ENVIRONMENTAL HEALTH INFORMATIONAL BULLETIN

TO: Orange County Retail Food Facility Owners/Operators

SUBJECT: Requirements and Approved Methods for the Rapid Cooling and Thawing of Potentially Hazardous Foods

The California Retail Food Code (CRFC), which establishes the structural and operational requirements for all food facilities, was amended to establish permanent requirements and approved methods for the rapid cooling and thawing of potentially hazardous foods. The purpose of this Bulletin is to inform you of these provisions of the law and to assist you in complying with them. Improper temperature control of potentially hazardous foods, which will result in an increase in the growth rate of pathogenic microorganisms, is responsible for causing the majority of all foodborne illnesses. The rapid cooling of potentially hazardous foods along with following proper thawing procedures can have a significant affect on the prevention of these illnesses.

Sections 114002, 114002.1 of CRFC states in part, *"Whenever food has been prepared so that it becomes potentially hazardous, or is potentially hazardous food that has been heated, it shall be rapidly cooled if not held at or above 57.2 degrees Celsius (135 degrees Fahrenheit). After heating or hot holding, potentially hazardous food shall be cooled rapidly according to the following:*

- *From 57.2 degrees Celsius, (135 degrees Fahrenheit) to 21 degrees Celsius (70 degrees Fahrenheit) within two hours.* (Note: The time for cooling begins when the temperature drops below 135 degrees Fahrenheit.)
- *From 21 degrees Celsius (70 degrees Fahrenheit) to 5 degrees Celsius (41 degrees Fahrenheit) or below within four hours.* (Note: This allows a total cumulative cooling time of six hours.)

"If prepared at ambient temperature, potentially hazardous food shall be cooled rapidly from ambient temperature to 5 degrees Celsius (41 degrees Fahrenheit) or below within four hours." (Note: Using refrigerated ingredients whenever possible can greatly reduce the cooling time.)

The rapid cooling of potentially hazardous foods shall be completed by one or more of the following methods based on the type of food being cooled:

- *Placing the food in shallow, heat-conducting pans.*
- *Separating the food into smaller or thinner portions.*
- *Using rapid-cooling equipment.*
- *Using containers that facilitate heat transfer.*
- *Adding ice as an ingredient.*
- *Using ice paddles.*
- *Inserting appropriately designed containers in an ice bath and stirring frequently.*
- *In accordance with a Hazard Analysis Critical Control Point (HACCP) plan adopted pursuant to Sections 114419 & 114423.*
- *Utilizing other effective means that have been approved by the enforcement agency.*

When potentially hazardous food is placed in cooling or cold-holding equipment, food containers in which the food is being cooled shall be:

- *Arranged in the equipment, to the extent practicable, to provide maximum heat transfer through the container walls.*

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- *Loosely covered, or uncovered if protected from overhead contamination, to facilitate heat transfer from the surface of the food.*
- *Stirred as necessary to evenly cool a liquid or a semi-liquid food.*
- *Other methods of cooling potentially hazardous food may be utilized, unless deemed unacceptable by the enforcing agency."*

It is critical that these cooling requirements be strictly followed. Only a two hour time period is allowed to cool potentially hazardous foods from 140 degrees Fahrenheit to 70 degrees Fahrenheit. This limited time period is due to the rapid growth rate of pathogenic microorganisms within this temperature range. An additional four hours is allowed to cool foods from 70 to 41 degrees Fahrenheit.

An accurate, calibrated thermometer is necessary to closely monitor and adhere to these requirements. During the normal course of inspections, the Environmental Health Specialist may require you to substantiate compliance with these cooling requirements. One means of demonstrating compliance would be through the use of time/temperature logs.

In addition to maintaining safe cooling practices, it is also important that frozen potentially hazardous foods be thawed in a manner which will not promote the rapid and progressive growth of pathogenic microorganisms. Section 114020 of CRFC, which contains the thawing requirements, states that, "frozen POTENTIALLY HAZARDOUS FOOD shall only be thawed in one of the following ways:

a. *Under refrigeration that maintains the FOOD temperature at 41ºF or below.*
b. *Completely submerged under potable running water for a period not to exceed two hours at a water temperature of 70ºF or below, and with sufficient water velocity to agitate and flush off loose particles into the sink drain.*
c. *In a microwave oven if immediately followed by immediate preparation.*
d. *As part of the cooking process.*

During the normal course of inspections, the Environmental Health Specialist may require you to substantiate compliance with the cooling and thawing requirements. One means of demonstrating compliance would be through the use of written cooling and thawing protocols. For more detailed information on rapidly cooling potentially hazardous foods, refer to Environmental Health's Informational Bulletin on "Requirements for the Rapid Cooling of Potentially Hazardous Foods to Required Holding Temperatures".

If you have any questions regarding the requirements or methods for the rapid cooling and thawing of potentially hazardous foods, please contact your Environmental Health Specialist at (714) 433-6000.