

Part 6

WHOLESALE DISTRIBUTION CENTER TERMINAL WAREHOUSE

Although *"The Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables"* is specific to growing, harvesting, packing, and storage in the shipping area, Good Handling and Sanitary Practices are applicable throughout the marketing chain.

Organizations and personnel at wholesale distribution warehouses in the produce industry are just as responsible for minimizing microbial food safety hazards as are organizations and personnel at the production and shipping levels.

Part 6 of the Good Agriculture Practices and Good Handling Practices, Audit Verification Program checklist is applicable to wholesale distribution warehouses commonly known in the inspection service as "Terminal Markets." The checklist questions were developed for auditing steps taken by receivers and wholesalers in a Wholesale Distribution Center or Terminal Warehouse to minimize microbial food safety hazards.

Receiving

	Questions	Points	YES	NO	N/A	Doc
6-1	All companies that supply fresh produce are required to have passed a third party audit verification of GAP and/or GHP.	15				D

It is intended that any operation supplying produce items to a terminal market operation will be required to have passed some type of third party verification of good agricultural and/or good handling practices.

Auditors must review the terminal market operation documents for a policy and the documents that verify the supplier's passing audit. Both must be available in order to answer the question YES. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-2	Upon receiving, conveyances are required to be clean, in good physical condition and free from obvious objectionable odors, dirt and/or debris at time of unloading.	10				P

Growers, packers, shippers, brokers, exporters, importers, retailers, wholesalers and others involved in the transport of fresh produce should ensure that sanitation requirements for trucks or other carriers are met at the different steps within the transportation chain. Receivers should inspect trucks or transport containers for cleanliness, odors, obvious dirt or debris before beginning the unloading process.

Conveyances are not always in 'brand new condition' or appear to be sterilized. However, it is expected that the unit would be at an acceptably clean level. The company being audited must maintain documentation (logs) that the conveyances are being checked for cleanliness, good physical condition, that they are free from odors, from dirt, mud, or debris.

Auditors should review receiver documents (policy and logs) to verify that there is a policy to verify the condition of the carrier. The policy should also state what will be done if a conveyance is found to be dirty beyond a reasonable amount. If the company representative cannot provide documentation, the question should be answered NO. This question cannot be answered as N/A.

	Questions	Points	YES	NO	N/A	Doc
6-3	Company does not accept produce items that are loaded with or not protected from potentially contaminating products.	10				P

The Guide recommends that produce items should only be shipped with other produce items. They should definitely not be shipped with fertilizers, meats, and poultry or fish products. There may be times when produce has to be shipped with non-produce items other than those mentioned.

Terminal Warehouse Receivers must have a policy that prohibits the acceptance of produce items that are loaded with potentially contaminating products.

	Questions	Points	YES	NO	N/A	Doc
6-4	Refrigerated commodities are monitored for temperatures at time of receiving.	5				R

Generally all perishable produce items have recommended shipping temperatures. Shippers normally require delivery companies to maintain the recommended temperatures during the transit time from the shipping area to the Terminal Warehouse. Such recommended temperatures are frequently printed on the shipping manifest. It is also common for shippers to insert temperature recording devices in the refrigerated area of the conveyance in order to provide a record of temperatures during the transit time.

Terminal Warehouse Receivers must monitor the temperatures of produce at the time of receiving/unloading to verify that proper temperatures were maintained. Auditors should review records of one or both of the following.

- Documentation showing the temperatures of the produce at time of arrival.
- Originals or copies of the temperature recording device documents.

This question may be answered as N/A if no refrigerated product is received.

	Questions	Points	YES	NO	N/A	Doc
6-5	The company has a written policy regarding the disposition of product when temperatures are not within the company's guidelines at time of receiving.	5				p

Auditors should review the company policy regarding temperatures of received product. If there is a policy or operating procedure for disposition of product that is not within the company's guidelines upon arrival, this question should be answered yes. If no refrigerated product is received and/or there are no temperature guidelines, this question may be answered N/A.

Storage Facility/Ice/Temperature Control

	Questions	Points	YES	NO	N/A	Doc
6-6	The facility is clean and maintained in an orderly manner.	5				

Remove as much as practicable, all visible debris, soil, dirt, and unnecessary items from product storage areas on an ongoing basis. Clean these areas on a regularly scheduled and "as needed" basis and take steps to minimize free-floating dust and other airborne contaminants.

