PERSON IN CHARGE PLAN AND CONTROL OF FOOD SAFETY IN RETAIL FOOD OPERATIONS WORKSHOP D



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FOOD FACILITIES IN DUBAI



- Restaurants
 Fast food, take out
 Buffet, cafeteria
 Gourmet
- Hotel Table service Cafeteria Room service



- Preparation by customer
- Safari
- Banquet
- Outdoor
- School
- Mobile
- Catering
- Food market, street market, supermarket

THE FOOD HAZARDS: Chemical Physical Biological

The farmer and the cook are the principal hazard controllers.



ACTIVE MANAGERIAL CONTROL HACCP: Person In Charge

- **1.** Know the hazards that are a risk in the food (hazard inventory).
- 2. Specify and validate controls that prevent, eliminate, or reduce the hazard to an Appropriate Level of Protection (ALOP) (checklist).
- 3. Train food preparers and servers to master hazard controls (job training sheet).
- 4. Enforce policies and procedures to prevent illness and control the hazards (checklist).

The regulator approves the manager's HACCP plan and employee control.

PERVASIVENESS OF PATHOGENS IN FOOD

VEGETATIVE PATHOGENS

VEGETATIVE PATHOGENS

SPORE PATHOGENS

Organism	Food	Percent positive	Organism	Food	Percent positive	Organism	Food	Percent positive
Salmonella serovars	Pork	0-18	Enterovirus	Shellfish	0-47.8	Bacillus cereus	Pork	4-7
	Pork products	3-20	Yersinia	Beef	2		Beef	11-63
	Turkey	69	enterocolitica	Pork	2.5-49		Rice	100
	carcasses			Processed pork	7-37		Meat additives	39
	Turkey sausage	100		products			Dairy products	0-63
	Chicken			Chicken	11-25		Milk,	35
	Shellfish	0-100		Raw milk	2.7-48		pasteurized	
	Raw milk	3.7-33		Raw vegetables	46	Clostridium	Liver sausage	2
Staphylococcus	Raw beef	16	Vibrio cholerae	Shellfish	7.4-33	botulinum	Corn syrup	20
aureus	Raw pork	13	Vibrio	Seafood	2.8-46		Honey (honey)	2
	Pork sausage	33	parahaemolyticus			Clostridium	Pork	0-39
	Raw chicken	41-73	Listeria	Raw red meats	0-43	perfringens	Cooked pork	45
	Seafood	38	monocytogenes	Ground beef	77		Beef	22
	Bakery items	9.8		Ground pork	95		Chicken	0-54
Campylobacter	Pork	0-24		Ground veal	100		Seafood	2.4
jejuni	Beef carcasses	50		Chicken	13-56			
	Lamb	1-20		Turkey	12-18			
	Turkey	56-64		Cured meats,	0-20			
	Chicken	8-89		fermented				
Aeromonas	Seafood	19-100		sausages				
hydrophila	Raw milk	33		Seafood	11-26			
	Poultry	16-100		Raw milk	1.6-4.2			
	Red meat	100	Escherichia coli	Beef	3.7			
	Cooked meats	10	<i>O157:H7</i>	Pork	1.5			
	Produce	95		Poultry	1.5			
Escherichia coli	Raw beef	17		Lamb	2			
(verotoxigenic)	Ground beef	36.4		1				
	Ground pork	10.6						

Adapted from : CAST (Council for Agricultural Science and Technology) 1994. Foodborne pathogens: Risks and consequences. Task Force Report No. 122

FOOD SAFETY PLAN to protect customers' health



It starts with a food safety plan of how to do each task safely and a description of the system and food products sold.

The PIC becomes trained and then, returns to his / her operation and identifies the consumer food hazards in the facility and the risk that the hazard will contaminate the food the customers select.

The PIC compiles a self-check list of hazards and controls, and confirms with the regulator that all hazards have been identified. The regulatory official verifies.

PIC ACTIVE MANAGERIAL CONTROL

PIC SMART INSPECTION Checklist - Food Service Restaurants

PIC:		Lo	catior	1:				
Week starting from: /	1	,	/ to	1	1	1		
CHECK POINTS	Sun *	Mon	Tue	Wed	Thu	Fri	Sat	CORRECTIVE ACTION
MANAGEMENT								
Food safety policy								
HACCP team								
Verification that processes are safe								
PREREOUISITE PROCESSES								
Personal hygiene								
Food handlers are well groomed, clean and wearing appropriate clothing								
Bare hand contact avoided when handling ready to eat foods								
Has any food handler reported sick or is showing symptoms such as diarrhea / vomiting / fever?								
Environment / facility cleaning and maintenance	1.1.2.2.3.2.							
Cleaning done as per schedule								
Signs / evidence of pest activity								
Drainage and sewage systems are working properly								
Comfortable room temperature for food handlers	-							
Equipment cleaning and maintenance								
Hot and cold holding equipment is calibrated / working properly								
Cleaning and disinfection facilities for equipment / utensils are working properly								
Food contact surface (e.g., cutting boards, tables, knives, etc.) properly washed and disinfected after and before use								
Supplies				10000				
Supplier list is up to date								
Incoming goods were checked randomly for temperature and unadulterated								
Food items that are spoiled, contaminated or expired, separately stored and labeled, 'Not for Use'								
Food containers are properly covered during storage								
Ready to eat and raw foods stored separately								
FOOD PROCESS HACCP								
High-risk foods - held hot, above 60 °C		-	-					
High-risk foods - held cold, below 5°C			-					
Cooked foods cooled rapidly before chilled storage								
Raw vegetables properly washed and disinfected prior to serving								
High risk foods held at room temperature discarded after 2 hours								

* Y to confirm compliance; N for non-compliance.

Record:

Day	Food Temperature verification Hand washing ve (Include cooking, chilling, hot holding) (observe one emplo							
Day	Recorded at (time)	Food (Random verification)	Description (e.g., In chiller / buffet / cooking)	Temperature	Name of the food handler			
Sun								
Mon								
Tue								
Wed								
Thu								
Fri								
Sat								

Verified by the Food Inspection Officer

Name_____ Date;____

PICs are accountable to their employers for making sure that employees are following established procedures. They shall:

- 1. Identify significant food hazards and risks to customer health.
- 2. Develop and implement policies, procedures, and standards to product customer health.
- 3. Ensure that all employees are trained and capable of performing their food tasks without mistake.
- 4. Monitor employee performance to ensure compliance with the company and regulatory compliance.

DESCRIPTION OF THE SYSTEM (from plan review)

Company name and address	
Establishment number / license number:	
Regulatory agency(s) having jurisdiction:	
Hours of operation	
Description of clientele	
Food product / process groups	
Food ingredients	
Type of operation	Cafeteria Fast food School Restaurant Hotel Catering Fair Resort Sport event Vendor Fair Resort Camping Other Other Fair Resort
Types of service	Breakfast Lunch Dinner Late night Sit down dining service Catering Banquet Bar Cafeteria / self-service Cook-it-yourself Take-out
Number of meals served daily	breakfast lunch dinner
Population to which food is mainly served	General population Infants and children The elderlyIndividuals who are ill
Water source / plumbing	
Waste disposal (garbage, trash, recycled material	
Sewage disposal	
Other	

THE UNIT AS A FOOD PROCESS SYSTEM



FARM-TO-FORK FOOD SAFETY MANAGEMENT SYSTEM (FSMS) Science-Based Design of Hazard Control Processes



Control measures Performance standards

International Commission of Microbiological Specifications for Foods (ICMSF). 2002. Microorganisms in Foods 7. Microbiological Testing and Food Safety Management. Kluwer Academic Plenum Publishers. New York, NY.

