# VERIFIGLOBAL NEWSLETTER



# Special Issue: TechConnect World Innovation

# Join VerifiGlobal and Southern Research at the TechConnect Conference & Expo Boston June 17-19, 2019

**The TechConnect World Innovation Conference & Expo** in Boston represents the world's largest gathering of commercialization-focused innovators from US agencies, laboratories, corporate technology developers, and start-ups. With attendees from over 40 countries supporting the development, commercialization, and manufacturing of new innovations, TechConnect brings together corporate executives, researchers, engineers, investors and program leaders committed to accelerating market deployment of innovative technologies.

**VerifiGlobal** and **Southern Research** are sharing a booth in the TechConnect Expo and, as part of the Conference, are convening a 90-minute Panel Session on the ISO 14034 Standard which will include industry-led case studies.

Reasons for participating at TechConnect 2019 include:

(a) Promoting awareness and encouraging broad adoption and use of the ISO 14034 ETV standard as a tool to assist both users and the developers of innovative solutions in addressing technical, environmental and socio-economic challenges via the provision of high quality data and ISO based measurement and verification;

(b) Helping accelerate market adoption of innovative, ecoefficient solutions across different markets in a comprehensive integrated way with global market reach;

(c) Highlighting the range of ISO 14034 services available to technology developers, technology users and investors interested in funding various clean technology verifications.

TechConnect WORLD INNOVATION CONFERENCE & EXPO BOSTON, MA

# **JUNE 2019**

#### Contents

TechConnect World Innovation-1-2

Cleantech Performance Assessment and Verification Workshop – 3

TechConnect Session on ISO 14034 - 4-5

ISO 14034 and Technology Readiness - 6-7

U.S. EPA Advanced Septic System Nitrogen Sensor Challenge – Latest Update – 8

MASSTC Joins VerifiGlobal - 9

Technology Company Profile – Hydro International – 10

Up-Flo® Filter with CPZ<sup>™</sup> Media – 10-11

VerifiGlobal Alliance General Assembly - 12

Forthcoming Events - 13

VerifiGlobal Alliance-14

TechConnect also includes an Innovation Showcase featuring innovative technology solutions that are ready for licensing, corporate partnering, or investment, which can be pitched to corporate science and technology prospectors.



#### VerifiGlobal and Southern Research are sponsors of this event

### Visit us at Booth #312

#### Join us for the following Conference sessions:

**Monday June 17 (10:30-12:00)** - *ISO 14034 Environmental Technology Verification (Presented by VerifiGlobal and Southern Research)* – This panel session will present the benefits of independent technology performance verification using innovative technology case studies (e.g., carbon utilization, nitrogen sensors and stormwater treatment).

Monday June 17 (13:30-16:00) - Pilot Scale Demonstration of Carbon Utilization Technologies for the NRG COSIA Carbon XPrize

Wednesday June 19 (13:30-15:00) - Stormwater Technology Performance Verification

#### Invitation to join us on Thursday June 20<sup>th</sup>, 09:30-14:00 for the Cleantech Performance Assessment and Verification Workshop at Battelle, Norwell MA

The objective of the workshop is to explore opportunities to generate interest and build momentum for the adoption and use of innovative technologies that have been independently verified in accordance with the ISO 14034 Standard. <u>*Please contact us if you would like to participate in the Workshop.*</u>

John Neate - VerifiGlobal	Tim A. Hansen - Southern Research
E: jhneate@verifiglobal.com	E: thansen@southernresearch.org
<b>()) © ۞</b> <b>Verifi</b> Global	SRA SOUTHERN RESEARCH VERIFIED.
VerifiGlobal reduces uncertainties and risks associated with innovative technologies, products and services. Through its international platform of technology performance testing organizations, VerifiGlobal provides ISO 14034 verification and other services that enable informed decisions, accelerating the market adoption of eco-efficient, sustainable solutions.	Southern Research (SR) is a non-profit, scientific research organization supporting the pharmaceutical, biotechnology, defense, aerospace, environmental, and energy industries. SR is a leader in independent evaluation of clean technologies, providing insight into the potential impacts, benefits and value of cleantech innovations.
verifiglobal.com	southernresearch.org

#### Cleantech Performance Assessment and Verification Workshop at Battelle (Norwell MA) June 20, 2019

A number of side events during the week of June 17, 2019 have been organized to coincide with the TechConnect Conference and Expo, including the VerifiGlobal Alliance General Assembly Meeting and a site visit to the Massachusetts Alternative Septic System Test Center (MASSTC) in Barnstable, Massachusetts.

