ULTRASONIC LIFEGUARD CORPORATION

EXECUTIVE SUMMARY

Ultrasonic Lifeguard Corporation (ULC) has been formed exclusively to develop, produce, and distribute a product group aimed at the swimming pool security and water safety needs of North America.

The company has identified a specific void in the marketplace and a consumer demand for a technical solution to the nationwide concern about child safety near swimming pools. Principals of the company have interviewed media personnel, insurance industry executives, concerned citizens' groups, legislators, and consumer advocates to establish the range of support for the product concept. Approval has been unanimous.

There are over 3,000 serious immersion accidents and drownings of children under the age of five in residential, public, and hotel swimming pools in North America each year. To date, devices aimed at reducing these tragedies through an alarm system in unguarded pools have been lacking in technical design. ULC feels that their ultrasonic detection system is *the solution* and preliminary testing shows verification of an accurate means of identifying unintentional immersions of children, pets, and other materials in swimming pools.

ULC's first production model will operate off a low-voltage line and is affixed in a single corner of any square, rectangular, or L-shaped pool. Patent submissions are currently being prepared and both UL listing and CSA approval are expected before we proceed with distribution.

The technical product specification will be completed three months after conclusion of the phase one financing. In parallel, an external product design specialist has been retained to refine the housing design and cosmetic features of the product and its packaging. The entire configuration will displace less than 72 cubic inches and have no negative esthetic effect on the pool area.

ULC's marketing strategy during the next year will emerge in three steps. Initially, test units will be placed in totally controlled environments to develop consumer and institutional endorsements for its technical merit. After three months of testing, a specific city (likely Seattle) will be targeted as the test market center and 50 installations will be completed in interior and outdoor settings. Participation by at least two major hotel chains is expected at this time.

Assuming no technical delays, the product will be unveiled nationally at the annual gatherings of the American Hotel Association and California swimming pool industry trade show early next year.

The company is currently considering two alternate distribution strategies. First, we will undertake to establish our own product identification and a product line for distribution through an agency and wholesale network that supplies the pool maintenance industry. Second, we will consider component supply and/or product assembly for established manufacturers of industry products on an OEM basis.

Future models are expected to tie in to existing home alarm systems and others will eventually run off solar power.

The company has assessed its financial needs and expects to raise money through two development phases and a final entry into full-scale product assembly. The budget for the initial phase is $150,000 pegged for cash disbursement plus an estimated $100,000 of development input to be supplied by the principals.

At this stage the company has not formatted a specific investment structure and is interested in talking with professional investors with the resources to fund both development stages on a conditional basis. The initial commitment of $150,000 would be followed by an additional $250,000 infusion on the proviso that the company achieve its phase one development goals on budget.

Ultrasonic Lifeguard Corporation's management team consists of the three founders who collectively possess the technical and marketing talents and experience to achieve success in this venture. Personal profiles are provided in the body of the report.

The primary goal of this entity is to become a profitable company in its second year of operation and establish industry leadership in the swimming pool market niche known as "immersion surveillance." Our mission is to exercise prudent application of available funding to develop a unique, patent-protected product line and achieve mass distribution to the consumer market. The target retail price of the product is $279 U.S. and the target direct manufacturing cost at break-even levels is $30, based on current component prices.

THE COMPANY AND ITS PRODUCT

Ultrasonic Lifeguard Corporation is the proposed name of a new company, to be formed specifically to advance the technology applications which distinguish its prototype design of a unique swimming pool safety device. The company intends to establish an identity as the technology leader in child safety systems around residential swimming pools. Its formation has resulted from the combined efforts of the management group to define a viable means of meeting demand for a product that will protect pool areas from unauthorized and/or accidental entry when the pool is unattended.

Numerous forms of motion and sound detectors have emerged in the past 20 years aimed at solving this problem. However, all have operated within a tolerance range less than ideal for the task at hand. Either their operation is inconsistent across the total pool surface or the alarm sensitivities and indiscriminate trigger systems cause them to rapidly lose credibility with the owner. Most are based on surface or periphery surveillance and can be influenced by such factors as wind, twigs, and even heavy rain.