THE AMC TOTAL QUALITY MANAGEMENT CYCLE





FOOD SAFETY MANAGEMENT SYSTEM (OPERATIONS) MANUAL

BASED ON NACMCF / ICMSF / CODEX 9CFR 416 AND 9CFR 417)

MODEL MANUAL (963 KB) AVAILABLE AT: <u>http://www.hi-tm.com/rfa/manu-tofc.html</u>

Preface

Log of changes Reassessment

Operations Description

System description Organization Environment (picture) Facilities (plan) Equipment (list) Menu HACCP (processes)

AMC-HACCP Management

Food safety policy / culture Responsibility and accountability Emergencies Food security / sabotage HACCP team / QC Instrument / equipment calibration Self-inspection, microbiological sampling Corrective action Training

Prerequisite Processes

Personal hygiene

Employee illness reporting Hand washing: after toilet; after touching raw food

Environment **Pest control, water, storage**

Facilities Cleaning, maintenance, crosscontamination

Equipment

Cleaning and maintenance of food contact surfaces

Supplies

Source of supply Ingredients Supplier safe vs. cook made safe Receiving inspection Storage: ambient, refrigerated, frozen Control of physical, chemical, and biological contamination

Food Process HACCP

Pre-preparation Physical hazard control Chemical hazard control Allergen control Thawing; bacterial control Fruit and vegetable washing Serving raw food

Preparation (cook-package or package-cook) Salad and hors d'oeuvres Pasteurization / sterilization Ingredients to extend shelf life Hot holding Cooling Cold holding Leftovers / reprocessing

Distributing / serving food Communicating safe handling Catering

EMPLOYEE TRAINING



- If food safety tasks are to be performed, monitored and controlled, they must be assigned to and controlled by an employee.
- The organization chart identifies who is responsible for what tasks, the job description, and how the tasks are performed to control hazards.
- If the food operation is small and simple, with only a few employees, instructions can be verbal.

EMPLOYEE FOOD HACCP TRAINING CHECKLIST

PREREQUISITES	FOOD PROCESS HAZARD CONTROLS
Personal hygiene	I double wash raw fruits and vegetables before using in
If I have vomiting or diarrhea, I will tell the PIC.	menu items.
I will double wash my fingertips when coming	During pre-preparation, I remove physical hazards from
from an "unknown location" such as the toilet.	food.
When handling raw meat / fish / poultry, I will	I know if any ingredient in a recipe is an allergen so that I
decontaminate my hands and food contact	can accurately answer customer questions. If in doubt,
surface before touching RTE food.	I refer allergen questions to the kitchen manager.
I do not touch my skin when working with food.	After handling raw meat / fish / poultry, I decontaminate
Immediately after glove use, I remove the gloves	my hands, equipment, and work area before touching
and wash my hands	ready-to-eat food.
Receiving	I know how to use a thermometer / thermocouple
When receiving food / opening food, any food	properly.
that is damaged or spoiled will be returned to	I cook foods to 75°C (167°F) center temperatures.
the supplier / discarded. Refrigerate food 5°C	I hold hot food 60°C (140°F) or hotter, or for less than 2
(41°F).	hours if time is used as a control.
Storage	When cooling, I place no more than 5 cm (2 inches) of
I store raw food on the bottom shelves in the	solid food in a pan, no more than 4 liters (1 gallon) of
refrigerator and RTE food above the raw food.	liquid in a container.
I store chemicals completely separate from food.	When making a cold combination such as salads, I pre-
<u>Equipment</u>	cool ingredients to 10° C (50°F) or colder. When
I assure that my equipment is clean before I use it.	mixing, I wear gloves or use a utensil.
I assure that my equipment is working correctly	I hold cold ready-to-eat food at 5°C (41°F) or colder for
and calibrated before I begin preparation.	no more than 7 days. It is labeled.
	I do not add leftovers to a fresh food.

THE ABC EMPLOYEE PERFORMANCE CYCLE

For continuous improvement process

→

ANTECEDENT

Makes it possible for the employee to perform with zero task defects. BEHAVIOR

HACCP-based

Proven minimum

necessary for safety



Positive – reinforce Negative – extinguish

ANTECEDENT

 \rightarrow

Next cycle: better knowledge based on deviations in performance in previous cycle; change for fewer mistakes and less process variation

For continuous improvement process

		CONSEQU	ENCES
ANTECEDENT	BEHAVIOR	Individual	System / Company
Correct technical knowledge ↓ Clear assignment of responsibilities ↓	← CEO total commitment ← and resources	←	SUCCESSFUL AMC- HACCP PROGRAM: Zero safety liability costs and increasing repeat customer sales
Written program ↓			Program improvement
Communication and training, and knowledg that there will be enforcement and recognition	 Performance of tasks to standards that control hazards and improvement repeat customer sales 	 Mastery of tasks leading to increased ability and improvement self-esteem, more habitual performance and attitude improvement; soon-certain-positive feedback 	Continually less cost to create a satisfied customer
	Strongest consequence: Soon timing Weakest consequence: Late timing	Certain consistency Positive signi Uncertain consistency Negative sign	ficance ificance

POTENTIAL HAZARDS IN THE FOOD SYSTEM

CHEMICAL	PHYSICAL	BIOLOGICAL
Poisonous Substances	Hard Foreign Objects (supplies	Microorganisms and their Toxins
(supplier HACCP)	and sort)	(pasteurize, prevent toxin)
Toxic plant material	Glass	Bacteria: vegetative cells and
Intentional (GRAS) food additives	Wood	spores
Chemicals created by the process	Stones	Molds [mycotoxins
Agricultural chemicals	Metal	(e.g., aflatoxin)]
Antibiotic and other drug residues in	Packaging materials	Yeasts (Candida albicans)
meat, poultry, and dairy products	Bones	Viruses and rickettsia
Unintentional additives	Building materials	Parasites
Sabotage	Personal effects	
Equipment material leaching		Fish and Shellfish as Sources of
Packaging material leaching	Functional Hazards (cook)	Toxic Compounds
Industrial pollutants	Particle size deviation	
Heavy metals	Packaging defects	
Radioactive isotopes	Sabotage	as carriers of pathogens
Adverse Food Reactions (food	Choking / Food Asphyxiation	Filth from insects rodents and
sensitivity) (customer communication)	Hazards (cook / customer)	any other unwanted animal parts
Food allergens	Pieces of food bone	or excreta
Food intolerances		of exercit
Metabolic disorder-based reactions	Thermal Hazards	Humans as carries of pathogens
Pharmacological food reactions	(server, customer)	fruinuns us curries or puttogens
Idiosyncratic reactions to food	Food so hot that it burns tissue	
Anaphylactoid reactions		
Anti-Nutritional Factors		