For some commodities, such as onions, it may not be possible to have the area at the same level of cleanliness and orderliness as it would be for a fruit or a leafy vegetable commodity. Auditors must consider the product. It is also recognized that some Terminal Warehouse Receivers market products that have different storage requirements. These are usually stored in appropriate places in the warehouse. With this in mind, it is recognized that an area where vegetables, such as lettuce is stored or displayed, may be cleaner than an area where onions or potatoes are stored or displayed. Auditors must keep these characteristics in mind when assessing the overall appearance and orderliness of the operation.

When it appears that there is no proactive effort to keep the storage in a reasonably clean and orderly manner according to the items being marketed, this question must be answered NO. This question cannot be answered N/A.

Excerpts from 29 CFR, Part 1910.141:

(3) *Housekeeping*

.(i) All places of employment shall be kept clean to the extent that the nature of the work allows.

(ii) The floor of every workroom shall be maintained, so far as practicable, in a dry condition. Where wet processes are used, drainage shall be maintained and false floors, platforms, mats, or other dry standing places shall be provided, where practicable, or appropriate waterproof footgear shall be provided.

(iii) To facilitate cleaning, every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, and unnecessary holes and openings.

	Questions	Points	YES	NO	N/A	Doc
6-7	Refrigerated rooms are monitored for temperature and logs are maintained.	5				D

Refrigeration systems which are working properly will reduce food borne microbial activity and reproduction. Although there are a few microbes that continue to reproduce the majority of microbes do not thrive at cold or freezing temperatures.

Auditors must assess the system operation by observing the temperature in the room (including walk in storage trailers and other types of storage areas) as it relates to the product being stored. Some products are stored at 32°F, others require higher temperatures because they are cold sensitive.

In all cases, the operation must have temperature recording logs available for review. These will lend credibility to the proper operation of the facility. When it is found that the system is not working properly or no logs are available, this question must be answered NO.

Auditors should keep in mind that products such as onions or nuts are frequently stored at room temperature. In these cases, there are no temperature requirements and there are not likely to be refrigeration systems present. No documentation will be available. If this is the case, this question may be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-8	Thermometer(s) are checked for accuracy and records are available for review.	5				D

Thermometers used in cold storage areas and for determining product temperatures should be regularly checked for accuracy and operators must maintain records to validate this procedure. In

some cases, thermometers are computerized with operation checked from a computer terminal. In other cases, a computer automatically verifies the temperature of the room on an ongoing basis. This question must be answered NO when there are no verification checks or no records are being maintained. This question can only be answered N/A when product is not stored in coolers/refrigerated units.

	Questions	Points	YES	NO	N/A	Doc
6-9	Refrigeration system condensation does not come in contact with produce.	10				

The majority of refrigeration equipment is located inside the storage rooms. It is not uncommon for the equipment to drip liquid, usually water and whatever other substances that might be on the equipment. This condensation is a result of the combination of temperature and humidity within the room.

In some cases, it is possible for product to be stored underneath the refrigeration equipment. Whenever it is likely that produce would come into contact with the dripping condensation, the produce must be protected from the likelihood of contamination.

Auditors should review the storage of produce and note whether or not any condensation would come into contact with the product. The question would be answered NO when condensation will come into contact with the produce. This question can only be answered N/A when product is not stored in a cooler/refrigerated unit.

	Questions	Points	YES	NO	N/A	Doc
6-10	Refrigeration equipment (condensers, fans, etc.) is cleaned on a scheduled basis.	10				D

Refrigerated storages should be cleaned on a scheduled basis. This will reduce the amount of dust and dirt build-up and further reduce the possibility of contamination. Auditors should review the cleaning schedule documentation. This question can only be answered N/A when there is no refrigeration equipment.

	Questions	Points	YES	NO	N/A	Doc
6-11	Iced product does not drip on pallets of produce stored below.	10				

Many vegetable products are frequently packed with ice or crushed ice is put on the tops of the cartons or pallets to keep them cold. This would include broccoli, sweet corn and cantaloupes. In storages where pallets are stacked more than one high or when there are racks to stack pallets one above the other, the iced product should be stored on the bottom. If a product is stored beneath an iced product, it must be protected from the dripping of melting ice.

Auditors must review the storage, ask appropriate questions about storage of products packed with ice and assess the results.

	Questions	Points	YES	NO	N/A	Doc
6-12	The water used for cooling/ice is potable.	10				R

Ice or cold water (hydro-cooling) is often used by some commodity industries to reduce the temperature of the product. Such water used for this should be potable in order to reduce the risk of food contamination.