The principal side event will be a Cleantech Workshop on June 20 at the Battelle Memorial Institute's Norwell Facility. The objective of the workshop is to generate interest and build momentum around the adoption and use of innovative technologies and the application of the ISO 14034 ETV standard to verify the performance of these technologies.

Targeting technology managers, regulators, agencies, and performance testing/verification organizations, the Cleantech Workshop will provide a platform for discussing the key features of the ISO 14034 standard, as well as key challenges, including:

(a) How ISO 14034 can facilitate market acceptance and adoption of innovative technologies;

(b) How ISO 14034 verification can support transparent, evidence-based decisions and value-based investment and procurement;

(c) How stakeholder expectations can be managed to achieve positive performance verification outcomes;

(d) How to share data regarding technology evaluations and best practices amongst ISO 14034 verifiers and the public.

Recognizing that an innovative technology may not have a track record of performance, it is reasonable to assume that the deployment of effective innovative technologies and infrastructure solutions benefits from comprehensive approaches that incorporate evidence-based performance benchmarking and verification. Through this collaborative workshop, important lessons will be shared regarding the technical and market challenges for acceptance, adoption and use of innovative technologies, and the role of reliable measurement, analysis and feedback. CLEANTECH PERFORMANCE ASSESSMENT AND VERIFICATION WORKSHOP BATTELLE (NORWELL) JUNE 20, 2019

#### WORKSHOP AGENDA

9:30 -9:45 Workshop Background and Introductions

9:45 – 10:45 Session 1: Use of Independent Technology Verification to Reduce Risk and Increase Positive Impacts of Buying and Financing Innovative Clean Technologies

10:45 – 11:45 Session 2: ISO 14034 and the Sustainability Decision Support Toolbox

11:45 Lunch and Brief Presentation about the Battelle Norwell Facility

12:30-13:00 Session 3: Participant Discussion on Recent Experiences and Future Opportunities Involving Independent Verification

13:00-13:45 Session 4: Cleantech Data and Technology Assessment Clearinghouse

13:45 Summary of Actions Required and Next Steps to Increase the Uptake and Utilization of Independent Performance Verification

13:55 Final Remarks

14:00 Workshop Adjournment and Departure for MASSTC Site Visit - US EPA Advanced Septic System Nitrogen Sensor Challenge





For more information, contact: Gail DeRuzzo: deruzzo@battelle.org Tim Hansen: thansen@southernresearch.org John Neate: jhneate@verifiglobal.com



Solving the world's hardest problems.

## ISO 14034 Panel Session at TechConnect on June 17, 2019 Boston USA

#### TechConnect 2019 Panel Session on ISO 14034 Environmental Technology Verification Presented by VerifiGlobal and Southern Research

Background: The ISO 14034 Environmental Technology Verification (ETV) standard defines a framework and a quality-assured process for independent, third-party evaluation of innovative environmental technologies. Use of the standard by qualified verifiers facilitates effective engagement of interested parties and stakeholders, with greater potential for reciprocity and acceptance of impact parameters, test procedures and performance verification results across multiple jurisdictions. This provides credibility and legitimacy to the environmental technology performance claims of technology developers and reduces the risks to technology users, purchasers, investors and policy-makers. It also facilitates the evaluation of technologies at pre- and early commercial stage, before other relevant standards or assessment protocols are established, leading to accelerated market adoption of verified technologies by a broader range of users across different sectors, nationally and internationally.

#### ISO 14034 Panel Session Objectives:

- Outline the purpose and key features of the ISO 14034 standard, including principles, procedures and benefits of independent, third-party environmental technology performance verification;

- Demonstrate how ISO 14034 can facilitate the use and market acceptance of innovative technologies, by providing end user and technology developer perspectives on the benefits of ETV and its impacts on their activities.

#### **Target Audience:**

- Technology vendors, solution providers
- Clean-tech investors and financers

- Technology buyers/users, managers, regulators, and agencies

- Performance testing and verification organizations.