HAZARD PROCESS CONTROL LANGUAGE

- **G values:** Time at a temperature for the doubling of a microbiological count CFU / gram. e.g., *Listeria monocytogenes* doubling time 17 hours at 41°F (5°C).
- **D** values: Death time at a temperature for a 10-to-1 kill (1-log reduction) of microorganisms. e.g., *Salmonella* spp. 1D, 140°F (60°C), 1.7 minutes in beef; or 5D (5-log reduction), 140°F (60°C), 8.5 minutes. D values are another way of expressing log values for kill.
- **Log values:** $3 \log_{10}=1,000 \text{ CFU/g}$; $2 \log_{10}=100$; $1 \log_{10}=10$; $0 \log_{10}=1$; $-1 \log_{10}=0.1$; $-2 \log_{10}=0.01$; $-1.4 \log_{10}=0.04 \text{ or } 1/25 \text{ gram}$



TYPICAL GROWTH AND DEATH OF MICROORGANISMS

PRE-OPERATIONAL PIC TASKS



PIC tasks include:

- 1. Monitoring employee hygiene, especially proper hand washing
- 2. Excluding ill employees
- 3. Monitoring cleaning and disinfecting of equipment and utensils
- 4. Monitoring the receipt of food deliveries
- 5. Following up food-related complaints
- 6. Ensuring that no unauthorized persons are allowed in the food preparation area / kitchen
- 7. Ensuring that those authorized to enter the kitchen / food room comply with the rules.

PREREQUISITE PROCESSES HAZARD IDENTIFICATION

$H_0 + \Sigma I - \Sigma R \leq FSO / ALOP$



Personal Hygiene (70% symptomless shedders)

- Feces from toilet on fingers
- Strep throat
- Staphylococcus aureus from skin and infected cuts
- Hair, jewelry

Environment and facility

- Rodents, insects, birds
- Contaminated water, sewage back-up
- Cross connections, dripping pipes / roof
- Power interruption
- Waste disposal
- Lights, glass, plastic

Equipment, tools, utensils cleaning and maintenance

- Food contact surface cross-contamination
- Safe metal, wood, plastic

Supplies (stock list)

- Suppliers qualified
- Ingredients, ready-to-eat, raw, chemical, physical hazards
- Ingredient separation
- Storage; Rh, temperature, time, container

PREREQUISITE SANITATION MANAGEMENT PLAN Significant risk, vegetative pathogens transfer to ready-to-eat food

SCHEDULE

Equipment / Area / Surface	Frequency	Chemical
Installed equipment		
Hoods		
Sinks / faucets		
Walk-in refrigerators		
Blast chill refrigerators		
Thaw cabinets		
Walk-in freezers		
Reach-in refrigerators		
Reach-in freezers		
Display refrigerators		
Display freezers		
Lights		
Water baths		
Carts (wheels)		
Cooking equipment		
Ovens, broilers, fryers		
Hot holding cabinets		
Steam tables		
Washing machines		
Dish and pot wash machines		
Smallwares		
Small utensils		
Cutting boards		
Cooking utensils and equipment		
Hotel pans		

MAPLE WOOD CUTTING BOARD

PROCESS

Get ready

- 3-compartment sink filled as follows:
 - 1st sink: (dishsoap) solution
 - 2^{nd} sink: rinse water
 - 3rd sink: (sanitizer) solution
- Food scraper
- Scrub pad and scrub brush

Action

- 1. Remove cutting board every 4 hours or more often, and take to 3-compartment sink to be cleaned.
- 2. Scrape loose food particles into disposal.
- 3. Using scrub brush, wash board with (dishsoap) solution in first sink.
- 4. Rinse in clean, warm water in second sink.
- 5. Sanitize in 3rd sink, 1 minute, 50 ppm chlorine.
- 6. Allow to air dry.

Check that cutting board is clean.

- All food is removed.
- Boards are free of nicks in wood.
- 7. Clean up, put away

HAND WASHING / PERSONAL HYGIENE HACCP



Hazard:

Toilet paper slips and tears, and a person can get pathogens on fingertips.

Control:

When coming from the toilet, do the double wash with a nail brush for a 6 log reduction by dilution.

- Nail brush friction, detergent, and warm water, 3 log reduction
- 2. Second wash, no nail brush, reduction
- 3. Paper towel dry, 1 log reduction
- 4. Water flow, no splash, 2 gallons (7.6 liters) / minute
- 5. No touch controls are not necessary

- 1. Contaminate fingertips 7 log with nonpathogenic *E. coli* ATCC 25922
- 2. Double fingertip wash, 6-log reduction
- **3.** PetrifilmTM recovery *E*. *coli* <10 total

CUTTING BOARDS AND OTHER FOOD CONTACT EQUIPMENT AND UTENSILS



Significant Risk:

Vegetative pathogens on raw food contact surface with 10,000 *Campylobacter* / 50 sq cm (8 sq inches).



Before putting ready-to-eat food on a surface, be sure that the surface has been cleaned to reduce pathogens 5 log.

1. Get ready.

Control:

- **2.** Fill sinks
- 3. Remove gross soil.
- **4.** Wash and scrub surface. Reduce pathogens 5 log by dilution.
- 5. Rinse and sanitize.
- **6.** Air dry. Allow surfaces to air dry thoroughly.

Validation:

Put 7 log non-pathogenic *E. coli* on surface and validate a cleaning procedure for a 5-log reduction.

MENU HACCP ANALYSIS

Menu Item	Storage (temp / time)	Preparation (wash / pasteurize; additives)	Hold / Serve	Leftovers (none / cool)
Beef Roasts, Pork Ribs	Receive frozen /	Roast >75°C (167°F) for	Hold / serve >60°C	Cool to $<$ 5°C (41°F.)
Whole Chickens, Whole	refrigerated <5°C (41°F.)	a 5 to 7D Salmonella	(140°F)	in 6 hr or less. CCP
Turkeys, Turkey Breasts,	Store frozen or <5°C	pasteurization. CCP		
Whole Smoked Salmon	(41°F.)			
(raw)				
Burgers, Sausage,	Receive frozen /	Fry/Grill/ Broil >75°C	Prepare / serve to order.	No leftovers
Fry/Grill/Broil (raw)	refrigerated <5°C (41°F.).	$(165^{\circ}F) > 15 \text{ sec. } CCP$		
	Store frozen or <5°C			
	(41°F.)			
Pre-cooked Buffalo Wings	Receive and store frozen.	Fry to>75°C (167°F).	Prepare / serve to order.	No leftovers
Deep fried (RTE - supplier	When refrigerated<5°C	СР		
pasteurized)	(41°F).			
Eggs, shell Fry/Poach/Boil	Receive refrigerated	Fry, poach, boil >75°C	Prepare / serve to order.	No leftovers
-(raw)	<7.2°C (45°F).	(167°F) CCP		
	Store <5°C (41°F).			
Homemade Soups (raw)		Prepare according to	Hold / serve >60°C	Leftovers 1 gal. pot
		recipe formulation.	(140°F)	Cool to $<5^{\circ}C$ (41°F.)
		Heat to >75°C (167°F).		in 6 hr or less. CCP
		ССР		
Fresh Fruit: (raw)	Receive / store	Wash under flowing	Hold / serve $<$ 5°C (41°F.).	Discard after 2 days
Oranges/Lemons/limes,	refrigerated <5°C (41°F).	water.		refrigerated.
Grapes, Pineapple,	or at ambient temperature	Peel, trim, cut, prepare		
Strawberries, Melons	according to item.	as directed for use. CP		
Fresh Vegetables (raw)	Receive / store	Wash under flowing	Hold / serve $<$ 5°C (41°F.).	No leftovers.
Tomatoes, green onions,	refrigerated <5°C (41°F)	water.		(Discard after 2 days
cucumbers, green peppers,	or at ambient temperature	Peel, trim, cut, prepare		refrigerated.)
Kale, yellow/white onions,	according to vegetable	as directed for use. CP		
broccoli, celery	type.			