Auditors must investigate the source of the water or ice and review records indicating that there is no indication of microbial contamination of the water source. In some cases, ice may be manufactured on-site. In other cases, it may be provided by another entity. In either case, the water must be potable. If not, the question must be answered NO. If ice or chilled water is not used, then this question may be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-13	Manufacturing, storage and transportation facilities used in making and delivering ice used for cooling the product are sanitized on a scheduled basis.	10				D

Ice making facilities may be located on the site of the operation or may be contracted out and supplied by another operation. In either case, the facility must provide records that indicate there is a regular schedule to sanitize the production facility, the storage facility and any means of necessary transportation to reduce the microbial population. This would include conveyors and augurs used to transport the ice from one part of the facility to another.

	Questions	Points	YES	NO	N/A	Doc
6-14	There is a policy describing procedures which specify handling/disposition of finished product which is opened, spilled or comes into contact with the floor.	15				P

Auditors should review the SOPs for the facility to identify if there is a procedure in place which identifies how product that spilled or comes in contact with the floor is handled. Spilled product that comes in contact with the floor can become contaminated and should not be used without some sort of corrective action such as washing or disposing of the product. This question cannot be answered as N/A.

	Questions	Points	YES	NO	N/A	Doc
6-15	Product flow zones are protected from sources of contamination.	10				

The flow zone is that area through which the product moves from unloading to the storage and from storage to that point where it is loaded again for further shipment. As product moves through flow zone areas, it can become contaminated by substances not intended to be put on the product. Areas of possible contamination would include open mesh steel cat-walks, motors without shields, overhead dripping/leaking pipes or ceilings from condensation, box conveyors to second floor storages/palletizing areas, etc. Product in flow zones running under these mentioned areas could be subject to contamination from dirty shoes (catwalks), dripping lubricants (non-food grade in motors), cobwebs or dust hanging from ceilings or on light fixtures, etc.

Auditors must observe the flow of the product through the system and look up (or down) to determine if there is a possibility of contamination of product from overhead sources. Where possible and practical, operators should shield the flow zone or keep the area free of contaminants. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-16	Glass materials above product flow zones are contained in case of breakage.	10				

This question pertains to glass light-bulbs and any other glass products that may be located above the product flow zone. Overhead lighting, regardless of height above the product that may be susceptible to breakage should be protected from falling onto conveyor lines or into product containers such as bins or final packages.

Other glass items, either in whole or broken form, must be contained or prevented from falling into product. In the case of lighting equipment (fluorescent, incandescent, krypton vapor, etc.), there are many commercially available products and lighting equipment/types that may be used. In some cases, lighting fixtures may cover or enclose the bulb; in other cases, the bulbs may be coated with some medium that retards breakage and shattering; in other cases shields to cover the fixture are available.

Operators must take preventive measures to effectively prevent glass, broken or whole, from falling into the flow of product. Auditors must observe the lighting or other glass being used in the operation and determine whether or not it is possible that falling pieces may contaminate the produce. This question can only be answered N/A when there is no glass over any of the product flow zones.

	Questions	Points	YES	NO	N/A	Doc
6-17	The grounds are reasonably free of litter and debris.	5				

Grounds in the immediate vicinity of all storage areas should be kept clear of waste, litter, and improperly stored garbage. Keep all grasses cut to discourage the breeding, harboring, and feeding of pests, such as rodents and reptiles.

It would be impractical for auditors to expect to see absolutely no debris at all. If the auditor feels that the amount or type of debris represents a possible risk of microbial contamination or is sufficient to attract pests to the area, this question should be answered NO. Piles of wood, such as pieces of broken pallets, garbage or waste collected or scattered along the grounds, food products, food wrappers, or soda or drink containers scattered across the grounds, are all examples of possible reasons to answer this question NO. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-18	The grounds are reasonably free of standing water.	5				

Maintain adequate surface drainage to reduce breeding places for pests. Auditors should consider weather conditions (rain vs. dry) and standing water incident to receiving or storage operations when answering this question. These conditions would not be considered as detrimental unless there is indication that the water will not properly drain.

Auditors must judge such things as recent rain fall in the area which may have left a puddle or water which dripped from a recently used hose which was not completely shut off as excusable examples of standing water and answer this question YES. If the standing water does not look relatively fresh, such as being greenish from algae growth; or the operator has not taken any proactive action to drain or dry up the source, this question must be answered NO. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-19	Outside garbage receptacles/dumpsters are closed or are located away from facility entrances and the area around such sites is reasonably clean.	5				

Open garbage receptacles/dumpsters attract pests such as birds, vermin, flies and wildlife because of odors and discarded food products. All containers with lids should be kept closed whenever they are not in use or should be so located that they are a reasonable distance from the storage facility entrances in order that pests will not be drawn to the facility. They should be emptied regularly. This question must be answered NO when open or un-lidded receptacles or dumpsters are close to the facility entrances and it is likely pests will enter the facility.