Other more sophisticated methods are technically plausible but at substantial product cost and installation complexity. The ULC Lifesaver One will operate on the principle of subsurface plane surveillance and will recognize all entry and submersion to the detection depth when the unit is activated. By isolating the sensory process to respond to items that "qualify" as possible child or pet entry into the pool, the system can eliminate the likelihood of false alarms. It is the application of ultrasonic wave technology under the control of a programmed microchip that forms the basis for this invention. Tied in to a low-voltage

transformer, the electrical aspects of the product will conform to all industry standards and certification needs.

The swimming pool servicing industry provides an ideal distribution environment for such a product in that an established installation and maintenance infrastructure is well entrenched in most communities. A secondary industry that will also find this an attractive add-on product is the growing home security system business.

A competitive survey of alternate products is currently being completed and will soon be available to interested parties. Preliminary investigation suggests that no suitable product has yet emerged that qualifies for endorsement by the numerous national and state organizations intent on minimizing child drownings in residential pools. Likewise, the insurance industry, anxious to provide incentives for the installation of such safety devices, has yet to applaud a product that meets the functional criteria to make it practical.

THE MARKETING PLAN

Currently, there are in the marketplace two basic types of pool security systems that are popular. Motion detecting, battery-operated systems like the Remington recognize wave action and respond with a built-in alarm or, on more expensive models (about $200 Cdn.), signal a remote alarm in the home. Perimeter systems, on the other hand, use infrared or ultrasonic detectors to recognize penetration of the pool perimeter by humans or animals. These systems require strategic placement of reflectors and can cost up to $500. There is no underwater sonic system currently available according to industry sources.

Industry marketing personnel identify three key factors in determining the likelihood of achieving large volume sales. Ease of installation is the most critical factor for "do-it-yourself" aftermarket installations. Adjustable sensitivities and alarm volumes are important and point-of-sale display packaging is also key.

The main consumer issue of easy installation dictates that the ideal system will be battery operated and the choice of increased product size to accommodate power source is preferable to the need for direct electrical connection. It is recommended that the system be able to monitor battery status and identify the need for a battery change by incorporating a remote receiver.

Distribution channels in the industry tend to take two forms. Some manufacturers use direct sales reps or territorial agents to sell directly to retailers. Others rely totally on distributors who stock and wholesale products within their regions. In Vancouver there are two distributors who both wholesale and retail product and one exclusive wholesaler who looks for a 20% to 25% gross margin on sales. A conversation with John Verschaer, Sales Manager of Aquaform, the largest western Canadian distributor, suggests that a $200 retail unit would be sold by them for $130 to $140 and they would expect to pay $105 to $115 from the manufacturer.

There are two major trade shows worth noting. The National Spa and Pool Show alternates between coasts and will next be held in Florida in November, 1989. The CanSpa show is held annually in Toronto at about the same time.

The following steps are required to assure development of a marketable product and reflect upon the ULC strategy for the next six months.

1. The aid of an experienced industry marketer should be enlisted to help establish a product specification.

2. Once the technical specification is set a product design specialist must be recruited to aid in the esthetic design.

3. One or two company managers should attend the Orlando show to assess the competitive environment and provide access to national distributors, manufacturers, and buyers.

4. Market analysis should be targeted at the industry wholesaler and retailer network to identify sales barriers and general impressions of the technology and its merit.

5. Competitive analysis will require a review of all systems in the marketplace, their method of distribution, packaging and pricing, installation process, alarm traits, esthetics, and corporate support.

A major factor supporting the market potential of immersion protection devices is the growing awareness of the child drowning issue. The U.S. Consumer Product Safety Commission in Washington has made the reduction of child drownings a priority project. In sunbelt states like California, Arizona, and Florida, drowning is the leading cause of accidental death for small children. They liken the scope of the problem to child poisoning before enactment of the Poison Prevention Packaging Act of 1970. In conjunction with the National Spa and Pool Institute, the Safety Commission has undertaken to advance pool safety nationwide and has indicated a strong desire to encourage more effective pool alarm systems.

