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SUMMARY

"To make swimming pools healthier, safer, more sustainable and energy efficient"

- AQUALITY TECHNOLOGIES has developed a highly innovative and effective method and device to measure the quality of air and water of covered swimming pools continuously and in real-time.
- For the first time ever, swimming pools around the world will be able to monitor air quality in real-time as opposed to sporadic measurements, which proved to be insufficient given the high variability of air quality.
- The newly proposed methods and device (patents pending) are likely to become a standard for public health and safety. The first device will measure trichloramine (the most important chlorine disinfection by-product)
- One of the largest aquatic leisure parks in Belgium has just signed our offer to acquire a first stationary beta prototype instrument.
- The device is going to be connected to the heating, ventilation and air conditioning (HVAC) and water treatment systems of the pool to achieve higher effectivity, and aims to provide substantial energy savings.
- The commercial activities started in Belgium in 2019 and should quickly spread to other markets in Europe and in North America.
- The worldwide swimming pool market for these devices has an estimated value of € 600 M (165 000 pools)
 60 % in Europe and in North America)
- Turnover and EBITDA are expected to reach € 14.5 M and € 5.4 M, respectively, over the coming years (see figures hereunder)
- The financial needs for the company operation for the first 6 months will amount to € 250 000 in equity
- The € 250k investment round starts on December 15, 2019 and is set to close by the February 29, 2020

BUSINESS PROPOSAL

The problem and the AQUALITY TECHNOLOGIES' solution

• <u>The problem:</u>

Trichloramine is a volatile, irritant compound of penetrating odor, which is found as a disinfection by-product in the air of chlorinated indoor swimming pools from reactions of nitrogenous compounds with chlorine. Trichloramine is harmful to humans and corrodes metals in the pool atmosphere. At already low levels (legal limit 0.1 ppm) it strongly irritates mucous membranes and is linked to the development of both occupational asthma and pre-school asthma onset with children. Trichloramine can be recognized as the typical "chlorine" smell in swimming pools.

Actors of the public pool market are actively looking for continuous and sensitive means to follow the concentration of trichloramine in the air. Their goal is to ensure the well-being of the swimmers and bathers (public health), provide the swimming pool staff with a safe working environment (occupational health), reduce energy bills (efficient ventilation and heating), improve the cost of ownership of the pools (longevity) and ensure compliance with legislation (legal limits in place already in several countries).

The current standard measurement approach requires a 2-hour sampling period at the pool and subsequent analysis at an off-site laboratory (M. Héry *et al.* - 1994, INRS, France)

Trichloramine irritates the eyes, throat and upper airways. Currently, pool technicians, once they feel high levels of trichloramine in the air, have no other option than to increase the rate of ventilation manually (including opening doors and windows).

• <u>The proposed solution:</u>

The initial devices developed by AQUALITY TECHNOLOGIES will be marketed in 2 different versions. The first one, a portable trichloramine "trouble shooting" device will enable to carry out air (and water) quality audits and advertise the technology; the other version will be stationary - connected or integrated in the HVAC and / or water treatment systems of the pools.

The underlying technology of the devices is near-infrared cavity ring-down laser spectroscopy coupled with an innovative (patent pending) derivatization step.

The laser spectroscopic approach has been developed in the 90s and subsequently proved itself in industrial environments for gas analysis of some small molecules (N_2O , NF_3 , H_2S ...). Thanks to innovative sampling approaches, AQUALITY TECHNOLOGIES is capable of measuring from air and from liquid matrices (water, beverages...). A wider range of chemical compounds (including trichloramine) can now be measured.

Additional versions under development will also become multispecies - to allow the detection of other chlorine disinfection by-products: chloroform and cyanogen chloride. There are strong indications that these compounds will be also regulated in the future (INRS, France).

More than 15 measurement campaigns have been successfully carried out in public pools and aquatic centers (Belgium, Sweden, USA). They have shown that the Beta prototype reliably measures trichloramine in air *in-situ*, continuously and in real-time.

The device prototypes have been successfully developed. The further industrialization and production of the commercial devices will be outsourced to an established Belgian custom manufacturer based on specifications supplied by AQUALITY TECHNOLOGIES. The first 20 commercial units will be available in the course of 2021.

Beta prototypes are being sold to early adopters until the delivery of the commercial devices by our external custom manufacturer.

Relevant use cases:

- Portable device on the pool deck,
- Stationary device installed in the technical room of the pool with real-time connection to the ventilation system
- Stationary device with real-time connection to the water treatment system (air stripping, UV treatment...)

AQUALITY TECHNOLOGIES will also offer fee for service auditing/measurement contracts.

<u>Market size</u>

- The number of EU 28 swimming pools (publicly and privately-owned indoor pools open to the public) is estimated at 55 000 (projections from EUSA, European Union of Swimming Pool and Spa Associations, statistics 2013). We evaluate the market to be of similar size in North America and the in rest of the world (South America, Asia and Oceania).
- The estimated annual value of the global market for such analytical devices is € 600 M.

