

**INVESTIGATION GUIDELINE**

October 6, 1982

**SPAS****I. Introduction****A. Background Information**

The products addressed here include those known as spas, hot tubs, and whirlpools. For the purpose of this guideline they are all referred to as spas. Spas are designed for recreational and therapeutic use by consumers in their residences, are not drained, cleaned or refilled with each use.

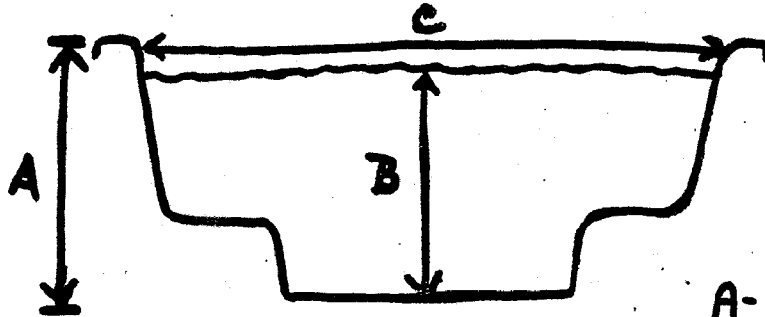
As the popularity and sale of the hot tubs/spas have increased, so have the incidents of injury and death, and in December 1979, CPSC issued a press release warning the public of the hazard of drowning in spas and hot tubs as a result of exposure to water greater than 104 degrees alone, or in combination with alcohol consumption. As of August 1982, the Commission had on file a total of 67 spa associated fatalities. There were 26 children under 3 years of age who drowned, 20 victims drowned as a result of exposure to high water temperature in combination with excessive consumption of alcohol and 10 fatalities were associated with health impairments. In 1983 the Commission will continue to monitor spa-associated fatalities. We are seeking more detailed information on injuries and fatalities involving either hair entanglement or body part entrapment in spa drains. Of primary interest are:

1. Drownings involving children, generally less than three years of age, and
2. drowning, or near drownings, as a result of hair entanglement or body part entanglement in drains,
3. drownings resulting from hyperthermia (high body temperature) and/or use of alcohol or drugs,
4. police, ambulance and coroner's reports.

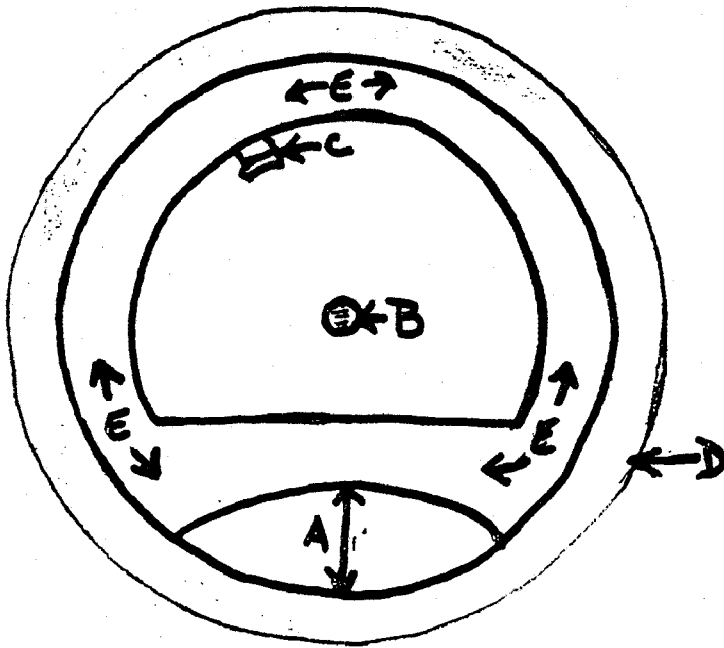
**B. Product Class Description****1. Definitions and General Description**

Whirlpools and hot tubs are types of spas. These products have a hydrojet circulation system, hot water, air induction bubbles, cold water mineral baths, or any combination thereof. Spas may be constructed of fiberglass,

metal, concrete, wood or other material, and may be located indoors or outdoors. The water depth is usually not in excess of four feet.