Commission studies reveal that the major problems they face involve:

(a) the impossible task of fully securing a backyard pool with a fence and gate perimeter;

(b) the speed and *silence* with which a submersion and drowning may occur;

(c) that adults are commonly nearby but unaware of the accident when it occurs.

There were 2.2 million in-ground pools in the United States (average cost range $8,300 to $29,700) in 1986 and 2.3 million above-ground pools (average cost range $600 to $3,200). Submersion accidents in these pools had a social economic cost estimated at $450 million to $600 million in 1983. The number of deaths for children under five has grown alarmingly (260 in 1984, 280 in 1985, 330 in 1986).

The commission sponsored testing of four alarm detection systems under restricted disclosure and concluded that "although they generally performed in accordance with the manufacturer's literature, significant problems with false alarms and/or failure to alarm were encountered during testing of each of the devices...the commission staff does not consider the devices tested as capable of providing completely reliable warnings."

This commission has expressed a keen interest in any new sensory technology applications that will reduce child drowning and is currently reviewing the feasibility of alternate technologies.

MARKETING STRATEGY

The company believes that its state-of-the-art technology will quickly make it the industry leader in the field of immersion surveillance. In this role, it will face a major marketing decision regarding licensing of its technology versus exclusive product distribution of its own models.

At this stage, the first priority is to establish in-house commercial product and prove market demand. Only by totally controlling the emergence of the technology can we maximize the corporate potential at this time. However, we will give serious consideration to licensing the technology to major brand name manufacturers (e.g., Black & Decker, Jacuzzi) and supply of components on an OEM basis. In this way, we can pursue total industry dominance for the foreseeable future.

The company recognizes that its product falls into a niche between two well-established industries: recreational swimming pool amenities and the residential alarm and security business. As such, the high end of the market provides the opportunity to create zero maintenance optional components for both of these industry channels to market to new pool contractors and residential security system sales and installation companies.

As a part of its marketing strategy, the company will attempt to work closely with the regional directors of the Consumer Product Safety Commission (CPSC) and other related safety interest groups to gain product endorsement. There is currently a growing fight between the CPSC and pool contractors as the government body is lobbying strongly for all pools to be fenced and secured as a part of standard building codes. This is being fought strenuously by the industry based on both economic and esthetic rationale. A logical compromise may be mutual agreement on a fail-safe pool intrusion alarm. Such a move would parallel the inclusion of smoke alarms in new home construction.

The three primary consumer motivations for purchase of a pool intrusion alarm are —

(a) child safety

(b) security from unauthorized pool use

(c) pet safety

The company will target to achieve 20% market penetration on the in-ground pool market and 5% of above-ground pools within five years through direct manufacturing and distribution of its own in-house product line and expects that this will equal one-third of all ultrasonic immersion surveillance systems installed by 1995. In addition, to promote wide industry acceptance of this technology as the industry standard, the company will license established manufacturer/distributors to market brand name replicas of the ULC product line and supply key technical components along with licensing rights. It expects to net $20 per unit supplying components to three brand name assemblers encouraged to enter the market and secure licensing fees and royalties from these plus a major security system manufacturer who will wish to incorporate the technology into more far-reaching systems. Based on an assumed average retail price of $220, the following table summarizes the net revenue stream expected from three distinct groups. The table is based on the following assumptions:

(a) By 1994, 28% of the projected 6 million pools in the United States (currently 4.5 million) will have ultrasonic surveillance systems to monitor unauthorized pool intrusion.

(b) This translates to total sales of 1,400,000 units within the industry.

(c) Technology users will include three medium-size licensed assemblers who will start selling in 1991, 1992, and 1993 respectively and will buy components from ULC. Jointly they will sell over 300,000 units through 1994.

(d) A major licensee will pay a front-end fee with minimum sales guarantees to license the technology and manufacture its own system in house. ULC will derive a royalty of $10 per unit sold from manufacturers and assemblers.