The area surrounding the dumpsters or garbage receptacles needs to be maintained in a clean and orderly manner. Auditors must keep in mind that there may be a small amount of garbage spilled on the outside area surrounding the garbage receptacle or dumpster because of how it may be dumped. This is normal. When the garbage is allowed to sit or accumulate or there is no action being taken to clean the spillage, this question must be answered NO. This question can only be answered N/A when no outside receptacles or dumpsters are present.

	Questions	Points	YES	NO	N/A	Doc
6-20	The facility is enclosed.	5				

Not all facilities will be fully enclosed to keep out pests. Some facilities are open loading docks with no walls; others may be closed on three sides, but have an open side or have four perimeter walls, but the bottom portion of several walls is open to facilitate cleaning and washing the floors. In some operations that are fully enclosed, there may be doors that are always left open, regardless of usage or there are doorways that have had the door removed. None of these would meet the test of being enclosed and the question must be answered NO.

Buildings that are fully enclosed can easily exclude or reduce the possibility of contamination by most pests. Enclosed means that all doorways are capable of being closed or shut and will effectively exclude pests, especially during non-work hours. Any doors that are open during packing operations for passage of fork lift traffic, employee entrance, etc., should be considered as a part of the packing operation and the question will be answered YES. In some operations that

are fully enclosed, there may be doors that are always left open, regardless of usage or there are doorways that have had the door removed. None of these would meet the test of being enclosed and the question must be answered NO. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-21	Floor drains appear to be free of obstructions.	5				

Operators should maintain adequate surface drainage to reduce breeding places for pests and to reduce product contamination. Auditors must look into the drain (or lift a drain cover if applicable) to see if there is any debris or are obstacles impeding the flow through the drain. A build-up of fruits or vegetables, sludge or dirt or anything else that may be considered as an obstruction will cause this question to be answered NO. This question can only be answered N/A when no floor drains are present.

	Questions	Points	YES	NO	N/A	Doc
6-22	Pipes, ducts, fans and ceilings in the facility are reasonably clean.	5				

Pipes, ducts, fans, and ceilings over the food handling or storage operation need to be clean. In addition, paint chips, loose screws, exposed insulation, or anything that stands out as a possible contamination factor must also be considered. Operations are not intended or expected to be meticulously clean. However, any readily noticeable build up of dust, dirt, debris, cobwebs or other contaminants that could fall onto product being packed is sufficient to answer this question NO.

	Questions	Points	YES	NO	N/A	Doc
6-23	Possible wastewater spillage is prevented from contaminating any food storage or handling area by barriers, drains or a sufficient distance.	10				

Waste water from toilets and hand washing sinks or other sources not intended to be used to wash or rinse product must not be permitted to run into the packing or storage area if a spill occurs. Waste water spillage sources that are a reasonable distance from the packing area and product flow zone are acceptable. Drains which are in place must drain away from the packing and storage area.

This question must be answered NO when it is observed that potential spillage of nonprocessing water is likely to run into and contaminate the production or storage area or the product. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-24	Non-food grade substances such as paints, lubricants, pesticides, etc., are not stored in close proximity to the product.	10				

Facilities may apply food grade approved products such as waxes to the product. In addition, there may be non-food grade approved chemicals used in the operation for other purposes. Non-food grade approved chemicals must be stored outside the repacking area or physically separated by storage in a room or behind a physical barrier. This is to reduce the possibility of chemical contamination of the produce. Food grade and non-food grade lubricants/chemicals should be stored separately from each other, either in separate rooms or separated and segregated within the same room. The intent is that the two are sufficiently separated and

prominently marked in order to prevent cross-contamination or misuse of non-food grade for food grade.

If the auditor feels that there is insufficient segregation to prevent cross-contamination or non-food grade approved chemicals are stored in the repacking area, but not properly stored, this question should be answered NO.

Pest Control

	Questions	Points	YES	NO	N/A	Doc
6-25	Measures are taken to exclude animals or pests from the facility.	10				

The facility should consider the use of screens, wind curtains, bird deterrent tape and traps to minimize risk of product contamination. Pet dogs, cats or other animals should not be allowed in the packing and storage facilities.

Auditors must review the facilities' SOPs to determine if there is a proactive effort to exclude animals and pests from the facility. When guide dogs or similar animals are present, SOP's must include corrective measures. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-26	Measures are taken to exclude animals or pests from the facility.	10				

All packing and storage facilities should establish a pest control program to reduce the risk of contamination by rodents and other animals, including pets. This program should include regular and frequent monitoring of affected and treated areas to accurately assess the program's effectiveness. A pest control log must be maintained that includes inspection dates, inspection reports, and procedures implemented to eliminate any problems.