COMPETITION

- Trichloramine concentration in the air of swimming pools can be measured by the standard method developed by M. Héry *et al.* (1994, INRS, France). It requires 2-hour air sampling at the poolside followed by the analysis carried out at an off-site laboratory, typically using ion chromatography. It provides the average concentration but only limited to the sampled period
- Other solutions commercialized by two French companies, Ethera and Syclope Electronique enable the analysis to be done at the poolside. These solutions are labor intensive and also <u>not continuous</u> (average concentration over the sampled period).
- Ethera (in collaboration with Dalkia (Fr)) and Engie Cofely (Fr) are currently developing continuous devices. These devices are prone to interference and require a significantly longer period to take

one measurement. This greatly hinders their potential to be used for control of the HVAC system of the pool. Additionally, these devices will not enable measurement of other harmful disinfection by-products and will only enable air analysis (in contrast to air and water analysis).

AQUALITY TECHNOLOGIES' spectroscopic technique is relatively difficult to develop. Two pending
patents protect its innovative approach. The first extends the type of matrices that can be analyzed
(from air to water and other liquid matrices). The second covers the chemical derivatization step
to allow measuring trichloramine (specific impregnated filters to reduce trichloramine to be readily
measurable by laser spectroscopy).

PRODUCTION

• The industrialization and manufacturing of the commercial devices is currently entrusted (negotiation to be finalized) to an established Belgian company that designs and produces custom precision optical systems.

SWOT analysis

Strengths

- The devices will be a major breakthrough in swimming pool health hazard prevention for bathers, swimmers, lifeguards and staff
- The measurement approach is based on proven technology in industrial environments, not easy to copy and strengthened by two patent pending innovations
- The portable and stationary devices enable first ever continuous air and water measurements for very accurate and exhaustive analysis at ppb µg/m³ level
- Complementary, multi-skilled and experienced team 100% dedicated to the company

<u>Weaknesses</u>

- Validation of the devices to be finalized: testing campaigns with the Beta prototype in parallel with the standard method (Héry *et al.*) and various mass spectrometers at swimming pools are ongoing.
- Part of the potential buyers are public/semi-public pool owners with moderate financial resources. The sale effort will have to focus first on early adopters, such as privately-owned pools, aquatic leisure, fitness centers (e.g. Aqualibi, Center Parcs, Aspria, Virgin Active...) and certified analytical labs.
- The Beta prototype is still to be industrialized. The risk is mitigated by outsourcing to a trustworthy Belgium-based partner, active in the field of manufacturing custom precision optical devices.

Opportunities

- Beyond the swimming pool market, the same technological platform will enable to develop and commercialize innovative analytical devices capable of measuring multiple chemical species for multiple industrial applications (chemical, agro-food and beverages, water treatment, environment...) at low further development cost.
- In the swimming pool market like in the other markets of interest, regulations will become more stringent. Continuous control will become compulsory and become the most cost-efficient solution.

<u>Threats</u>

• Even if important players in the pool market are developing improved trichloramine measurement solutions, the underlying technologies of these solutions will not be competitive because of the lower frequency of measurement hindering their effective use with the HVAC pool systems.

AQUALITY TECHNOLOGIES estimates that its competitive advantage edge is around 3 years. This time edge will be used to move to the next generation of device enabling multispecies analysis.

- The pace of development of AQUALITY TECHNOLOGIES will be key to keep the lead on the competition.
- The swimming pool equipment market is rather fragmented between different stakeholders
- The timeline to get new regulations of chlorine disinfection by-products approved and implemented is still undefined.

GOVERNANCE

Management

- Tomas Foldes, CTO, Science and Technology, Intellectual Property and Manufacturing
 - Inventor of the above mentioned two patents
 - o 2009 PhD in plasma physics
 - \circ Tomas is a specialist in the measurement technology used and inventor of two patents.
 - In the past ten years he has built and operated seven cavity ring-down / cavity enhanced spectrometers successively at the Comenius University (Bratislava), at the École Polytechnique (Palaiseau), at the UJF (Grenoble), at the VU (Amsterdam) and the ULB (Brussels).

- Jean-Luc Henrioul, CEO, Business and Corporate Development, Finance and Administration
 - Bio-Engineer, Gembloux university, 1986
 - 30 years of experience in high-tech, biotech and Life sciences industries in multinational environments (12 years of residency abroad)
 - Last 15 years as Business & Corporate Development freelance consultant to start-up companies
 - Bio-entrepreneur, co-founder and CEO, Root Lines Technology now SAMABRIVA, Amiens, Fr, 2011-2014

Board and External Consultants

- The Board of Directors is not yet completed. Besides the CEO, the CTO, and representatives from the main investors, the Board will be composed of members with specific and relevant expertise (markets, science and technology, manufacturing...) Discussions are on-going and update will shortly follow
- External consultants, industry veterans in specific markets will also be called upon for their expertise