At this stage of market analysis, the above target projection cannot be justified by market studies. The critical element to gain wide acceptance of the technology will be prototype performance. Based on such performance and the known mood of the industry and many consumer lobbyists toward child safety, the described strategy is simply a starting point to define the economic potential of the ultrasonic pool surveillance system.

The company has not yet analyzed the full potential of the spa market for a similar intrusion unit. While hot tubs and spas are often governed by the same building codes and bylaws, they are not generally perceived as having the same hazard level as pools. With their growing popularity and a number of recorded child drownings, this perception could change and/or consumer safety groups could soon place more emphasis on the need for spa security. Ultimately, then, a more compact version of the Lifeguard One could become a lucrative product spinoff to satisfy this market.

The following table summarizes the number of projected unit sales in the first five years that the technology is available to the marketplace.

PROJECTED ULTRASONIC POOL INTRUSION ALARM SALES OVER A FIVE-YEAR PERIOD BY ALL LICENSED MANUFACTURER/DISTRIBUTORS ($)

MARKETER	1990	1991	1992	1993	1994
Ultrasonic Lifeguard Corporation	5,000	20,000	100,000	200,000	360,000
Licensed assembler/ Distributors (3)		5,000	25,000	100,000	200,000
Licensed manufacturer			10,000	100,000	250,000
Total unit sales (1.4 million)	5,000	25,000	135,000	400,000	810,000

REVENUES ATTRIBUTABLE TO ABOVE UNIT PLACEMENTS
(Figures shown in $000s)

MARKETER	1990	1991	1992	1993	1994
ULC direct @ $120/unit	600	2,400	12,000	24,000	43,200
Assemblers—					
Components (net)		100	500	2,000	4,000
License fee		100	100	100	
Royalty		50	250	1,000	2,000
Manufacturer					
License fee			500		
Royalty			100	1,000	2,500
Total revenues	600	2,650	13,450	28,100	51,700

THE FINANCIAL PLAN

ULC has estimated its financial needs on the basis of three major levels of investment risk and, as a result, are determined to enlist funding support in three stages over the next 24 months. Ideally, the first stage financial partner will have the capability of funding the second stage, preparation for the initial product run in mid-1990. The full funding third stage will be tied to initial full-scale production in 1991 and the expected major expansion in 1992. To place our financial plan in perspective, we offer the following overview of requirements and expected achievements during the three phases of equity financing.

1) Stage One funding will allow the founders to present a complete technical prototype and five production prototypes of the Lifeguard One pool intrusion alarm. It will allow ULC marketing to arrange key demonstration and test sites for the prototypes and initiate talks with major regional distributors. It will provide the means of getting product certification from Underwriter Laboratories and, ideally, the endorsement of the Consumer Product Safety Commission. A full production strategy will evolve during this phase.

The estimated time frame is nine months from funding to achieve these goals and prepare for the initial production run. Total budget is set at $150,000. The major uncontrollable element is the time required to gain certification before embarking on the second stage. Allocation of the $150,000 may be summarized as follows:

Development equipment	$11,000
Computer and software	5,000
Telephone	2,000
Development retainer	12,000
Production engineer	8,000

UL listing (including travel)	$6,000
Government interaction	5,000
Retainer — S. Starnes	9,000
Market development	8,000
Retainer — R. Touchie	9,000
Creation of five beta units	10,000
Product field testing	10,000
General administrative expense	5,000
Production coordination	15,000
Trade show preparation	10,000
Unallocated funds	25,000
	$150,000

2) Stage Two is expected to have a financial need of $450,000 and will include the initial production and distribution of 1,000 units with focus exclusively in west coast states. Realistically, the company can expect minor product modifications as a result of early installations and wishes to concentrate all sales within a manageable territory for a small company. All sales support services, operational processes, and staff training will be aimed at developing a national distribution network in the last half of this nine-month phase. A second placement of 1,000 units is expected in the second half of this phase as the company prepares for full-scale national distribution. Estimated cash needs for this second segment of the first phase are $350,000 and this is illustrated as the opening cash position in Table 1 at the beginning of the actual manufacturing process. Production and assembly of YR1 units will be completed in the Pacific Northwest while plans are made to determine the most cost-effective mass production point for ensuing units.