Generally, all traps and bait stations will be marked and flagged by numbers or some type of coding system. It is likely that there will also be a map of the premises that shows the location of such bait stations and traps. All bait stations containing poison attractants must be located outside the facility. Traps or other non-poison methods should be the only control program located within a structure.

Auditors should be aware of and look for an organized method of pest detection and elimination. This question cannot be answered N/A

	Questions	Points	YES	NO	N/A	Doc
6-27	Service reports for the pest control program are available for review.	5				R

Generally, traps and bait stations will be regularly checked and have documentation showing when this was completed. This documentation may consist of a report or inspection log for all stations or may be a sticker or other marking on individual stations throughout the facility.

Auditors must review documentation and records that pertain to the pest control program. In some cases, it may be necessary to obtain this information from an independent pest control company contracted to provide these services. This question can only be answered as N/A when the answer to Question 6-26 is NO.

	Questions	Points	YES	NO	N/A	Doc
6-28	Interior walls, floors and ceilings are well maintained and free of major cracks and crevices.	5				

Potential entryways for pests into the facility must be eliminated by blocking/repairing areas such as holes in walls, doors, flooring, vents, etc. To assess this question, auditors must look closely at

the inside walls, doors, floors and ceilings of an operation. Small cracks or crevices incident to structure age should be disregarded, unless it is obvious that pests are in the area. Cracks and crevices do not necessarily need to lead to the outdoors for infestation to occur. Certain pests can easily use areas inside walls as a living space and the food products within the facility provide a food source.

The facility should be well maintained to repair or eliminate problem areas. There should be no loose insulation materials protruding from the walls or hanging from the ceiling. This question must be answered NO when the facility is not well maintained and cracks or crevices may harbor pests or provide access. This question cannot be answered N/ A

Repacking/Reconditioning

(6-29) Does the facility repack and/or recondition product? YES NO

- If the answer to question 6-29 is YES, then questions 6-30 through 6-41 must be answered. The auditor should be able to observe the repacking and/or reconditioning process.
- If the answer is NO, then questions 6-30 through 6-41 are N/A.

	Questions	Points	YES	NO	N/A	Doc
6-30	Repacking/reconditioning processes are confined to an established location in the facility.	5				P

Repacking or reconditioning of products in the facility should be completed in an area established and maintained for such practices. This provides a location that can be regularly cleaned and maintained in a manner that promotes safe food handling practices.

Auditors should check the operation for the established location(s) where repacking and reconditioning takes place. If the facility repacks or reconditions products whenever and

wherever, without regard to safe handling practices this question must be answered NO. This question cannot be answered as N/A.

	Questions	Points	YES	NO	N/A	Doc
6-31	Food contact surfaces are in good condition; cleaned and/or sanitized prior to use and cleaning logs are maintained.	15				D

Many operations have located stainless steel tables or benches upon which packing processes are completed. Other operations may have established a mechanized system.

Brushes may be a part of the packing system to clean the product. Conveyors, such as belts, are very commonly used to move product through the packing system. These parts of the system can be easily contaminated from produce, workers or from other equipment in the packing system. Brushes or conveyors that physically touch the produce should be regularly cleaned, as needed. Conveyors that transport containers of packed product should be reasonably clean, but there is less possibility of contamination from this source.

Auditors should observe the operation and food contact surfaces to determine the condition and cleanliness of the surfaces. Operations must have a regular cleaning schedule. Auditors should review documentation and/or records showing that an established schedule is being followed. This question may be answered N/A when the product is repacked directly from one container to another and the product does not come into contact with any surface other than the container.

	Questions	Points	YES	NO	N/A	Doc
6-32	Source water used in the repacking operation is potable	15				R

Source water used in the repacking of fresh fruits and vegetables must be potable. Municipal water supplies are regulated by law and are required to be potable. Well water may or may not be potable. Auditors should examine water test results to determine if the well water is potable. Surface water is subject to various uncontrollable influences and is generally considered non-potable for use in a repacking operation.

Auditors must review documentation (including water test results) that indicates source water is potable and no microbial contamination hazards are present. (To evaluate water quality, refer to the Water Quality Risk Sources and Testing Treatment in Part 1) This question may be answered N/A when products are not washed.

	Questions	Points	YES	NO	N/A	Doc
6-33	Processing water is sufficiently treated to reduce microbial contamination.	10				D

Water used during the post-harvest handling of fruits and vegetables often involves a high degree of water-to-produce contact. Although water is a useful tool for reducing potential contamination, it may also serve as a source of contamination or cross contamination.