A- HEIGHT  
B- WATER DEPTH  
C- WIDTH



A- STEP WIDTH  
B- DRAIN AND GRATE  
C- DRAIN  
D- SLIP RESISTENT SURFACE  
E- SEAT AREA

## 2. Specific Items of Interest

In order to best evaluate the problems connected with the increasing use of spas, the following information is needed:

In the event of drowning:

1. Determine whether heat, alcohol or drugs were contributing factors.
2. Specify whether the accident involved a child.

In the event of a near miss:

1. Determine whether hair entanglement or body part entrapment were involved.
2. Inquire whether the victim or relatives have ever experienced a near miss, such as being light headed or physically "drained" from using the spa.
3. Describe who was present at the time the incident occurred.

In the event of electrocution:

1. Determine victim's knowledge and experience in use of the spa and describe what was done differently this time.
2. Indicate what transpired immediately preceding the accident.
3. Identify who was present at the time of the accident.

In the event of other contributing circumstances, send a synopsis of the incident, describing victim and circumstances and includes as much detail as possible.

### C. Headquarters Contacts

Victoria Brown, EPHF - 492-6468

## II. Instructions for Collecting Specific Information

### A. Free Text Summary

Many spa-associated accidents results in fatalities, and there are few first hand witnesses. We do not know whether children purposely enter the spas or fall into the spa while playing On t he edge. Young children's depth perception is underdeveloped and certainly knowledge of risk non-existent. We would like to

know all the circumstances which led up to the accident. including parent awareness of the risk of drowning to young children.

The summary should consist of a narrative that describes the sequence of events that occurred before, during and after the incident.

1. Identify clearly the source of the information you provide; that is, the persons with whom you spoke or corresponded about the accident.
2. No guidelines can cover all of the pertinent factors that may apply to any particular accident. Be sure to include an explanation of any such factors in your narrative, even if they have not been specifically mentioned in the guidelines.

In cases involving hair entanglement and body part entrapment, it is critical to obtain as precise product dimensions as possible, and to determine what the person's motivation for coming into contact with the drain and whether they, (or others present) perceived the risk.

In cases involving hyperthermia and/or alcohol, it is very important to determine the length of exposure, and familiarity with the product.

Any observations you may have regarding unknown circumstances surrounding the incident should also be included in the information transmitted in the report.

B. Description of Victim Contact With Product  
(Victim/Product Environment Interface)

1. Include victim's age, height, weight and any stated or known health impairment (i.e., heart, blood pressure, respiratory or circulatory conditions, diabetes, arthritis, etc.). List any physical handicaps the victim had that would make it impossible to exit the spa in an emergency situation without assistance.
2. Prior to, or while using the spa describe whether the victim was:
  - a) using alcohol,
  - b) taking medication or using drugs,
  - c) engaged in strenuous exercise,
  - d) or was fatigued.
3. Describe the victim's reason(s) for using the spa (i.e., therapeutic, recreational, other) and advise:
  - a) the length of time in the water during this use (in minutes),

- b) average use of spa per week in the past (e.g., two days- three days, etc.) prior to the accident,
  - c) length of previous exposure to water other times (e.g., twenty minutes, fifty minutes, etc.),
  - d) frequency of use of this, or other spas in the past year (e.g., used spa five times per week; twelve times per month, past two years five times per week, etc.)
- 4. Specify whether victim was alone in the tub at the time of the accident.
  - 5. Indicate whether the victim was in the habit of using the tub alone.
  - 6. Obtain the specific medical diagnosis from the physician or coroner.

If hair entanglement or body part entrapment:

- 1. Determine the length of the victim's hair and approximate dimensions (length/circumference) of body part entrapped.
- 2. Indicate what the victim was attempting to do at the time of the accident ( e.g., retrieving something from the bottom of the spa, holding their breath, etc.). Please explain fully.

If the drowning involved a child:

- 1. Report the victim's height and weight.
- 2. Describe the cover and whether it was in place at the time of the accident. In cases of children drowning, 3 years-of-age and younger for which coroner's or police reports were obtained, four cases involved thermal covers which were in place at the time of the incident. The victims were presumed to have stepped or crawled onto covers that did not support their weight and they subsequently drowned.
- 3. Indicate frequency of victim's use of the spa, whether that day, or ever before. The other 4 drownings have a common trend of parents and friends having used the spa earlier that day with the child, and later the child who was left unattended, returned to the spa and then drowned.
- 4. Specify who had taken the victim into the spa, and whether the child was left unattended in, or in the vicinity of the spa.
- 5. Describe any safety precautions that had been taken previously by the parents to prevent an accident from occurring, and whether the parents had been made aware of the inherent danger.