3) Stage Three will focus on production planning and marketing as well as the development of new product models. The company expects to gear up to handle monthly volumes growing from 2,000 to 30,000 units over the first three years of full production. There are numerous alternative strategies that may be employed at this point. They range from startup of a U.S.-based production facility to off-shore manufacturing to acquisition of a complementary company with well-established distribution and production operations. All financial strategy related to these options will be developed with the company's financial partner. The projected cash need of $1,000,000 is based on renting an interim assembly facility to meet 1992 production needs.

Once the product line is established, a further $2,000,000 will be required to meet product demand and establish an effective corporate operational base in the ideal geographic location. This may prove to be a logical time for the company to pursue institutional or public investment as profitability and management performance will be established. Also it would allow for early investors to have a means of equity liquidation. Beyond this point, it is expected that ongoing financing can be provided through retained earnings and debt financing as required.

It is management's opinion that the long-term success of this venture is totally dependent on the successful design and introduction of the product in the first two phases. Income forecasts beyond 1992 depend on adequate and timely funding for product and market development.

CORPORATE INCOME FORECASTS

The following forecasts are provided to demonstrate the economic incentives that have attracted management to this development project. THE COMPANY MAKES NO REPRESENTATION THAT THE PROJECTIONS WILL BE ACHIEVED OR THAT THE ASSUMPTIONS ON WHICH THEY ARE BASED WILL REMAIN CONSTANT.

Table 1 is a Corporate Five-year Financial Forecast and isolates corporate operating profit from its internal production process as well as the expected development of revenues from industry members licensed to market products using patented ULC technology. Because investment tax credits and research and development tax credits will vary with the source of financing, their implications have been omitted from the projections and will be discussed individually with interested parties.

Table 2 provides a summary of the projected production and marketing budgets to achieve target revenue goals.

Management wishes to emphasize that a part of the start-up procedure for this company will be the creation of detailed cost accounting systems and report creation. This will enable us not only to oversee day-to-day activity, but will provide an effective communication base for our financial partner.

The company plans to review and update its financial forecasts at the end of Phase One and Phase Two and will provide regular financial data to the Board of Directors. It is intended that the senior financial partner will be a member of the board.

TABLE 1
ULTRASONIC LIFEGUARD CORPORATION
CORPORATE PROFIT AND CASH FLOW FORECASTS
(Figures shown in $000s)

	YR1	YR2	YR3	YR4	YR5
Operating profit —					
Direct production	30	312	3,300	8,160	17,880
License fees/royalties	-	250	1,450	4,100	8,500
Gross operating profit	30	560	4,750	12,260	26,380
Corporate overhead	150	300	450	750	1,200
Net operating profit	(120)	260	4,300	11,510	25,180
	YR1	YR2	YR3	YR4	YR5
Opening cash position*	350	1,010	2,480	2,720	7,760
Operating cash —					
Net outflow	100				
Net inflow		50	2,600	8,000	20,000
Application to-					
Product development	120	240	360	480	600
Market development *	120	240	360	480	600
Closing cash position	10	480	4,320	9,760	26,560
Additional cash needs (investment)	1,000	2,000	(1,600)	(2,000)	

* Opening cash position assumes the infusion of Phase One and Phase Two of Development of $600,000 prior to the generation of revenue in the first year of sales (1990). The company isolates its investment in product and market development as non-operating cash outflow so as to accurately measure the efficiency of operating profit centers.

Only payback of original investment is illustrated and excess cash applications will depend on dividend policy and existing expansion opportunities for the company. The variation in profit and cash flow is based on the expected asset build-up and its related cash requirements.