INGREDIENT ANALYSIS Potentially Hazardous Food

Ready-	To-Eat – Supplier Ma	ade Safe	Raw –
(grown safe	e, pasteurized, steril	ized, a _w , pH)	Cook Makes Safe
Potatoes, dried	Oatmeal	Fruit Juices	Potato to be baked
Onion Rings, cooked	Vegetables, frozen	Soft Drinks	Chicken
Corn Beef Hash	Coleslaw Mix	Milk	Cod
Sausage Links,	Canned Fruits	Bread Products	Shrimp
precooked	Applesauce	Apple Crisp	Bacon
Cheese Pizza, fully	Cheeses	Frozen Pies	Hamburger
cooked	Cocktail Sauce	Cakes	Eggs (in-the-shell)
Turkey Breast, fully	Butter	Ice Cream	Steak
cooked	Honey	Jams and Jellies	
Nacho Meat	Salad Dressings	Vinegar	
Roast Beef	Condiments	Sugar	
Macaroni and Cheese	(e.g., ketchup)	(brown, powdered)	
French Toast Batter	Coffees	Raw fish	
Gravies (pasteurized	Fresh vegetables		
ingredients)	Fresh fruit		
Soups			
Marinara Sauce			

SUPPLIER CONTROLS FOR SAFE PRODUCTS

	CONTROL							STABILIZE		
INGREDIENT	Grown Safe	HFO Sort, Remove	Wash	Pasteurize Sterilize	Chemical / Allergen (safe levels)	Other	A _w	pH Acid / Ferment	Ref. / Freeze	
Meat / poultry / fish / seafood	X			Х	X					
Entrée / specialty foods		Х		Х	X					
Dairy / egg products				Х	X					
Bakery products				Х	X		Х			
Grain / mill products	Х	Х			X					
Nuts	Х	Х			Х					
Fruits / vegetables	Х	Х								
Non-alcoholic beverages / juice / bottled water / other drinks				Х						
Fats / oils	Х									
Sugars / sweeteners / confections	X									
Condiments / salad dressings / vinegars					X			Х		
Gravies / sauces / soups										
Spices / flavorings / food chemicals		Х			Х			Х		
Gelatins / puddings / dessert powders					Х			Х		
Alcoholic beverages / bar mixes										

INSPECT YOUR PURVEYORS Can they obtain, store, and deliver products meeting the specifications?

Dirty floors

Broken and open cases

Spilled food

Dirty employee uniforms

Rust and lack of paint



1003

HACCP'D RECIPE

Recipe Name:

SA/QA by: J. Bell

Chicken Cacciatore Production style: Combination Written by: O. P. S. Date: 10/95

Date: 12/95

Portion size (vol./wt.): 1/4 (6 oz.) chicken + 3 oz. sauce Number of portions: 100 Final yield (AS):100 Final yield:

Prepared by: **S. P.** Supervisor:

Preparation time: 2 hours

Gp. #	Ingred. #	Ingredients and Specifications	Edible P (weight	Portion (EP) or volume)	EP Weight %	As served (weight)
1	1	Onions, chopped (1/2" x 1")	3.0 lb	1,360.00 g	13.26	
	2	Mushrooms, cut (1/2 ", caps & stems)	3.0 lb	1,360.00 g	13.26	
	3	Peppers, green, cut (1/2" x 1")	2.0 lb	907.2 g	8.84	
	4	Garlic, chopped	6 Tbsp.	85.05 g	0.53	1
	5	Tomatoes, canned, crushed (2 - #10 cans)	13.25 lb	6,010.00 g	58.58	
	6	Oil, vegetable	1/4 cup	54.00 g	0.53]
	7	Wine, Marsala or Madeira	2 cups	472.00 g	4.60]
	8	Oregano, crushed	2 tsp.	3.00 g	0.03	1
	9	Salt	1 tsp.	5.50 g	0.05	1
	10	Pepper	1 tsp.	2.10 g	0.02	1
		Total	22.6 lb	10,258.85 g	100.00	22.0 lb
		Approx. gallons	2.5 gal.			
11	11	Chickens, whole (25 - 21/4 to 21/2 lb.)	62 lb			40.0 lb

Preparation

- Prepare sauce. Get chopped onions, mushrooms, green peppers and garlic (40°F) from refrigerator. Sauté the vegetables in vegetable oil for about 10 minutes. Add crushed tomatoes with juice, wine, and seasonings (72°F). Bring sauce to a simmering temperature (205°F, 10 min.).
 - 1a. Hold sauce in bain marie. (165°F, 20 min.)
- Prepare chicken. Get chicken quarters (40°F) from meat and poultry refrigerated storage area. Remove rib bones. (45°F, 10 min.)
- <u>CCP</u> Place quarters, one layer deep in shallow roasting pans. Brown chicken by baking it in a convection oven at 350°F for 30 min. (>165°F, >15 sec.)
- Remove pans of chicken from oven. (165°F, 15 min.) Pour off excess liquid. Save for chicken stock.
 - 4a. CCP Cool liquid from 135 to <41°F, <6 hours, <2 inches deep or <1-gallon container.
- 5. Cover the chicken quarters with sauce, 155°F, <10 min. (Final temperature 150°F.)
- Return the pans of chicken and sauce to convection oven at 300°F and continue baking until all parts of the chicken reach a temperature of 175°F (about 45 minutes).
- 7. Check temperature of chicken. If temperature is not 175°F, continue baking.
- 8. Cover chicken, 175°F, transfer to 150°F hot holding unit and serve within <2 hours.

Hold / Serve

 Hold / serve chicken >150°F, <2 hours. For each portion, use either 1/4 quarter white or dark meat. Chicken should be accompanied by 3 ounces of sauce (165°F) (about 3 tablespoons).