Meet with VerifiGlobal and Southern Research at the 2019 TechConnect World Innovation Conference and Expo Visit us at Booth #312

For more information and a complementary TechConnect Expo pass, contact: Tim Hansen: thansen@southernresearch.org John Neate: jhneate@verifiglobal.com

#### ISO 14034 Panel Session Outline:

#### 1. Introduction to ISO 14034 and its Benefits – Tim Hansen (Southern Research)

- What is independent technology performance verification and how does it differ from other technology evaluation processes?

- What is the ISO 14034 standard and why is it useful? How can ISO 14034 verification be used to support transparent, evidence-based decisions and value-based investment and procurement?

- How can ISO 14034 verification assist in gaining market acceptance and approval? How can ISO 14034 help technology companies access international markets?

#### 2. ISO 14034 Process Requirements – Thomas Bruun (VerifiGlobal and ETA-Danmark)

- Who conducts performance testing and verification and what are the specific roles and responsibilities? What are the requirements and qualifications for verifiers when conducting performance testing and verification in accordance with ISO 14034?

- What needs to be considered when specifying the performance parameters for a verification plan in accordance with ISO 14034? What needs to be considered when conducting performance testing in order to generate verifiable performance data?

- How can stakeholder expectations be managed to achieve positive performance verification outcomes and broader market acceptance?

#### 3. Implementation of ISO14034

Case Study #1 – EPA Nitrogen Sensor Challenge Maggie Theroux (US EPA) and Gail DeRuzzo (Battelle) The objective of the US EPA Advanced Septic System Nitrogen Sensor Challenge is to identify, test, and verify the performance of low-cost nitrogen sensor packages that can continuously monitor the performance of advanced nitrogen removal septic systems. The intent is to provide a practical measurement system that would lead to increased acceptance and utilization of advanced and innovative nitrogen reducing septic systems.

The Challenge was developed by the US EPA with assistance from the Nature Conservancy, state regulators, the University of Rhode Island, the Massachusetts Alternative Septic System Test Center (MASSTC) and the Department of Health Services in Suffolk County, New York. EPA's Office of Water and Office of Research and Development have funded the Challenge since its launch.

... continued on next page

#### ... from previous page

In addition, EPA is providing project leadership and policy guidance, assistance with the design of screening and field tests, and logistical and technical support. Battelle Memorial Institute is providing support in the planning, development and implementation of the performance testing and verification aspects of the Challenge. Testing of the sensors is being conducted at MASSTC in Barnstable, Massachusetts. Sensor developers whose sensors reach the end of a 6-month test and meet the specified performance goals will have the option of obtaining verification of their test results through the VerifiGlobal ISO 14034 ETV process, provided in the form of a Verification Report and Verification Statement. Following the completion of the verification reports, the Nature Conservancy will review the results and award funding for an order of 200 units to the best performing sensor that completes the 6-month field performance test and meets or exceeds the performance goals.

#### Case Study #2 – Performance Verification of Stormwater Technologies

#### Greg Williams (Good Harbour Laboratories) and Dave Scott (Hydro International)

Defining performance objectives for innovative stormwater technologies and verifying their performance helps municipalities, utilities and other water sector stakeholders make informed choices, and at the same time benefits technology companies seeking market acceptance of their innovative solutions. Recognizing that an innovative technology may not have a track record of performance, it is reasonable to assume that, in the absence of a performance track record, the deployment of effective innovative infrastructure solutions would benefit from comprehensive approaches that incorporate evidence-based performance benchmarking and verification.

VerifiGlobal and Good Harbour Laboratories are collaborating on performance benchmarking, testing and verification of stormwater technologies, following the requirements of the ISO 14034 ETV standard. A key challenge is generating the type and quality of data that decision makers need when evaluating and selecting innovative stormwater treatment technologies. This includes how the results of performance testing and verification are reported and interpreted by stormwater technology end users and whether or not these technologies comply with water quality objectives. Through this collaboration, important lessons are being learned regarding the technical and market challenges for acceptance, adoption and use of innovative stormwater technologies, as well as the importance of reliable measurement, analysis and feedback.

