



# SWIMMING POOL ALARMS

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Commission

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# 1987 CPSC Staff Study

- Identified Problems
  - Didn't consistently alarm
  - False alarms

# 2000 CPSC Staff Study

## Evaluated the following:

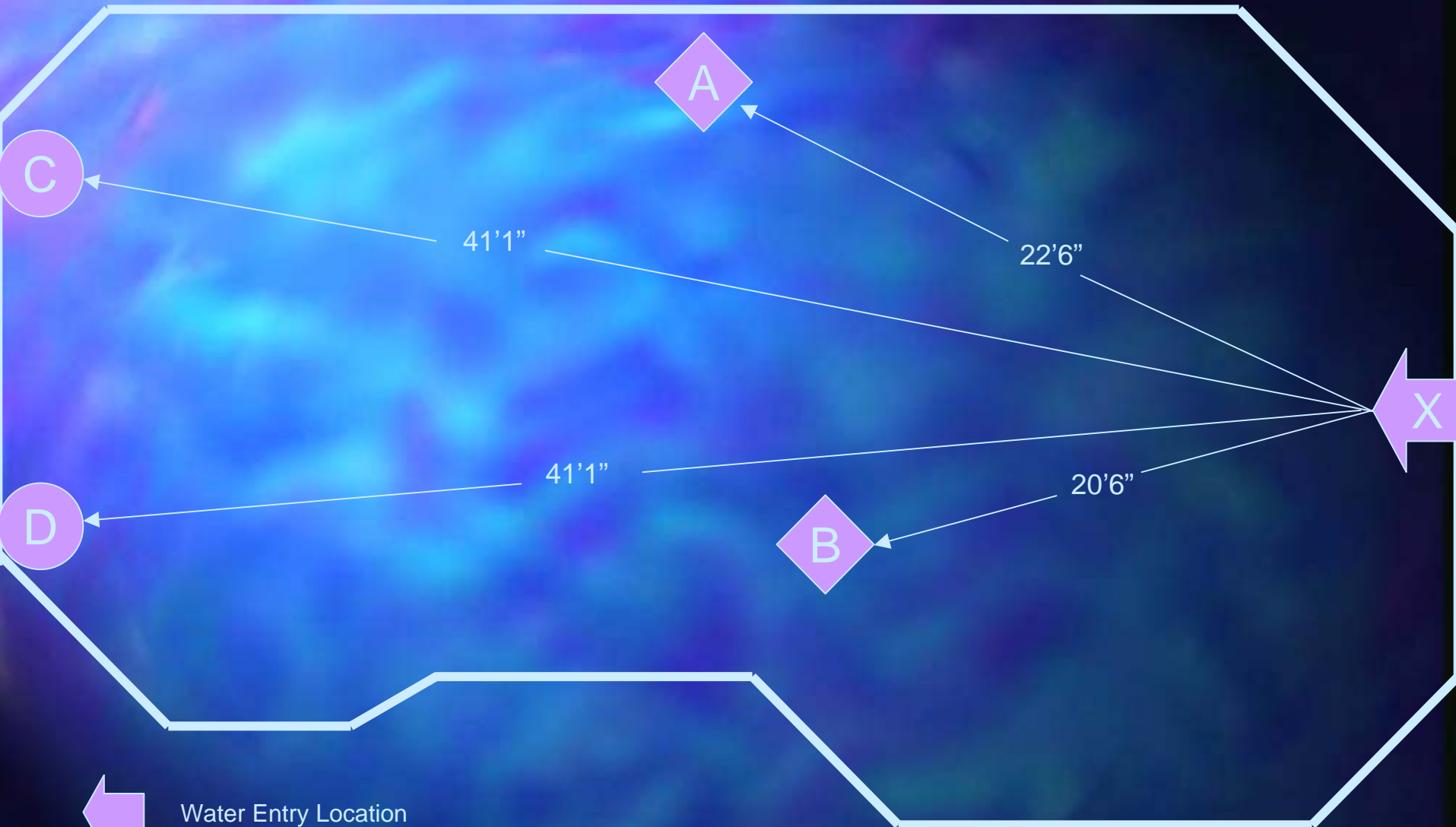
- Surface Wave Sensors
  - \$149 - \$200
- Subsurface Disturbance Alarms
  - \$190 - \$250
- Wristband Alarm
  - \$179