C. Description of Product

1. Provide manufacturer name and model (number) of hot tub/spa and include any literature, manufacturers instructions, and sales brochures that may be available.
2. Describe any labels or warnings on the hot tub/spa and give their location. Take photographs of all labels on unit.
3. Describe whether the materials of construction of the hot tub/spa was:
  - a) wood,
  - b) fiberglass
  - c) concrete, or
  - d) any other material (identify).
4. Indicate whether the tub was located:
  - a) indoors
  - b) outdoors
  - c) in the ground
  - d) above ground,
  - e) other location (describe).
5. Indicate the temperature of the water at the time of the accident.
6. Check thermostat setting (at this time), and if possible, measure water temperature with an accurate laboratory thermometer.
7. Indicate thermostat setting at this time of the accident.
8. Determine how the thermostat was set, when and by whom.
9. Indicate whether the thermostat has a safety lock mechanism for water temperature setting.
10. List manufacturer name and model (number) of thermostat.
11. Indicate whether the heater had an automatic overheating shut-off system. If a shut-off system was present, advise manufacturer, model number and location of system.
12. Specify the tub's capacity (in gallons) and signify whether it was full.
13. Measure the hot tub/spa from the deepest point to the top edge and indicate the depth.

14. It is of great importance to show the number of drain outlets and their condition (clear or clogged).
15. Specify if the unit was wired directly into the circuit, or was a plug-in type, and whether it was properly grounded.
16. List wire size, wire material, and voltage of electrical circuit.
17. Specify size, type and manufacturer of over-current protection device (fuse or circuit breakers).
18. Determine whether branch circuit overcurrent protective device operated to turn off the current at time of accident.
19. Indicate if a ground fault circuit interrupter (GFCI) was on the receptacle or current and whether it operated to shut off the current at the time of the accident. If it did not operate, indicate its age, manufacturer, model number and condition.
20. Describe and photograph outlet dimensions, grates and covers.
21. Indicate the flow rate of the filtering system (lbs. per second).
22. List manufacturer, model (number), age, and condition of filtering system.
23. Describe whether the hot tub/spa had a cover or lid (i.e., thermal blanket, wooden lid, other).
24. Specify whether the cover was in place at the time of the accident.
25. Illustrate under what circumstances the lid was used by the owner (regularly or rarely).
26. Explain whether a cover or lid was available as standard equipment, or an option, when the owner purchased the spa.

D. Description of Victim

1. Include victims age, height and weight, any stated or known health impairments (i.e., heart, blood pressure, respiratory or circulatory conditions, diabetes, etc.) Describe any physical handicaps the victim may have had that would have made it difficult to exit the spa unassisted.

2. Prior to, or while using the spa, describe whether the victim was:
  - a) using alcohol,
  - b) taking medication or drugs,
  - c) engaged in strenuous exercise,
  - d) fatigued.
  
3. Describe the victims reason(s) for using the spa (i.e., therapeutic, recreational, social, other) and advise:
  - a) length of time in water during this use (in minutes),
  - b) average use of spa in the average week.

E. Description of Environment

If indoors, describe room in which spa was located including dimensions and surrounding furnishings and probable temperature and humidity. For outdoor accidents provide description of location of spa and temperature and humidity at time of accident.

F. Other

No guidelines can cover all of the pertinent factors that may apply to any particular accident. Be sure to include an explanation of any such factors in your narrative, even if they have not been specifically mentioned in the guidelines.

II. Instructions for Photographing and/or Diagraming Accident Scene and Factors Related to the Accident Sequence

In order to better understand the accident scenario and circumstances surrounding the accident, it is important to photograph the following:

1. The spa, showing its location in the room or outdoors (all sides).
2. All of the labels (warning and other) that are located on the tub and the supporting equipment.
3. Thermostat-showing controls, labels, etc.
4. Filtering system (controls, labels, instructions, etc.)
5. Heating system (all sides, showing controls, labels, etc.)
6. Electrical supply (showing junction box, etc.)

Diagrams are useful to describe the victim's activities just prior to the accident. Use stick figures to illustrate victim's location and actions.



IV. Instructions for Obtaining Samples and Documents Related to the Investigation

Obtain copies of all operating manuals and other literature available on the hot tub and its accessories. Also forward any copies of insurance, rescue squad, police or fire department reports you may be able to obtain.