DEVELOPMENT PERSPECTIVES

- AQUALITY TECHNOLOGIES offers an exciting prospective return for investors over a period of 5 to 7 years. The company should at least double its turnover every year in the first years of activities. (see the table below)
- AQUALITY TECHNOLOGIES will be expanding in the next 3 to 5 years by organic growth mainly by launching analytical devices to cater for unmet measurement needs in the swimming pool market worldwide.
- The growth of the activities during this period will be fueled by turnover (above € 14 M in year 5)
- The funding of the company will materialize in 3 steps:
 - The first round in the wake of company incorporation between December 15, 2019 to February 29, 2020 (€ 250 000) to cover the initial 6 months of activity,
 - 2. A second mid-2020 (€ 700 000 in equity and € 500 000 of non-dilutive funds) to cover the following 18 months of activity
 - 3. A third financing round is scheduled in 2021 for another € 700 000 in equity and € 500 000 of non-dilutive funds.
- The capital from the first financial round will be used to kick-off the sales activities of beta prototypes and fee for service measurement audits.

- The funds raised from the second round will be used to industrialize the trichloramine analysis device and manufacture the first 20 commercial units. They will also cover the initial sales costs of the commercial devices in the swimming pool market in Europe.
- The third financial round to take place in the course of 2021 will serve as a springboard to further develop the swimming pool product portfolio (multispecies analytical devices), to expand sales outside Europe (mainly in the USA). It will also help start a process of product / market expansion beyond the swimming pool market, such as the agro-food, water treatment, indoor air quality/environment, microelectronics, chemical industry... This process of products and markets expansions should exponentially boost the value of the company.

(€)	Year 1	Year 2	Year 3	Year 4	Year 5
Turnover	197.000	834.000	4.107.500	8.712.500	14.497.500
Costs	842.445	1.166.295	3.802.500	6.695.600	10.373.940
Variations des Stocks	0	72.000	170.682	141.478	1.254.206
EBITDA	-645.445	-260.295	475.682	2.158.378	5.377.766
<u>% EBITDA/Turnover</u>			12%	25%	37%

KEY FINANCIAL FIGURES

INVESTMENT OFFER

- AQUALITY TECHNOLOGIES was incorporated in Brussels, Belgium, on October 22, 2019 as an SRL. The initial capital amounts to € 25 000.
- There are three shareholders: the Université Libre de Bruxelles, (ULB), ULB through Theodorus SCA (80% shareholding), Tomas Foldes, CTO (14%) and Jean-Luc Henrioul, CEO (6.%). Tomas Foldes and Jean-Luc Henrioul will trigger their option to increase their shareholding to 80% leaving the ULB with 20% shareholding prior to the execution of the first capital increase with external investors.
- The objective of the ULB is to progressively decrease its shareholding (to less than 10% shareholding)
- From December 15, 2019 to February 29, 2020, business angels, family offices, private investors, corporate funds and other companies will be invited to invest a total of € 250 000 (15%) of the share capital post capital increase.
- The pre-money value for the first capital increase is set to € 1.4 M.

- New shareholders investing € 100 000 or more will be offered a seat on the Board of Directors.
- The minimum entry ticket value per new shareholder is € 25 000 (1.5 %) of the share capital post capital increase.

EXIT FOR INVESTORS

• Exit for the investors will be after a period of 4 to 7 years through an IPO or more likely a full company acquisition by an industrial operator. Initial contacts have been made with SUEZ Water Technologies, Halma PLC and international funds.

SHAREHOLDER AGREEMENT

• A shareholder agreement with standard wording has been signed at incorporation between the ULB and the two co-founders and will be adapted with new third-party investors following the subsequent capital increases.

SUMMARY OF KEY INVESTMENT FACTORS

- AQUALITY TECHNOLOGIES SRL has a well-developed R&D pipeline with a new technology to address the swimming pool market and beyond
- The company has secured a high technological edge for several years ahead
- The company is expected to grow fast in global and substantial markets
- There are two pending patents protecting the company's technological assets
- The measurement methods and device are likely to become a standard for public health and safety.
- The industrialization and the production upscaling of the analytical devices are well under control
- The management is multi-skilled and complementary
- The current valuation can be considered as low considering the huge development potential

LATEST DEVELOPMENTS

- Ongoing measurement trials at one aquatic leisure park in Belgium. The center is part of a larger group operating 24 sites in Western Europe (Belgium, Holland, Germany and France). The campaign may lead to the purchase of up to 10 devices within the next 2 years.
- Measurement trials successfully performed in Sweden in collaboration with a leading Danish swimming pool air-stripper and UV disinfection company considered as a future strategic partner for the Scandinavian countries.
- Two measurement campaigns have been conducted in September and November 2019 in collaboration with the Purdue University, West Lafayette, Indiana, USA, in 2 competition swimming pools. The campaign is linked to a nation-wide project aiming to define the first federal US guidelines regarding the technical and health management of swimming pools (Model Aquatic Health Code, MAHC). The MAHC is financed by the Centers for Disease Control and Prevention. (www.cdc.gov/mahc/index.html). This partnership ideally paves the way to a successful entry into the North American market within the next 24 to 36 months.

CONTACTS

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