# Testing

- Followed manufacturer's instructions
  - Readability
  - Installation
- Examined different pool sizes and shapes
- Measured
  - Detection
  - False Alarms/No Alarm
  - Effects of Wind and Rain (simulated)

# Testing Protocol

- Simulated weight of child (16 & 24 lbs)
  - 2 and 3 gallon plastic water jugs
- Introduced weight at pool end
  - farthest location from subsurface sensors (mounted at poolside per instructions)
  - surface sensors mounted at pool center (per instructions)
- Timed response (allowed 2 minutes)



Water Entry Location

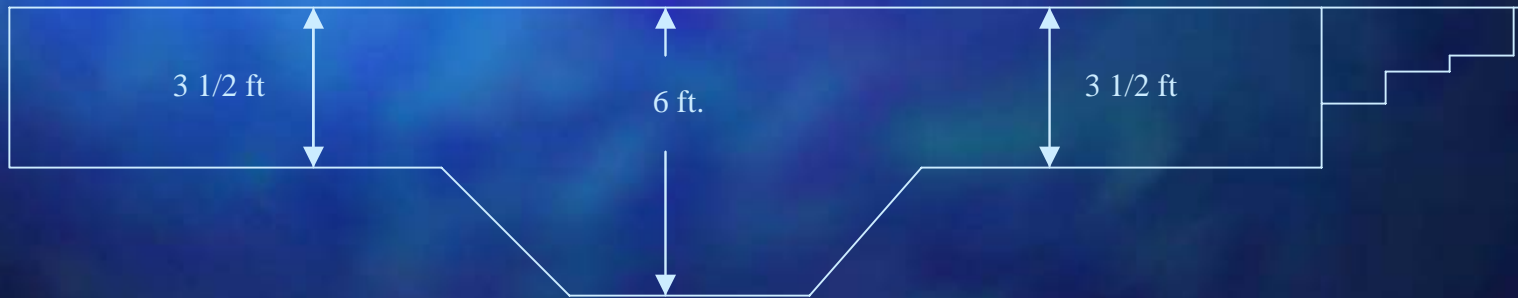
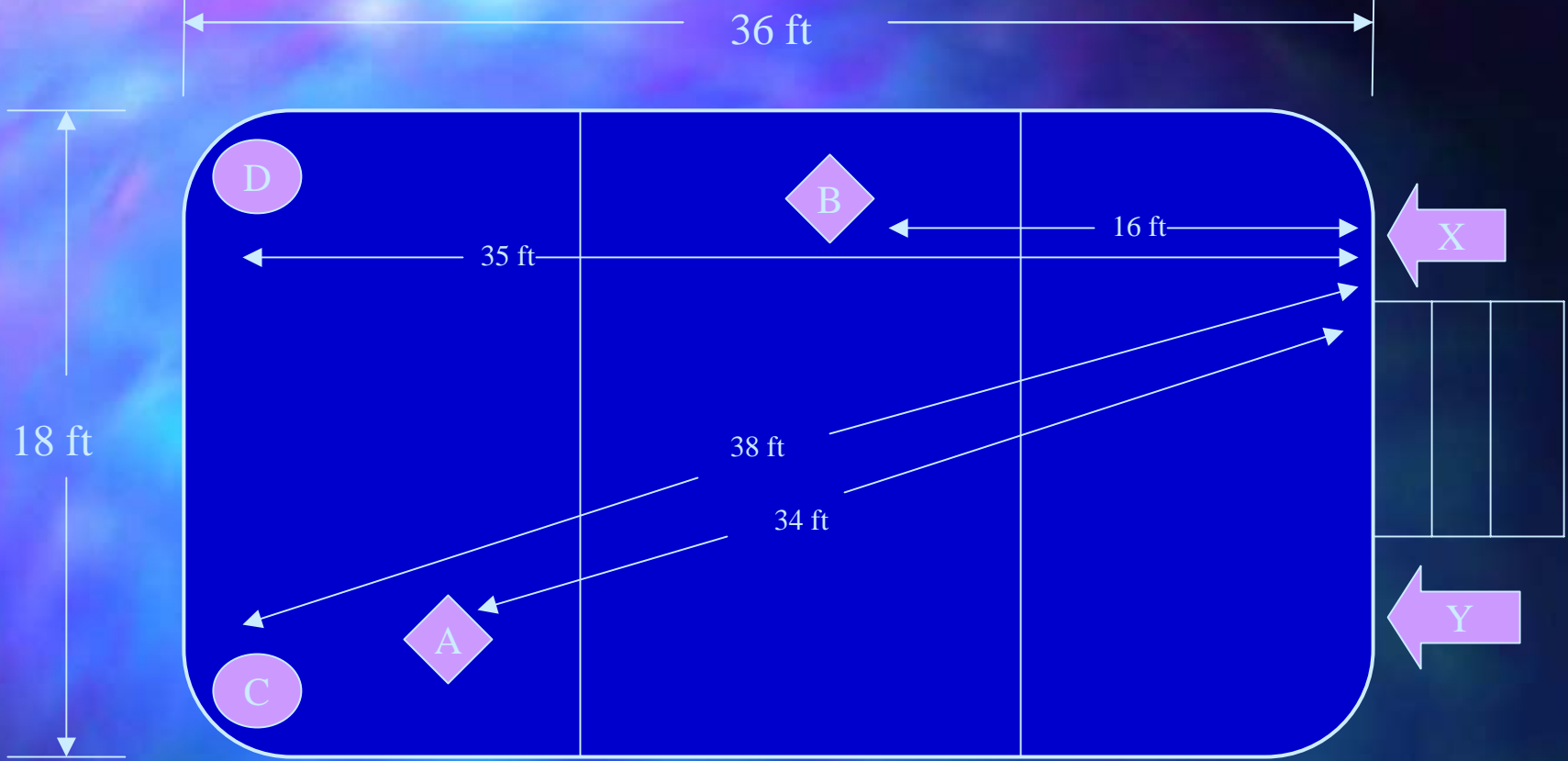