Leftovers

10. CCP Cool from 135 to <41°F in <6 hours, \leq 2 inches deep or <1-gallon container.

Ingredients that could produce possible allergic reactions: Tomatoes, wine

HACCP FLOW DIAGRAM



D=Delay I=Inspect O=Operate S=Store T=Transport Ti=Temp. in To=Temp. out t=time to do the step CCP=Critical Control Point

chik cacc-flow-5-09-one-col-color

TEMPERATURE MONITORING that the process is in control



Bimetallic Coil Thermometer = Average temperature over 3 inches (from tip to dimple) Thermocouple [1 mm (0.040-inch) diameter or less] = Temperature at tip Thermistor [1.6 mm (0.0625-inch) diameter] = Average temperature from tip up 0.5 cm (0.25 inch) Infrared Heat Detector = Surface measurement

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STANDARDIZED MONITORING

What to Measure	How to Measure
Food temperature in cold holding	Measure 1/8 to 1/4 inch (3 to 6 mm) below the top
(delivery, receiving, refrigerator)	surface.
Cooked, pasteurized food	Measure temperature of center of thickest food item.
Hot hold display	Measure 1/8 to 1/4 inch (3 to 6 mm) below the top
	surface.
Cooling	Push through the thickest part of the food to find the
	warmest temperature.
Cold hold display	Measure 1/8 to 1/4 inch (3 to 6 mm) below the top surface
Refrigerator air temperature	Measure 1 cup of salt (230 ml), on the center shelf for >1
	hour to stabilize.
Oven temperature	Measure 1 cup of salt (230 ml), on the center shelf for >1
	hour to stabilize.
Oven humidity	Use a thermocouple in a cotton wick in water with air
	circulation.
Fryer	Using a tip-sensitive thermometer, measure oil
	temperature for 3 cycles and take the average.
Food pH	At 20°C (68°F), measure pH with a strip or meter. Food
	can be diluted by 30% with distilled water, if needed.
Food a _w	Use a Decagon a _w meter or equivalent.
Surface safety	Using Petrifilm [™] , do a contact plate or swab and look for
	<pre><100 colonies per 50 square cm (8 square inches).</pre>

RECIPE ENGINEERING (HURDLE TECHNOLOGY)

Retarding Microbiological Growth in Processed Food



Nutrients. There are sufficient nutrients / food to allow the growth of microorganisms

Water activity / Moisture. <u>Vegetative bacteria</u> Staphylococcus aureus, no toxin production a_w <0.86. <u>Spore</u>, *Bacillus cereus*, cooked food, no growth, a_w <0.92. Affected by presence of fat, protein, carbohydrates / sugar, and salt.

Acidity, pH. Vinegar, lemon juice. Affected by protein. <u>Vegetative bacteria</u> *Salmonella* and *E. coli*, no growth, pH <4.2. Cooked food, no *Clostridium botulinum* <u>spore</u> growth, pH ≤4.6.

Preservatives. Nitrates (sausage), benzoates (yeast and mold), salad dressing.

Oxidation / reduction. Control of the oxidation reduction potential (ORP) to control pathogens such as anaerobic *Clostridium botulinum*. Growth <+200 mv and more negative. Sanitizing (oxidation) kill of <u>vegetative</u> pathogens >600 mv.

Temperature and Time Control for Safety.

<u>Vegetative bacteria</u> *Listeria monocytogenes* and *E. coli*, 30 to 115°F (-1.1 to 46.1°C.) <u>Spores</u> (fish) 38°F (3.3°C), 50°F (10°C) (meat and vegetables) to 125°F (51.7°C).

FOOD GROUPS HACCP PROCESS ANALYSIS

	HACCP Process Groups (USDA HACCP, 9 CFR 417) Prerequisite / GMPs working	Control	Shelf life
Ι	Raw, not heat treated. Not TCS / no RPG: sprouts; raw meat, fish; sushi, sashimi; eggs, raw fruits and vegetables, flour, salt, sugar, spices, oil	Grown safe, with H ₀ that meets FSO. May require Temperature Control for Quality.	<14 days or longer with additives (bact. spoilage)
II	Not fully heat treated, with inhibitors to make shelf stable. <u>Water activity</u> : nuts, sugar icing, butter honey, dried fish, fresh pasta, peanut butter <u>Fermentation</u> : pepperoni, salami; olives; dairy (cheese, yogurt, sour cream / milk / crème fraîche); bread; sauerkraut; kimchee; beer, wine <u>Acidified</u> : salad dressing; cole slaw; salsa; condiments	With H_0 that, with $+\Sigma I-\Sigma R$ (5-log Salmonella reduction), meets FSO. Does not require TCS because of product a_w , pH, or additives. $A_w < 0.86$ (Staphylococcus) pH <4.2 (Salmonella) (or fermentation)	>2 years, 68°F (20°C) (chem. spoilage)
III	Fully cooked, not shelf stable. hot or cooled, refrigerated ready-to-eat food; meat, fish, poultry; fruits, vegetables, dairy, pastry filling, pudding	Pasteurized (5-log to 7-log Salmonella) so that $+\Sigma I-\Sigma R$ meets FSO. Requires TCS.	41 to 135°F (5.0 to 57.2°C), \leq 4 hours or Cold 41°F (5.0°C), 7 days / unlimited
IV	Fully cooked, with inhibitors to make shelf stable. marinara sauce; fruit pie fillings; cake icing, bread and pastry, dry cereals, dry pasta, smoked fish; packaged, low-pH fruits and vegetables	Pasteurized (5-log to 7-log Salmonella) so that $+\Sigma I-\Sigma R$ meets FSO. $A_w < 0.92$; pH <4.6 Does not require TCS because of product a_w , pH, or additives.	>5 years
V	Commercially sterile, shelf stable. "packaged" meat, fish, poultry, fruits, vegetables, dairy / UHT milk	Sterilized, <i>Clostridium botulinum</i> spores reduced 9 log to 12 log. Does not require TCS.	>5 years

PHF=Potentially Hazardous Food; RPG-Rapid and Progressive Growth; UHT=Ultra High Temperature; H₀=Starting Hazard; FSO=Food Safety Objective; Σ=summary; I=Increase; R=Reduction; TCS=Temperature Control for Safety; a_w=water activity

ACID CONTROL OF FOOD

Marinade Crue

- Important for microbiological growth.
- Oil prevents evaporation.

Cut into small pieces and put in the bottom of a shallow pan in order to keep meat off of the bottom of the pan:

medium carrot
 shallots
 cloves garlic
 small sprig thyme
 Pinch of crushed pepper

2 onions

- 1 rib celery
- 2 sprigs parsley
- 1 bay leaf

12 cloves

Add to cover the meat:

4 $\frac{1}{2}$ cups red wine (pH = 3.5) 2 cups vinegar (pH = 2.5)

(pH wine and vinegar = 3.35)

Add to the surface to prevent evaporation: 1 cup oil

Hollandaise Sauce

• Room-temperature safe if the final pH is 4.1 or less.

