat, it will likely have its own delivery trucks and tractor-trailers. How quickly could the insured replace its refrigerated trucks? The insured would likely be able to rent or lease a refrigerated truck the same day and be able to continue deliveries. If the insured is highly dependent on its fleet of vehicles to make deliveries, it may wish to consider a Loss of Use Endorsement. Refer to the Automobile Liability, and Automobile Physical Damage sections for more information on the loss of use of the insured's vehicles.

Does the insured experience a peak season? Determine whether sales of meat products are greater at holiday periods. A serious interruption in production prior to a holiday could cause a proportionally greater loss in earnings than an interruption at some other time.

### Inland Marine

Meat processors will have a severe Inland Marine exposure. Due to the attractive nature of meat to thieves and the possibilities that in the event of a traffic accident, some products may be deemed spoiled, meat processors will require a Goods in Transit coverage. Computer hardware and software applications will be part of every insured's operations, and so an Electronic Data Processing (EDP) policy is highly recommended. Valuable Papers and Records will be necessary to protect such important documents, such as customer and inventory files, invoices, and contracts with suppliers and distributors. Insureds that own forklifts will need a Mobile Equipment Floater. An Outdoor Sign Floater may also be necessary.

Meat products processing companies use computers for tracking inventory as well as for taking customer orders. Management uses office computers to create employee schedules and tend to accounting chores. Not only that, but computers can monitor and control temperatures in refrigerated areas where meat and processed items are stored. Since computers and computerized equipment are essential to this business, an EDP policy is strongly recommended. What are the number, age, type, and condition of the insured's computers and software? It is a positive underwriting sign if the insured has identification numbers etched on all of its computers. Are backup copies of all vital software stored off premises in an NRTL-listed, fire-resistant safe? A Loss of Use endorsement to the EDP policy may be desirable to cover loss of profits due to computer downtime.

The insured may also wish to consider Valuable Papers and Records coverage for important documents, such as customer and supplier

agreements/contracts, inspection results, inventory records, and employee records. All important documentation should be kept in a fire-resistant, NRTL-listed safe. Copies of these documents should be kept in a similar type of safe off premises. What is the insured's practice?

An Equipment Floater may be necessary for all the portable communication devices insureds maintain. This portable equipment may include cellular phones, pagers, and two-way radios. Any communications equipment that is permanently mounted inside vehicles would be protected under the insured's Automobile Physical Damage policy. What are the number, age, type, and value of portable communications equipment used by the insured?

If the insured offers delivery services to customers, or if the insured must have meat transported from a meat packing plant to its processing plant, and eventually to a customer, a Goods in Transit coverage is recommended. What are the average and maximum values of shipments? The underwriter should note that in the event of an accident, the shipment may be destroyed or condemned by the United States Department of Agriculture (USDA) and the Food and Drug Administration (FDA). How are loads secured in transit? Most insureds seal the truck with a band that has a serial number stamped on it. Only the recipient of the goods may unseal or break the seal. The unbroken seal protects the inventory and keeps it intact until it is opened. Determine the frequency of the insured's shipments. Depending on their operations, most insureds will make daily deliveries. How are such items secured on vehicles to prevent possible damage during transport? Most of the meat is transported in refrigerated trucks, or packaged in dry ice or vacuum-sealed boxes or plastic bags. When being transported, larger and extra-large pieces of meat are

hung from hooks that are attached to the vehicle (that is specially developed for that purpose). Vehicles should never be left unlocked or unattended when carrying meat since it can be attractive to thieves. Examine all sales contracts to determine when ownership and exposure to loss shifts from seller to buyer. Does the insured use common or contract carriers or owned vehicles for transporting items? Are vehicles equipped with alarms? Damage from a vehicle collision or overturn also must be considered. Refer to the Automobile Liability section of the Trucking — Long Haul classification.

Some insureds have their own fleet of vehicles that they use to deliver customers' stored meat and meat products. Where this is the case, a Motor Truck Cargo Coverage will be necessary.

A Mobile Equipment Floater will be needed to protect the insured's forklifts and other materials-handling equipment, such as pallet inverters. What are the number, age, type, and condition of the such equipment? Have all forklifts and other materials-handling equipment been permanently etched with identification numbers? What security measures does the insured employ to protect its mobile equipment? Determine where the insured's mobile equipment is stored when not in use. Is it kept in a fenced-in lot, a gated section of the facility, or a locked garage with access restricted to designated employees?

An Outdoor Sign Floater will most likely be necessary since nearly all meat products processors will have several such signs. The insured's signs will be subject to damage from weather or vandalism. What are the number, type, and condition of the insured's sign(s)? Outdoor signs should be securely fastened, and rooftop signs should be anchored firmly. Signs less than 12 feet above the sidewalk are ordinarily not acceptable.

## Underwriter's Checklist

Does the insured run a retail operation on the premises?

Is the insured under federal or state inspection?

Do quality control specifications exist for each product?

How is the quality control implemented?

What preparation and sanitation procedures are followed by the insured to prevent foodborne illnesses?

Does management have a formal policy with regard to food protection, storage, preparation, display, and transportation? Are personal hygiene practices enforced?

What is the means by which the insured tracks which meat products have been recalled or identified as hazardous by the United States Department of Agriculture? How often does the insured check the USDA website for list updates?

Does the insured employ a sanitary supervisor whose job it is to oversee proper sanitation practices for the entire facility?

Are workers in refrigerated warehouses and storage areas issued protective clothing?

How well organized is the insured's loading dock?