Panel Session Contact: John Neate, VerifiGlobal (jhneate@verifiglobal.com)



In addition to the ISO 14034 Panel Session, VerifiGlobal Alliance Members will be making two presentations as part of the TechConnect Conference in Boston:

13:30 Monday, 17 June 2019 "Pilot Scale Demonstration of Carbon Utilization Technologies for the NRG COSIA Carbon XPrize" T. Hansen, Southern Research



Solving the world's hardest problems.

13:30 Wednesday, 19 June 2019 "Stormwater Technology Performance Verification" G.R. Williams, Good Harbour Laboratories





Accurate, Reliable, Credible

# ISO 14034 and Technology Readiness Levels Understanding what is verifiable under the ISO 14034 Standard

A frequently raised question regarding the scope and application of the ISO 14034 ETV standard is: *What technologies can be verified using the ISO 14034 standard?* 

In addressing this question, it is useful to understand the stages of technology development and the terminology used to define commercially-ready technologies.

A **prototype** is an early sample, model, or release of a product built to test a concept or process or to act as a thing to be replicated or learned from. A **commercially viable product or technology** is capable of not only generating market interest and acceptance, but also realizing successful market deployment and growth. In product development terms, viability means that a product not only gets purchased, but it performs well enough to be recommended to others, and its popularity spreads.

Innovation often trades-off performance along one dimension for performance along another. The key is to know which trade-offs buyers or consumers are willing to make. Once a truly disruptive product or service takes root in simple applications at the bottom of a market segment it can move rapidly up market, eventually displacing established competitors.

Defining **technology readiness levels (TRLs)** through a technology readiness assessment is a way of estimating technology maturity in the context of user needs, technology requirements and demonstrated technology capabilities. Defining the TRL of a technology can help manage risk, provide a common understanding of technology status, and inform decisions concerning the development and transitioning of the technology. An assessment of technology readiness can also assist in determining the useful scope of an ISO 14034 technology verification for specific applications and targeted outcomes.



ISO 14034: Environmental Technology Verification (ETV) Guidance on the development status and readiness for market of a technology proposed for verification is provided in the ISO 14034 standard, which states that a technology proposed for verification shall be either already available on the market or available at least at a stage where no substantial change affecting its performance will be implemented before market entry.

For the most part, this means that the technology and all its components (apparatus, processes, products) are fullscale and commercially available, and data supplied to the verifier is from the use or demonstration of a commercial unit with a unique identifier (e.g. registered commercial name of the technology). In some cases, the technology could be a final prototype design prior to the manufacture or supply of commercial units (i.e., the technology to be verified is a representative precommercial unit). There may also be instances where the technology is a pilot scale unit used to provide data which, when implemented with demonstrated scale up factors that do not influence its performance, proves that the commercial unit satisfies a performance claim.

Broad definitions of the nine technology readiness levels (TRLs) are provided on the next page. Within the verification community it has been suggested that the following European Union (EU) interpretations could be applied when justifying a decision to proceed with verification of an environmental technology under the ISO 14034 standard:

- TRL 7 – System prototype demonstration in operational environment

- TRL 8 – System complete and qualified

- TRL 9 – Actual system proven in operational environment.

... continued on next page

Contact VerifiGlobal to find out how VerifiGlobal Alliance members are supporting performance verification and market acceptance of innovative technologies and best practices



#### **Technology Readiness Level (TRL) Definitions**

**TRL 1 Basic Research:** Initial scientific research has been conducted. Principles are qualitatively postulated and observed. Focus is on new discovery rather than applications.

**TRL 2 Applied Research:** Initial practical applications are identified. Potential of material or process to solve a problem, satisfy a need, or find application is confirmed.

**TRL 3 Critical Function or Proof of Concept Established:** Applied research advances and early stage development begins. Studies and laboratory measurements validate analytical predictions of separate elements of the technology.

**TRL 4** Lab Testing/Validation of Alpha Prototype Component/Process: Design, development and lab testing of components/processes. Results provide evidence that performance targets may be attainable based on projected or modeled systems.

**TRL 5** Laboratory Testing of Integrated/Semi-Integrated System: System component and/or process validation is achieved in a relevant environment.

**TRL 6 Prototype System Verified:** System/process prototype demonstration in an operational environment (beta prototype system level).

**TRL 7 Integrated Pilot System Demonstrated:** System/process prototype demonstration in an operational environment (integrated pilot system level).

**TRL 8** System Incorporated in Commercial Design: Actual system/process completed and qualified through test and demonstration (pre-commercial demonstration).