2 egg yolks (pH 6.35)

3 tbsp. lemon juice (pH 2.45) $\frac{1}{2}$ cup butter (pH 6.0)

(pH of egg yolks, lemon juice, and butter combined = 3.2)

Mayonnaise

- Discourages growth of *Salmonella* spp. and other pathogenic bacteria.
- Must be refrigerated to prevent mold and yeast multiplication.
- egg yolk (pH 6.35)
 tsp. sugar
 tsp. salt
 tsp. dry mustard
 tbsp. lemon juice or vinegar (pH 2.45)
 cup oil

(pH of oil, egg yolk, and lemon juice or vinegar combined = 3.5)

RECEIVING, INSPECTING, AND STORING INGREDIENTS

Government-inspected food

Check delivery vehicle is sanitary Refrigerated food ≤5°C (41°F) Frozen food is frozen; no ice crystals Return non-specification items Rotate stock, FIFO



WASHING AND BLANCHING FRUITS AND VEGETABLES (VEGETATIVE BACTERIA) HACCP







Hazard:

Raw fruits and vegetables are contaminated in the pores of the surface. Chemicals do not affect pathogens in the surface.

Control:

The bacteria must be removed by brush friction or water turbulence. The following reduces bacteria, parasites, and viruses about 2 log by dilution.

- **1.** Trim.
- **2.** Wash in turbulent water. Transfer to 2^{nd} sink.
- **3.** Rinse in turbulent water, 2nd sink.
- 4. Spin dry.

Chemicals can be used in a 3rd sink, but have a

limited effect, 1 log.

Blanch fruit or vegetable in 75°C (167°F) water,

1 minute, for a 5-log reduction.

Validation:

Put *E. coli* on food and measure before and after treatment, using *E. coli* PetrifilmTM.

FOOD PASTEURIZATION HACCP (VEGETATIVE BACTERIA)









Hazard:

Pathogens contaminate raw meat, fish, and poultry.

Control:

Salmonella is the target pathogen. Reduce Salmonella 5 log / 7 log. (Assumes the food is contaminated with about 1,000 / gram, and must be reduced to 1 per 100 grams.)

- Contaminate with non-pathogenic *E. coli*. Take sample before heating, <68°F (<20°C).
- Take samples about 130°F, 140°F, and 150°F (55°C, 60°C, and 65°C). By 150°F (65°C), there should be >5-log reduction.

FOOD HOT HOLD HACCP (SPORE CONTROL)





Hazard:

- The surface of food with a center temperature of 140°F (60°C) in a steam table exposed to air with a relative humidity of 50% will be about 117°F (47.2°C) because of evaporative cooling.
- *Clostridium perfringens* will grow <125°F (<51.7°C). Hot hold >140°F (>60°C).
- Heat lamps dry food.

Control:

Keep food covered; keep high humidity, >90%, above food; or cover food with something like a butter sauce or cheese.

- Make a pan of instant mashed potatoes with cooked ground beef and *C. perfringens* on the surface.
- Measure temperature. Hold in a steam table for 4 hours. Measure *C. perfringens* growth.

FOOD COOLING HACCP (SPORE CONTROL)





Hazard:

Clostridium botulinum, Bacillus cereus, and *Clostridium perfringens* spores will germinate and multiply if cooling is too slow between 125 and 80°F (51.7 and 26.7°C).

Control:

- Cool fast enough, 6 hours between 140 and 41°F (60 and 5°C) to prevent outgrowth of spores <1 log.
- Pre-cool room temperature.
- Blast cooler 300 meters per minute air, 38°F (3.3°C), 2-inch (5-cm) pan, 6 hours.
- Ordinary refrigerator 50 feet (15 meters) per minute air, 2-inch (5-cm) pan.

- Cook hamburger to 167°F (75°C) to pasteurize the food and activate the spore. Put in a test container.
- Cool. Take a center sample before and after cooling. Determine if there is growth.

RAPID COOLING METHODS

6 hr. to 5°C (41°F)



BUFFETS – BANQUETS



Hazard Analysis

- Customer sneezing *Staphylococcus* or *Streptococcus* on food. Not a significant risk, because bacteria must multiply to an infectious dose, and the food is old, spoiled, and thrown out first.
- Customer getting fingers in food. Not significant. No evidence of an outbreak.
- Customer cross-contaminating allergens. This is possible, but highly unlikely.
- Customer cross-contamination if customer does not use clean plate and utensils. Not a significant risk, because there are too few pathogens to be an infective dose, and mouth bacteria are not a significant risk.

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SUPPLIER SAFETY CERTIFIED MENU ITEMS (NOT PROCESSED FOR SAFETY BY KITCHEN)

(e.g., dairy items, ready-to-eat desserts, snacks, entrees)

Menu Items

Milk Cottage cheese Red delicious apple Cheesecake w/ fruit topping Fudge brownie Rhubarb dessert, topping Blueberry muffin Chocolate cake Baby carrots & ranch dip Caesar chicken salad Chef salad with ranch dressing Meat, cheese & club crackers Relish tray Alfredo pasta w/ chicken Bacon, egg & cheese muffin **BBQ** chicken Bratwurst Goulash Ham & bacon & cheddar on a bun Macaroni & cheese Pepperoni pizza Sloppy Joe



COOKED (PASTEURIZED) IN KITCHEN, NOT SHELF STABLE MENU ITEMS (e.g., burgers, entrees)