Re-using processing water may result in the build-up of microbial loads, including undesirable pathogens.

Consider practices that will ensure and maintain water quality. Such practices may include:

- Perform periodic water sampling and microbial testing.

- Change water as necessary to maintain sanitary conditions.
- Consider developing SOPs (standard operating procedures or sanitary operating plans), including water change schedules.
- For all processes that use water; clean and sanitize water contact surfaces, such as dump tanks, flumes, wash tanks, and hydro coolers, as often as necessary to ensure the safety of produce.
- Install backflow devices and legal air gaps, as needed, to prevent contamination of clean water with potentially contaminated water (such as between potable water fill lines and dump tank drain lines).
- Routinely inspect and maintain equipment designed to assist in maintaining water quality, such as chlorine injectors, filtration systems, and backflow devices, to ensure efficient operation.

Auditors must review documentation that shows water is treated to reduce microbial populations that could be present. When water is re-used in the repacking process this question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-34	Water treatment (strength levels and pH) and exposure time is monitored and is appropriate for product.	10				D

Prevention of contamination is preferred over corrective action(s) once contamination has occurred. However, antimicrobial chemicals in processing water are useful in reducing microbial build-up in water and may reduce microbial load on the surface of produce. Thus, antimicrobial chemicals may provide some assurance in minimizing the potential for microbial contamination.

The effectiveness of an antimicrobial agent depends on its chemical and physical state, treatment conditions (such as water temperature, acidity [pH], and contact time), resistance of pathogens, and the nature of the fruit or vegetable surface. Chlorine is commonly added to water for

post-harvest treatment of fresh produce at 50 to 200 parts per million total chlorine, at a pH of 6.0 to 7.5, with a contact time of 1 or 2 minutes.

Ozone has been used to sanitize wash and flume water in packing house operations. Ultraviolet radiation may also be used to disinfect processing water. Chlorine dioxide, trisodium phosphate, and organic acids (such as lactic and acetic acids) have been studied for use as antimicrobial agents in produce wash water, although more research needs to be done. Operators should consider options for water sanitation most appropriate for their individual operations.

Use of water and water treatments are not required of packing operations, but are used voluntarily. Some commodities are not normally washed at all before packing (berries). This question should be answered N/A when water is not used in the repacking process.

The strength and acidity of the treated water must be appropriate for the commodity. If these are not, the process may not be effective in reducing the microbe population or may create problems for the produce, such as burning.

Although there has been a lot of research on this aspect of packing, not all commodities have established and recommended levels.

The following chart is reprinted from academic literature and is a guide for most commodities when the treatment is with Chlorine.

Crop	Chlorine Strength Total Titratable Chlorine
General	50-500 Parts Per Million
Apples	100-150 Parts Per Million
Asparagus	125-250 Parts Millions
Cantaloupe. Honey Dew Melons	100-150 Parts Per Million
Lettuce, Cabbage, Leafy Greens	100-150 Parts Per Million
Tomatoes, Potatoes, Peppers	100-150 Parts Per Million

Auditors must review all appropriate documents and records in order to determine if the operator is effectively monitoring and maintaining the water quality. Auditors must also observe and question operators who are responsible to complete the monitoring and adjusting functions.

In some cases, the job of maintaining processing water quality will be contracted to an outside water quality management firm. In this case, auditors must review documentation showing the frequency of monitoring in order to determine that this is completed. Documentation may include an on-site log, monthly bills/invoices or other documents that show the process is being completed. If a water quality technician is present at the time of the audit, he/she should be interviewed to determine if the water treatment meets company specifications.

	Questions	Points	YES	NO	N/A	Doc
6-35	If applicable, the temperature of processing water used in dump tanks, flumes, etc., is monitored and is kept at temperatures appropriate for the commodity.	10				D

For commodities which are susceptible to water infiltration, special attention to the water temperature in the dump tank and flumes and the temperature of the product is required. Water temperature should be maintained within 10 degrees F of incoming product pulp temperature to minimize water infiltration. If contaminated water infiltrates the product, it is very difficult if not impossible to remove the contamination. The water may need to be heated or cooled and/or the product heated or cooled to equalize the temperature. This question may be answered N/A when no water is used or the commodity being repacked is not susceptible to water infiltration. Examples of commodities which are susceptible to water infiltration are Tomatoes, Cantaloupes, Peppers, Apples, Potatoes and Pears.

	Questions	Points	YES	NO	N/A	Doc
6-36	Any ice used for cooling produce is manufactured, transported and stored under sanitary conditions.	10				R

Ice making facilities may be located on the site of the operation or may be contracted out and supplied by another operation. In either case, the facility must provide records that indicate there is a regular schedule to sanitize the ice production and storage facility and any means of transportation to reduce the microbial population. This would include augurs, conveyors and shovels used to transport the ice from one part of the facility to another.