**TRL 9** System Proven and Ready for Full Commercial Deployment: Actual system proven through successful operations in operating environment, and ready for full commercial deployment.



VerifiGlobal is committed to encouraging broader market acceptance of innovative clean technologies and strengthening the business case for investment and implementation of these technologies.

VerifiGlobal Alliance members are qualified and well positioned to demonstrate and verify the performance of innovative clean technologies and management options, thereby assisting technology users, operators, regulators and investors in selecting and implementing solutions that are viable and sustainable into the future.



Contact VerifiGlobal to find out how VerifiGlobal Alliance members are supporting performance verification and market acceptance of innovative technologies and best practices

# ADVANCED SEPTIC SYSTEM NITROGEN SENSOR CHALLENGE – LATEST UPDATE

The US EPA Advanced Septic Sensor Nitrogen Sensor Challenge (ASSNSC) provides a credible platform for sensor developers to improve and optimize their technologies. The ASSNSC project continues to be positive on multiple fronts, including:

- Stakeholder-driven identification and refinement of sensor performance goals;

- Further development and optimization of innovative nitrogen sensor technology performance;

- Further development and improvement of the nitrogen sensor testing Test/Quality Assurance Plan (T/QAP);

- Recognition and oversight of the Massachusetts Alternative Septic System Test Center (MASSTC) as a credible sensor test facility;

- Validation of the 'challenge model', together with the Nature Conservancy (TNC), as a mechanism to actively engage stakeholders and interested parties and to reward top performers;

- Enhanced potential for global acceptance of verified nitrogen sensor performance by following the International Organization for Standardization Environmental Technology Standard (ISO 14034 ETV).

As the project progresses from technical validation of innovative prototype sensors to verification and market acceptance of commercially viable technologies, it remains important to continue to explore and better understand operational requirements and functionality in relation to performance expectations and the intended market deployment of these technologies.

# BATTELLE

This project is being conducted by Battelle Memorial Institute (Battelle) for the US EPA under contract #EP-C-16-014

For more information contact Gail DeRuzzo at: sensorchallenge@battelle.org



For more information about MASSTC, Contact Brian Baumgaertel, at: bbaumgaertel@barnstablecounty.org EPA selected Battelle Memorial Institute (Battelle) to support development of a Test/Quality Assurance Plan (T/QAP) and Verification Plan, and to oversee the testing of the sensors. The T/QAP is based on the International Organization for Standardization Environmental Technology Verification (ETV) Standard - ISO 14034. Funding for the testing program is from the US EPA Office of Research and Development and the Office of Water/Wastewater Management.

Sensor testing will be completed in 2019-20 at the Massachusetts Alternative Septic System Test Center (MASSTC), a National Sanitation Foundation (NSF) certified test facility in Barnstable, Massachusetts.

There is a screening process to determine eligibility for the six-month ISO ETV 14034 field verification test. The first level of screening is a one-week preliminary test in August 2019. The application deadline for this test is July 26, 2019. For this final round of open prototype testing, EPA will award up to \$50,000 in prize money to the best performing sensor(s). Successful sensors will also then be invited to the second level of screening, a one-month test in December 2019. A sensor package must successfully complete the one-month test to receive an invitation to the extensive six-month field performance test.

Battelle will verify the results of the field performance tests based on the VerifiGlobal Performance Verification Protocol and the requirements of the ISO 14034 ETV standard. EPA will award ISO ETV verification reports and statements for sensors that complete the six-month field testing and meet the minimum performance goals.

Following the release of the verification reports and statements, anticipated in 2021, an external technical panel and TNC will review the results. TNC and others are seeking funding for an order of 200 deployable septic sensor units, not to exceed a total cost of \$300,000. The order may be presented in 2021 to the best performing sensor(s) completing the 6-month field performance test and meeting or exceeding the performance goals.