CHICKEN CACCIATORE HACCP PLAN

$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Process Steps and Controls: GMPs and prerequisites are in place (<i>Ti=temp. in; To=Temp. out;</i>	B, C, P, Potential Hazards and Risk Analysis	Control Critical Limit (CL) for each Hazard Control	Monitoring & Record; (What, How, Frequency, Who)	Corrective Action & Record	Verification & Record (Procedures and Frequency)
$\begin{array}{ c c c c c } \hline Preparation & Preparation$	t=Time to do the step)					
I.Prepare sauce. Get choppedB: Not significant.Supples are obtained from reputable sources; sauce has low PH and is heated sufficiently to destroy vegetative pathogens.Supples are obtained from reputable sources; beated sufficiently to destroy vegetative pathogens.Final Supples are obtained from reputable sources; beated sufficiently to destroy vegetative pathogens.Supples are obtained from reputable sources; beated sufficiently to destroy vegetative pathogens.Final Supples are obtained from reputable sources; beated sufficiently to destroy vegetative pathogens.Supples are obtained 	Preparation		~			
Oonions, mushrooms, green peppers, minced garlic. Sauté in oil. Add crushed fomatoes, juice, wine and seasoning. Bring to a simmer.C: None.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative pathogens.from reputable sources; sauce has low pH and is heated sufficiently to destroy vegetative phthogens assure that all bones are removedfrom reputable sources; removedfrom reputable sources; remove140°FTo 45°F t 10 min.8: Vegetative pathogens and sporesCooking temperature in the production sheet for each lot.If temperature is not >165°F, source, remove <td>1. Prepare sauce. Get chopped</td> <td>B: Not significant.</td> <td>Supplies are obtained</td> <td></td> <td></td> <td></td>	1. Prepare sauce. Get chopped	B: Not significant.	Supplies are obtained			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	O onions, mushrooms, green	C: None.	from reputable sources;			
oil. Add crushed tomatoes, juice, wine and seasoning. Bring to a simmer. Ti 40°F To 205°F t 20 min.heated suttreently to destroy vegetative pathogens.heated suttreently to destroy vegetative pathogens.Ia. Hold sauce in bain marie. D Ti 205°F To 165°F t 20 min.B: Not significant.No pathogenic microbial growth in sauce at >130°F.No pathogenic encode2. Get chicken quarters from Ti 40°F To 45°F t 10 min.B: Not significant.Vegetative pathogens and spores are con- trolled by low temperature. Inspect to assure that all bones are removedVegetative pathogens assure that all bones are removedFe tomos in the pathogens assure that all bones are removed0 deep in shallow roasting pan. Bake (brown) in convection oven at 350°F, >165°F, >15 sec. T 45°F T to 165°F, st 30 min.B: Vegetative pathogens and spores C: None.Assigned worker takes lowest in each lot and records on production sheet for each lot.If temperature is not >165°F, orticus sheet for each lot.Supervisor initials the production sheet for each lot.4. Remove pan(s) of chicken from 4. Remove pan(s) of chicken fromB: Not significant.Temperature >130°FSupervisor initials the production sheet for each lot.If temperature is not >165°F, production sheet for each lot.	peppers, minced garlic. Saute in	P: None.	sauce has low pH and is			
juice, wine and seasoning. Bring to a simmer.destroy vegetative pathogens.destroy vegetative pathogens.destroy vegetative pathogens.14 0°F To 205°F t 20 min.B: Not significant.No pathogenic microbial growth in sauce at >130°F.No pathogenic microbial growth in sauce at >130°F.Image: C: None.No pathogenic microbial growth in sauce at >130°F.2. Get chicken quarters from O refrigerator. Remove rib bones.B: Not significant.Vegetative pathogens and spores are con- trolled by low temperature. Inspect to assure that all bones are removedNo kignificant.Vegetative pathogens and spores are con- trolled by low temperature. Inspect to assure that all bones are removedFremover ib bones.Fremover ib bones.Supervisor initials the production log each shift.3. CCP Place quarters, one layer O deep in shallow roasting pan. Bake (brown) in convection oven at 350°F, >165°F, >15 sec. Ti 45°F To 156°F, 130 min.B: Not significant.Cooking temperature >165°F, >15 sec. assure a >7D sproduction sheet for each lot.Assigned worker takes lowest temperature of center of food in each lot and records on production sheet for each lot.If temperature is not >165°F, Supervisor initials the production log each shift.4. Remove pan(s) of chicken from 4. Remove pan(s) of chicken fromB: Not significant.Temperature >130°FAssigned worker takes lowest in each lot and records on production sheet for each lot.If temperature is not >165°F, Supervisor initials the production log each shift.	oil. Add crushed tomatoes,		heated sufficiently to			
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11 40°F To 45°F t 10 min. removed	T: 4005 T 4505 . 40 .		assure that all bones are			
3. CCP Place quarters, one layer B: Vegetative pathogens and good spores Cooking temperature of continue to continue to cook. If temperature is not >165°F, sont spores Supervisor initials the production log each shift. 0 deep in shallow roasting pan. Bake (brown) in convection oven at 350°F, >165°F, >15 sec. assures a >7D salmonellae kill. in each lot and records on production sheet for each lot. Fi None. Pi None. <	<u>11 40°F</u> <u>10 45°F</u> t 10 min.		removed			
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oven at 350°F, >165°F, >15 sec. P: None. salmonellae kill. production sheet for each lot. Ti 45°F To>165°F t 30 min. Temperature >130°F 4. Remove pan(s) of chicken from B: Not significant. Temperature >130°F	Bake (brown) in convection	C: None.	assures a >7D	in each lot and records on		
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4. Remove pan(s) of chicken from B : Not significant. Temperature $>130^{\circ}$ F	$Ti 45^{\circ}F \qquad To > 165^{\circ}F t \ 30 \ min.$					
	4. Remove pan(s) of chicken from	B: Not significant.	Temperature >130°F			
O oven. Pour off excess liquid. C: None. controls spores and kills	O oven. Pour off excess liquid.	C: None.	controls spores and kills			
Save for chicken stock. P: None. vegetative cells.	Save for chicken stock.	P: None.	vegetative cells.			
Ti >165°F To 155°F t 15 min.	Ti >165°F To 155°F t 15 min.					
4a. CCP Cool liquid from B: Pathogenic spores Cooling chicken stock Use clean, sanitized container If refrigeration goes off, Supervisor initials the	4a. CCP Cool liquid from	B: Pathogenic spores	Cooling chicken stock	Use clean, sanitized container	If refrigeration goes off,	Supervisor initials the
D $\overline{135}$ to 41° F, ≤ 6 hr., ≤ 2 C : None. from 135 to 41° F, ≤ 6 and refrigerator that is move stock to a functioning production log each shift.	D $\overline{135}$ to 41° F. <6 hr., <2	C: None.	from 135 to 41°F, <6	and refrigerator that is	move stock to a functioning	production log each shift.
inches deep or <1 -gallon P: None. hr., controls spore validated for safe cooling refrigeration unit. If cooling	inches deep or <1-gallon	P: None.	hr., controls spore	validated for safe cooling	refrigeration unit. If cooling	
container (Save for outgrowth. is not within FDA	container (Save for		outgrowth.		is not within FDA	
chicken stock) recommendations, throw it	chicken stock)				recommendations, throw it	
$T_i > 125^{\circ}F = T_0 A1^{\circ}F + t \leq 6 hr$	Ti >125°E To $11°E$ t<6 hr				out.	
$\frac{112155 \text{ F}}{1041 \text{ F}} \frac{1041 \text{ F}}{100000000000000000000000000000000000$	$11 \ge 155$ T 1041 T $1 < 0$ III.	B . Not significant	Temperature >120°E			
D souce	S. Cover chicken quarters with	B: Not significant	remperature >130°F			
C sauce. C. None. Controls spores and Kins Ti >155°E. To 150°E. t<10 min. P: None. vegetative cells.	$t_{1} > 155^{\circ}F$ To $150^{\circ}F$ t<10 min	P: None	vagetative cells			
$\frac{11 \times 1001}{1000} = \frac{10000}{1000} = \frac{1000}{1000} = \frac{1000}{1000$	$\begin{array}{c} 11 < 155 \text{ f} & 10 150 \text{ f} & 1 10 \text{ fill.} \end{array}$	B : Not significant	Tomporature >120°E			
0. Dake at 500 r in convection D . Not significant. Temperature >150 r	o. Dake at 500 F in convection	C. None	a controls spores and bills			
tamparature of 175°E P: None vegetative cells	town and the set 175°E	P. None	vegetative colle			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Ti $>150^{\circ}$ E To 175° E $4 - 45^{\circ}$	1 • 1000.	vegetative cens.			