	Questions	Points	YES	NO	N/A	Doc
6-37	Water used for chilling and/or to make ice is potable.	15				R

Ice or cold water (hydro-cooling) is often used by some commodity packers to reduce product temperature. Source water for this procedure should be potable to reduce the risk of food contamination.

Auditors must investigate the source of the *water/ice* and review records to *verify* that there is no indication of microbial contamination of the water source. In some cases, ice may be manufactured on-site. In other cases, it may be provided by another entity. In either case, the water must be potable. If water is not potable this question must be answered NO. If ice or cooling water is not used, this question may be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-38	Only food grade approved and labeled lubricants are used in the repacking equipment/machinery.	10				D

Food grade approved lubricants should be used in areas where lubricating agents may come into contact with produce. Containers are normally marked. Auditors should ask to see containers of the food grade lubricants that are being used. If the lubricant is indeed food grade, the label is normally so marked. The container may also include a reference to meeting the applicable standards for FDA or other government agencies, regarding food grade lubricants.

If the auditor is not shown either the containers of food grade lubricants being used, or recent receipts for the food grade lubricants, this question must be answered NO. In some cases, operators will use food grade lubricants for equipment that is located over the flow zone and

non-food grade lubricants in other areas. This practice will be cause for answering this question NO. In addition, if the auditor sees any evidence that nonfood grade lubricants are being used in the packing area (for example: WD-40, Liquid Wrench, etc.) then the question must be answered NO. In facilities that have no mechanized equipment used for repacking this question may be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-39	Only new or sanitized containers are used for product repacking.	10				P

Repackers that use new or sanitized containers to repackage products are taking the highest possible means to reduce microbial contamination.. The use of new containers eliminates the possibility of cross contamination of produce from used containers. Some operations are packing directly into reusable plastic containers (RPC) to meet

buyer specifications. These containers are meant to be reused. In the case of RPCs, they should be sanitized prior to each reuse in the field. A cleaning log or record from either the producer or RPC management company shall be reviewed to verify they have been sanitized. This question cannot be answered as N/A.

	Questions	Points	YES	NO	N/A	Doc
6-40	Pallets and containers are clean and in good condition.	5				

Auditors must review the condition of pallets and containers being used and those stored for future use. Auditors must question the operator to determine what is done with broken or dirty pallets or containers. When operators use dirty or broken pallets and containers or do not clean and/or repair pallets and containers this question must be answered NO. This question cannot be answered as N/A.

	Questions	Points	YES	NO	N/A	Doc
6-41	Packing containers are properly stored and protected from contamination (birds, rodents, and other pests, etc.).	10				

Packing containers and other packing materials including pads, cartons, sacks, totes, bulk bins, etc. that are not ready for immediate use should be stored in a way that protects them from contamination by any source (pests, rodents, dirt, and water condensation, etc.). Packing containers stored outside should be covered in some manner to protect against contamination. Using the top container in a pile is not sufficient.

Auditors should observe where and how packing containers are stored. Containers which are stored in a manner that may lead to contamination by any reasonable means will result in a NO answer for this question.

Worker Health and Personal Hygiene

	Questions	Points	YES	NO	N/A	Doc
6-42	Employee facilities (locker rooms, lunch and break areas, etc.) are clean and located away from repack and storage area.	10				

Facilities used by employees to take breaks, prepare to go to work, eat lunches, etc. must be clean and separate from the packing area. Some operators will have a separate room designed and identified for eating, others will identify an area in a corner of the packing house building or somewhere outside of the immediate storage and packing area and supply it with tables. All of these are acceptable. The intent is that workers do not eat or take breaks within the storage and packing area.

Applicable portions of 29 CFR, Part 1910.141 state:

(3) Housekeeping.

(i) All places of employment shall be kept clean to the extent that the nature of the work allows.

(ii) The floor of every workroom shall be maintained, so far as practicable, in a dry condition. Where wet processes are used, drainage shall be maintained and false floors, platforms, mats, or other dry standing places shall be provided, where practicable, or appropriate waterproof footwear shall be provided.

(iii) To facilitate cleaning, every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, and unnecessary holes and openings.

This question cannot be answered as N/A

	Questions	Points	YES	NO	N/A	Doc
6-43	When there is a written policy requiring the use of hair nets/beard nets in the facility, it is being followed by all affected employees and visitors.	5				P

Hair nets and beard nets are worn in order to keep stray hair from entering the food and food containers being stored or packed. Hair may be a place where microorganisms can be found. In addition, wearing of these when the hair is very long reduces the risk of catching hair in machinery.