## Massachusetts Alternative Septic System Test Center (MASSTC) Joins VerifiGlobal Alliance



The Massachusetts Alternative Septic System Test Center (MASSTC) was established by the Barnstable County Department of Health and Environment in 1999 as part of a coastal zone management initiative to address accelerated eutrophication and nuisance algae blooms in the marine environment caused by nitrogen from septic systems. Searching for technologies to address the issue, MASSTC began working with the U.S. Environmental Protection Agency (EPA) and the National Sanitation Foundation (NSF) of Ann Arbor Michigan, to develop a nutrient testing protocol and refine nutrient standards, which in 2007 resulted in the NSF Standard 245. MASSTC has conducted testing on over 30 leading technologies and today continues to conduct research, development and testing of products that remove the myriad of contaminants found in domestic wastewater.

The MASSTC facility can accommodate over 20 concurrent tests, allowing companies to conduct research and development on their products or complete any number of standardized test protocols. In addition to technology and product testing, MASSTC conducts research on questions relating to pathogen transport, removal of pharmaceuticals and personal care products, and a range of other topics. Examples of projects include:

- Protocol for testing alternative drainfield products incorporating use of specified media
- Pharmaceuticals, endocrine disruptors and personal care products attenuation in onsite septic system drip dispersal systems
- Investigation of soil types and the removal of PPCPs from septic tank effluent
- Investigation of the feasibility of using Yeast Estrogen Screen (YES) for the rapid determination of endocrine disruption potential
- Removal of selected pharmaceuticals and personal care products (PPCP) using shallow low-pressure distribution systems.

If you have a product to be tested or need a facility for research and development, Contact: Brian Baumgaertel (<u>bbaumgaertel@barnstablecounty.org</u>)



#### Technology Company Profile - Hydro International Ltd.

Hydro International Ltd. is a global supplier of environmentally sustainable solutions and innovative products for the control and treatment of stormwater, wastewater and combined sewer overflows. Headquartered in Clevedon, England, Hydro also operates in the UK from offices in Ely, Cambridgeshire as well as across the US from bases in Portland, Maine and Hillsboro, Oregon.

Incorporated in 1986, Hydro has a growing presence outside of its core US and UK markets in Ireland, Egypt, Middle East, European Union, Malaysia, Singapore, Japan, Korea, Australia and New Zealand. The Hydro International Americas Stormwater division is based in Portland, Maine. It has a state-of-the-art 5,000 sq. ft. laboratory facility, where product engineers conduct research and development of new and existing products

#### For more information, contact: David Scott, Technical Product Manager - dscott@hydro-int.com

#### Hydro International Up-Flo® Filter with CPZ<sup>™</sup> Media

The Up-Flo® Filter with CPZ<sup>TM</sup> Media is a stormwater remedial device that typically incorporates gravitational separation of floating and settling materials, screening, and filtration of polluted stormwater to offer treatment train capabilities in a standalone device. Each Up-Flo® Filter consists of a highly configurable array of modules containing engineered filtration media. The engineered media may consist of a range of specialized media packs as well as filter membrane ribbons depending on on-site pollutant characteristics.



#### Up-Flo® Filter Configured with Media Packs

Cut-away view of Up-Flo® Filter module

The Up-Flo® Filter can be retrofit into an existing stormdrain manhole or supplied as a complete system housed in a 4-ft diameter manhole or precast vault. Manhole configurations consist of a single ring assembly containing one to six modules. Vaulted systems are highly configurable and may contain single or multiple arrays each consisting of one to 18 Filter Modules.

Operation of the Up-Flo® Filter is initiated during a rainfall event when stormwater is conveyed into the chamber from a pipe or grated inlet. As flow enters the chamber, internal components act as baffles to force gross debris and sediment to settle into the sump and floating debris to rise to the surface. As runoff enters the chamber, a water column builds above the media. This water column provides the potential energy to drive flow upward through the angled 4mm screen and through the engineered media.

Configured with traditional media packs, upward flow causes the individual particles in the media to shift from a state where they are compressed by gravitational forces to a state where they achieve very minute separation from each other. *Continued on next page* 

#### Continued from previous page

As they become suspended in an upward-flowing column of water, the media matrix becomes fluidized. This allows particulates to be trapped throughout the entire depth of the media bed, rather than just the first few inches, subsequently increasing filter longevity. Without media packs, flow passes through the 4mm screen and up through the empty modules directly.