B, **C**, **P** = Biological, Chemical, and Physical

D=Delay; I=Inspect; O=Operate; S=Store; T-Transport C

CCP = Critical Control Point

CHICKEN CACCIATORE HACCP PLAN (cont'd)

Process Steps and Controls: GMPs and prerequisites are in place (<i>Ti=temp. in; To=Temp. out;</i> <i>t=Time to do the step</i>)	B, C, P, Potential Hazards and Risk Analysis	Control Critical Limit (CL) for each Hazard Control	Monitoring & Record; (What, How, Frequency, Who)	Corrective Action & Record	Verification & Record (Procedures and Frequency)
7. Check. Is the temperatureI 175°F? If not, continue to cook.	B: Not significant.C: None.P: None.	Temperature >130°F controls spores and kills vegetative cells.			
 8. Cover and transfer to 150°F hot T holding unit. Ti 175°F To 150°F t 5 min. 	B: Not significant.C: None.P: None.	Temperature >130°F controls spores and kills vegetative cells.			
 Hold/Serve 9. Hold. Serve ¹/₄ chicken and D 3 oz. sauce. Use within <2 hr. Ti 150°F To 150°F t <120 min. 	B: Not significant. C: None. P: None.	Temperature >130°F controls spores and kills vegetative cells.			
Leftovers 10. <u>CCP</u> Cool from 135 to D <41°F, <6 hr., ≤2 inches deep or <1-gallon container.	B: Pathogenic spores.C: None.P: None.	Cooling to <41°F in 6 hours assures safety. The presence of pathogenic microorganisms from	Assigned worker makes sure the food is at the proper depth to cool to <41°F in 6 hours. This is recorded on production sheet for each lot.	If refrigerator goes off, transfer to a functioning refrigeration unit. If containers are the wrong size, get the correct size.	The production schedule will be initialed by a supervisor once a shift, prior to transfer to refrigerator. The supervisor will initial that the
Ti 135°F To <41°F t <6 hr.		products is controlled by GMPs and SSOPs.			CCP has been met.

Approved (QC)	Date	
Approved (Process Authority)	Date	

BEEF STEW HACCP Written by O.P. Snyder / 50 servings

Ingradianta	Magaura	Weight			Directione			
ingredients	weasure	U.S. Weight	Metric		Directions			
Beef stew meat, raw, almost free		10 lb.4 oz.	4.65 kg	1.	<u>CCP</u> . Brown beef cubes in oil, 210°F /			
of fat.					99°C. Drain. Continue immediately.			
Vegetable oil	1/2 cup	3.7 oz.	105.0 g		>7-log kill Salmonella.			
Dehydrated onions	2/3 cup	1.25 oz	35.4 g	2.	Add onions, flour, granulated garlic,			
Flour, enriched all-purpose	2 3/4 cups	12.1 oz.	344.0 g		paprika, pepper, salt, and thyme.			
Garlic, granulated	1 1/2 Tbsp.	0.42 oz.	12.0 g		Cook 5 minutes, 210°F / 99°C.			
Paprika	1 Tbsp.	0.22 oz.	6.3 g					
Black pepper, ground	1 1/2 tsp.	0.11 oz.	3.15 g					
Salt	1 Tbsp.	0.63 oz.	18.0 g					
Thyme, dried	1 tsp	0.05 oz.	1.4 g					
Water or beef stock (No MSG)	$1 \ 1/2 \text{ gallons}$	12.5 lb.	5.67 kg	3.	Add water or stock. Bring to boil. Reduce			
					heat (190°F / 88°C) and cover. Simmer for			
					approximately 1 1/2 hours, or until meat is			
					tender.			
Carrots, canned sliced, drained	2 qt. 2 cups	4 lb. 6 oz.	2 kg	4.	Add carrots, potatoes, and peas. Cook			
Potatoes, canned small whole,	1 qt. 2 cups	3 lb. 8 oz.	1.6 kg		until vegetables are heated through, 165°F /			
drained					74°C, approximately 15 minutes.			
Green peas, canned drained	1 qt. 3 cups	3 lb. 3 oz.	1.45 kg	5.	Pour into medium half-steam table pans			
					(10"x 12"x 4"). For 50 servings use 3			
					pans, 165°F / 75°C.			
				6.	<u>CCP</u> . Hold for hot service at 140° F / 60° C			
					or higher. <1-log increase <i>Clostridium</i>			
					perfringens.			
					Portion with 8 oz. ladle (1 cup).			

THE RETAIL FOOD SAFETY MANAGEMENT SYSTEM WITH PROCESS PERFORMANCE STANDARDS

1. Management +



pictures&00lh2: retail fd sys house (folder):retail-fd-sys-house-2012Jan

PIC SMART INSPECTION CHECKLIST Food Service Restaurants

PIC:	Location:							
Week starting from: /	/	/	to	/	/	/		
CHECK POINTS	Sun*	Mon	Tue	Wed	Thu	Fri	Sat	CORRECTIVE ACTION
MANAGEMENT								
Food safety policy								
HACCP team								
Verification that processes are safe								
PREREQUISITE PROCESSES								
Personal hygiene								
Food handlers are well groomed, clean and wearing appropriate clothing								
Bare hand contact avoided when handling ready to eat foods								
Has any food handler reported sick or is showing symptoms such as diarrhea / vomiting / fever?								
Environment / facility cleaning and maintenance								
Cleaning done as per schedule								
Signs / evidence of pest activity								
Drainage and sewage systems are working properly								
Comfortable room temperature for food handlers								

* Y to confirm compliance; N for non-compliance.

PIC SMART INSPECTION CHECKLIST (cont'd)

CHECK POINTS	Sun*	Mon	Tue	Wed	Thu	Fri	Sat	CORRECTIVE ACTION
PREREQUISITE PROCESSES (cont'd)								
Equipment cleaning and maintenance								
Hot and cold holding equipment is calibrated / working								
properly								
Cleaning and disinfection facilities for equipment /								
utensils are working properly								
Food contact surface (e.g., cutting boards, tables,								
knives, etc.) properly washed and disinfected before use								
Supplies								
Supplier list is up to date								
Incoming goods were checked randomly								
Food items that are spoiled, contaminated or expired								
separately stored and labeled, 'Not for Use'								
Food containers are properly covered during storage								
Ready to eat and raw foods stored separately								
FOOD PROCESS HACCP								
High-risk foods - held hot, above 60°C								
High-risk foods - held cold, below 5°C								
Cooked foods cooled rapidly before chilled storage								
Raw vegetables properly washed and disinfected prior								
to serving								
High risk foods held at room temperature discarded								
after 2 hours								

* Y to confirm compliance; N for non-compliance.

FOOD TEMPERATURE VERIFICATION

RECORD:

	F	OOD TEMPER	HAND WASHING VERIFICATION (observe one employee per day)		
DAY	Recorded at (time)	Food (Random verification)	Description (e.g., In chiller / buffet / cooking)	Temperature	Name of the food handler
Sun					
Mon					
Tue					
Wed					
Thu					
Fri					
Sat					

Verified by the Food Inspection Officer

Name_____ Date_____

SUMMARY

The PIC:

- 1. Identifies hazards.
- 2. Specified process controls.
- 3. Trains employees to perform and monitor controls.
- 4. Verifies that employees are following SSOPs and food process HACCP and take corrective action.

The SMART checklist documents control of the hazard at the CCP.

The trained employee is the person who assures that each portion of food served meets the standards of the establishment.