Operations that have a written policy must follow the policy. Auditors must review the policy and observe to determine if it is being followed. This question may be answered N/A when there is no written policy.

	Questions	Points	YES	NO	N/A	Doc
6-44	When there is a written policy restricting the wearing of jewelry in the facility, it is being followed by all affected employees and visitors	5				P

Jewelry can be both a safety and a food safety hazard. It can become dislodged from the person wearing it and fall into the food item or the container. It can get caught on machinery and injure the worker. The intricate places on some jewelry, such as watch bands, can be places where microorganisms can reside.

Operations that have a written policy must follow the policy. Auditors must review the policy and observe to determine if it is being followed. This question may be answered N/A when there is no written policy.

Shipping/Transportation

	Questions	Points	YES	NO	N/A	Doc
6-45	Prior to the loading process, conveyances are required to be clean, in good physical condition, free from disagreeable odors, from obvious dirt/debris.	10				p

All parties involved in the transport of fresh produce should help ensure that sanitation requirements for conveyances are maintained throughout the transportation chain.

Trucks and transport containers must be inspected for cleanliness, odors, and debris before the loading process begins.

Drivers and operators should be aware of the contents of previously carried loads and consider this information when determining current usage. For example, trucks recently used to transport animals or animal products would increase the risk of contaminating fresh produce if not properly cleaned prior to produce loading. Auditors should not expect to see conveyances in like-new or sterilized condition. Conveyances should be acceptably clean.

Auditors should review auditee documentation to verify that there is an active policy in place addressing carrier condition. The auditee must maintain records verifying that the overall physical condition of conveyances is being checked. If the auditee cannot provide records verifying that these procedures are being performed, this question must be answered NO. This question cannot be answered N/A.

	Questions	Points	YES	NO	N/A	Doc
6-46	Produce items are not loaded with potentially contaminating products.	10				P

The Guide recommends that produce items should only be shipped with other produce items. They should definitely not be shipped with fertilizers, meats, poultry or fish products.

There may be times when produce has to be shipped with non-produce items other than those mentioned. Terminal Warehouse Receivers should adequately protect the produce items from cross contamination by segregating and separating the items in the conveyance by some type of physical barrier. This question cannot be answered N/ A.

	Questions	Points	YES	NO	N/A	Doc
6-47	Company has a written policy for transporters and conveyances to maintain a specified temperature(s) range during transit.	10				P

Terminal Market facilities must establish a written policy for transporters to maintain temperatures appropriate to the commodity during transit. Transporters should be aware of the temperature requirements for produce being hauled and avoid delivery of mixed loads with incompatible refrigeration requirements.

Auditors should recognize that not all products require refrigeration during transport. In certain cases, shippers may require or specify a higher temperature for transportation than recommended for storage conditions. Shippers should recommend temperatures according to the product and conditions for transport. In general, manifests should be marked with the temperature range that the shipper requires the carrier to maintain.

Auditors should review auditee documentation to verify that there is an active policy in place addressing the ability of conveyances to maintain specified transport temperatures. If there are no transportation temperatures required by the auditee, or there is no indication of required temperatures on the manifest, this question must be answered NO. This question may be answered N/A when specific shipping temperatures are not suggested for the product (nuts, for example).

	Questions	Points	YES	NO	N/A	Doc
6-4	Records are kept recording the source of incoming product and the destination of outgoing product which is uniquely identified to enable traceability .	10				D

The Bioterrorism Act of 2002 requires certain handlers of foods to keep records that allow the handler to keep trace of produce "one step forward" and "one step back" within the food chain. For packing facilities, storage and transportation facilities and wholesale distribution/terminal warehouses, record keeping that keeps trace of the source of incoming produce and the destination of outgoing produce is a critical component of a documented traceability program. Traceability markings shall be at the container/master container level, and shall include other identifying marks as outlined in the company's traceability program.

Auditors must explain all questions for which a NO or N/A answer was noted.

Any additional comments pertaining to individuals or to observations made during the audit should be made here. Auditors must be specific when making comments about YES answers to questions, as an additional statement here may indicate that the question might be better answered NO instead.

Total points earned for PART 6 = _____.

Total Possible = **410** *The total number of points possible for this section.*

Subtract "N/A" - _____ *Enter the additive number of N/A points (+ points) here.*

Adjusted Total = _____ *Subtract the N/A points from the Total possible points.*

X .8 (80%) *Multiply the Adjusted Total by .8 and show it as the Passing Score.*

Passing Score _____

(please circle one) **Pass / Fail**