Treated flow exits the Filter Module(s) into the outlet module via a conveyance channel located above the media. Flow in excess of the system design rate discharges over a bypass weir located inside the manhole or adjacent to the vault installation. When configured as an on-line manhole system, the Outlet Module has a hood to act as a Floatables Baffle preventing the escape of buoyant debris and trash during bypass, although neutrally buoyant trash may be able to escape the system. The bypass hood also siphons excess flows into the outlet upon displacement of air in the outlet chute. This in turn accelerates the maximum discharge rate for extreme storm events.

After a storm event, the water column drops to the top of the media packs at which point there is no longer any head to drive flow. The Up-Flo® Filter may be provided with a filtered Draindown module that allows the water level in the chamber to drop below the media packs between events preventing the media from becoming anaerobic. The flow control in the draindown allows remaining water to exit through the draindown module (which incorporates a screen and filtration media) prior to discharging into the outlet. During the drain-down mode of operation, a light backwashing effect occurs that releases captured pollutants from the surface of the 4mm screen and filter bag, helping to prevent blinding and prolong media life. By draining the water out of the media, the weight of the media packs is reduced for easier removal during maintenance operations.

#### Verification of the Up-Flo® Filter with CPZ<sup>™</sup> Media Nearing Completion

Good Harbour Laboratories Inc. (GHL), is verifying the performance test results for the Up-Flo® Filter with CPZ<sup>™</sup> Media in accordance with the requirements of the ISO 14034 Environmental Technology Verification (ETV) standard. It is anticipated that the Verification Report for the Up-Flo® Filter with CPZ<sup>™</sup> Media will be completed in June and the Verification Statement will be issued shortly thereafter.

# Hydro International First Defense® Oil Grit Separator BaySaver BayFilter™ Enhanced Media Cartridge (EMC) Image: Bypass Weins Bypass Weins Bypass Weins Bypass Weins Chutter Outlet Chutter Chatter Outlet Chutter Chu





Comprehensive performance verification with global market reach Accurate, Reliable, Credible

# VerifiGlobal Alliance General Assembly Meeting (June 20, 2019)

The primary objectives of the VerifiGlobal Alliance are to enhance and promote the role of independent verification of environmental technology performance worldwide, and to build market confidence in the verifications undertaken by its members.

Members help facilitate the transfer of national technologies to the global marketplace through the performance verification services they provide. This is accomplished through:

• Exchange of information, advice, and experience on the scope and procedures used to verify technology performance in various countries

• Development of a common understanding of the performance testing and verification requirements in members' countries in order to minimize duplication of effort

• Establishment of guidelines for the development and exchange of testing and verification protocols and procedures

• Mutual recognition of test data, inspection schemes and verification procedures (where feasible)

The VerifiGlobal Alliance General Assembly is composed of all members. The General Assembly meets at least once every year. If decisions have to be taken by voting, the following is applicable:

- Changes in the statutes require 2/3 of positive votes of all membership
- Designation of the Advisory Council requires a simple majority of a quorum comprising 2/3 of members present or represented
- All other decisions require a simple majority of those present at the meeting, including proxies.

The Advisory Council, acting on behalf of the General Assembly, manages the administrative activities of the VerifiGlobal Alliance and makes recommendations to the General Assembly for membership nominations. The Advisory Council is appointed from the membership of the VerifiGlobal Alliance by the members of the General Assembly for a period of two years.

For more information contact: Thomas Bruun - tb@etadanmark.dk VerifiGlobal Alliance 2019 General Assembly

June 20, 2019 08:00-09:30 am (Eastern Time)

Battelle (Norwell) Massachusetts Bay Conference Room 141 Longwater Drive, Suite 202, Norwell, MA 02061 USA

- **Draft Meeting Agenda**
- 1. Approval of agenda
- 2. Report of Directors
- 3. Financial report
- 4. Membership status
- 5. Current verifications
- 6. Review of policies and procedures
- 7. Promotion and marketing

8. Strategic issues for further development of the organization

9. Other business





**Forthcoming events** Over the next year VerifiGlobal Alliance members will be participating in a number of key events to promote and build greater confidence in the application of ISO 14034 ETV verification.