TABLE 2
DIRECT MANUFACTURING AND SALES
(Figures shown in $000s)

	YR1	YR2	YR3	YR4	YR5
Revenue	600	2,400	12,000	24,000	43,000
Cost of goods sold:					
Materials & labor	150	600	3,000	6,000	10,800
Direct sales	90	360	1,800	3,600	6,480
Gross profit	360	1,690	8,650	18,500	34,420
Manufacturing overhead	120	432	1,800	2,880	3,288
Marketing overhead	150	480	1,200	1,920	2,592
Operations administration	60	216	900	1,440	2,160
Total fixed costs*	330	1,128	3,900	6,240	8,040
Operating profit	30	462	4,750	12,260	28,380

* Direct materials are projected at 25% of wholesale price and direct marketing commissions and costs are estimated at 15%.

Overheads will decline to 15.5% of product revenues in the fifth year. Economies of scale will lead to percentage reductions in all three overhead areas as the company grows: manufacturing falls from 20% to 9% over five years, marketing from 25% to 6%, administration from 10% to 5%.

These projections assume that the company will subcontract most component production and function primarily as an assembly facility and distribution center for North America.

While corporate policy will include a steady growth of product and market development activity, the revenue projections do not include any spinoff products which might result from this effort. Only revenues related to the assumed penetration of the pool alarm market are included in these estimates. It is expected that by the third operating year the company will invest in its own assembly plant, likely in a sunbelt state.

THE TEAM

The three founders of ULC offer a combined experience and knowledge base appropriate to the founding of the company. Their complementary backgrounds will serve the company's general management, product development, and sales management requirements during its first two years of operation. Support management in the manufacturing and administrative areas will be added as required. The general manager is well versed in recruiting and administering the human resource needs of development companies.

The company's product development force is Robert L. Mills, formerly with IBM and then one of Lockheed Missile's most decorated electronic technicians over a 10-year period. At Lockheed, Mr. Mill's inventive capacity was renowned as he received 135 separate

Engineering Excellence Awards during his employment (four times more than any other Lockheed engineer had ever accomplished). For the past 20 years, Bob Mills has been an independent design consultant with a unique knowledge base covering many aspects of electronics and physics. He has designed and invented numerous components for everything from missiles to swimming pool computerized filtering systems.

Elaine Tanner, a former Olympic swimmer, is an energetic entrepreneur with a proven sales record and established credentials as a profit-maker. She is the company's main liaison with regulatory bodies and has developed an international network of production and distribution channels while operating as an importer/exporter during the last eight years. Ms. Tanner will lead the company's sales effort.

General management is in the hands of Rodger Touchie, B.Comm. (Finance), MBA (Marketing), with 20 years of related experience and a history of successful team management in technology and development companies. Mr. Touchie's balanced expertise in the financial and marketing areas allows the company to minimize executive overheads as we define both our marketing strategies and operational cost controls.

The company's internal team is supplemented by external professional services including a national firm of patent attorneys, an established production design consultant, and pending two individuals currently employed as senior sales staff in the swimming pool industry.

With the investment process the company hopes to add to its board of directors two experienced business professionals who can play an active role in defining long-term corporate goals.

The names and detailed backgrounds of the above personnel are available to potential investors on a confidential basis.

CONCLUSION

Approximately 15 months ago, 20/20, the highly successful TV news show, aired a 15-minute segment showing the horrible reality of child drowning. In June 1989, it was repeated with an update and the comment that they would likely air their concerns at the beginning of every summer for the next decade. In the field of immersion alarm systems, they had nothing new to report in 1989.

Taking a technical product from the conceptual stage to the production stage is often fraught with peril. However, while we do not wish to understate the inherent investment risk of this venture, there are some aspects to this project that are unique. All of the technologies to be integrated in the design are well tested and offer minimal technical uncertainty. Until the company's patent application was made, no individual had integrated these electronic elements and applied them to this field. Ultrasonic depth sounders, infrared detectors, motion sensors all have their place, but in terms of guarding a swimming pool from unwanted entry, the company's product design stands well above all other known options.

Ultrasonic's management team is confident that, with proper investment support, we can deliver a quality product that is both socially redeemable and full of profit potential.