Surface Wave Sensors



Subsurface Wave Sensors

**Sensor Locations and Water Entry Point**



Sensor Locations and Water Entry Points

# Results

- Subsurface pool alarms generally performed better
  - More consistent in alarming
  - Less likely to false alarm
  - Can be used with solar covers
- Surface Alarms
  - More susceptible to water surface conditions
- Wristband
  - Alarms with any water contact

# Recommendations

- Pool Alarms can be a good additional layer of protection
- Not a substitute for supervision or for barrier completely surrounding pool
- Remote alarm feature important
- Wristband would need to be worn at all times
- Standard needed to set minimum performance requirements

# ASTM Standard

F2208-02

## Standard Specification for Pool Alarms

- General performance requirements
  - Alarm will sound at pool and remote location within 20 seconds of water entry
  - On/Off indication
  - Minimum alarm sound of 85 dB at 10 ft
  - Low Battery indicator (if battery powered)
  - Automatic reset

# Test Procedures

- Specify
  - Test pool size
  - Maximum water depth
  - Child Intrusion Simulator
  - Drop point and angle
  - False alarm test

# **CPSC Barrier Guidelines**

## **Door Alarms**

# UL Standard – 2017

## General-Purpose Signaling Devices and Systems

- Produce audible alarm when door is opened.
- Door in closed position, alarm is in monitoring mode without having to set/reset a switch.
- Audible alarm within 7 seconds of door opening.
- Sound for not less than 30 seconds.

# UL Standard – 2017

## General-Purpose Signaling Devices and Systems

Door Alarm Switches allowed

- Momentary Cancel
  - Cancel alarm if door closed, reset to monitor.
  - Re-cycled or no affect if door remains open.

# UL Standard – 2017

## General-Purpose Signaling Devices and Systems

Door Alarm Switches allowed

- Momentary Disable\* switch allowed.
  - Disable for not more than 15 seconds.

\* Required in many Building and Residential Codes and suggested in CPSC Barrier Guide

# UL Standard – 2017

## General-Purpose Signaling Devices and Systems

### Door Alarm Switch mounting

- Whether Cancel or Disable – Switch is to be mounted a minimum of 54 inches\* above the door threshold.

# CPSC Barrier Guidelines

## Layers of Protection

- Pool Alarms – Surface or Subsurface
  - Personal Alarm
- Door Alarms
  - Specified as an option where a building wall serves as part of the barrier

# CPSC Publications on Pool and Spa Safety

- Available through;
  - Office of the Secretary
    - Email [info@cpsc.gov](mailto:info@cpsc.gov)
  - On-line at [www.cpsc.gov](http://www.cpsc.gov)
    - CPSC Publications or Library/FOIA