June	- ISO TC207 Plenary, Berlin Germany, 3-7 June 2019
2019	- 2019 Real Property Institute of Canada (RPIC) Federal Contaminated Sites Regional Workshop,
	Halifax NS Canada, 4-5 June 2019
	- BlueTech Forum 2019, London UK, 5-6 June 2019
	- ACE 2019 American Water Works Association Conference and Exposition, Denver USA, 9-12
	June 2019
	- IWA Leading Edge Conference on Water and Wastewater Technologies 2019, Edinburgh UK, 10-
	14 June 2019
	- TechConnect World Innovation Conference and Expo, Boston USA, 17-19 June 2019
	- VerifiGlobal Alliance General Assembly, Norwell MA USA, 20 June 2019
	- Cleantech Performance Assessment and Verification Workshop, Norwell MA USA, 20 June 2019
July	- U.S. Department of Energy, Advanced Research Projects Agency-Energy (ARPA-E) 10th Annual
2019	Energy Innovation Summit, Denver USA, 8-10 July 2019
August	- National Environmental Monitoring Conference, Jacksonville FL USA, 5-9 August 2019
2019	- Stockholm World Water Week, Stockholm Sweden, 26-31 August 2019
September	- Water Reuse Symposium 2019, San Diego USA, 8-11 September 2019
2019	- WEFTEC, Chicago USA, 21-25 September 2019
0.1.1	
October	- World Water-Tech North America, Toronto Canada, 23-24 October 2019
2019	- Horizon 19 – Boston USA, October 2019
November	Agustach Amstandam 2010, Amstandam Notherlands E & November 2010
November 2010	- Aquatech Amsterdam 2019, Amsterdam Netherlands, 5-6 November 2019
2019	SPI Sustainable, Responsible and Impact Investing Conference, Colorado Springs USA 11 15
	- SKi Sustainable, Responsible and impact investing Conference, Colorado Springs OSA 11-15
Tanuary	- Cleantech Forum San Francisco USA January 27-29, 2020
2020	- Creaticett Forunt, Jan Francisco Cort, January 27-29, 2020
February	- World Water-Tech Innovation Summit, London, England, February 25-26, 2020
2020	Herrich Hater Teen mins Harer Camana, Zerrach, Zirgania, Teeraal y 20 20, 2020
March	- TRIECA Stormwater and Erosion Control Conference, Toronto Canada, March 2020
2020	- GLOBE, Vancouver Canada, March 2020
	- Sustainable Innovation 2020 London UK, March 2020
	- TRIECA Stormwater and Erosion Control Conference (hosted by TRCA), Toronto Canada, March
	2020
April	- WEAO Technical Symposium and OPCEA Exhibition 2020, Toronto Canada
2020	- 5th International Symposium on Bioremediation and Sustainable Environmental Technologies
	(hosted by Battelle), Baltimore USA, April 2020
May	- Blue Cities Forum 2020, Toronto Canada
2020	- WEF Residuals and Biosolids Symposium, Fort Lauderdale USA, 2020
	- WEF Stormwater and Green Infrastructure Symposium, Fort Lauderdale USA, 2010



VerifiGlobal C/O ETA-Danmark A/S Göteborg Plads 1 DK-2150 Nordhavn Tel: +45 72 24 59 00

VerifiGlobal is a global network of organizations providing testing and verification services across multiple sectors and areas of expertise. Its mission is to strengthen long term, sustainable performance through improved efficiency, quality assurance and accountability.

The VerifiGlobal Alliance includes 12 member organizations from 8 different countries.

Current VerifiGlobal member organizations are: Battelle (USA), CAWT (Canada), CMI (Australia), ETA-Danmark (Denmark), Eurofins (Finland), GHL (Canada), IETU (Poland), KTL (South Korea), MASSTC (USA), RESCOLL (France), Southern Research (USA), TRCA-STEP (Canada).



VerifiGlobal Alliance members demonstrate their conformity with the requirements of ISO 14034 and ISO 17020 through a peer assessment process designed in accordance with the requirements of ISO 17040.

The VerifiGlobal peer assessment process provides a flexible mechanism for recognizing competent organizations in countries that do not yet have a national accreditation program for ISO 14034.



ETA-Danmark A/S, a subsidiary of Danish Standards, hosts the VerifiGlobal Secretariat. Accredited by Danish Accreditation (DANAK) in accordance with ISO 17020, ETA-Danmark is the Danish verification body for both ISO 14034 ETV and the EU ETV Pilot Programme. For more information on ETA-Danmark, contact Thomas Bruun: tb@etadanmark.dk



For more information on VerifiGlobal, go to: www.verifiglobal.com