

Water Security Webinar Series

30.11.20 – 09.12.20
Virtual events

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ERNCIP TG Water Webinars on Water Security

The “European Reference Network for Critical Infrastructure Protection” (ERNCIP) network has been established to improve the protection of critical infrastructures in the EU. ERNCIP therefore works in close cooperation with all types of CIP stakeholders, focusing particularly on technical protective security solutions. Drinking water is one major topic within this network and since 2012 the thematic group “Chemical and Biological Risks to Drinking Water” (TG Water) has elaborated several guidelines and numerous reports on security aspects for the drinking water supply. In particular, a Water Security Plan has been proposed and will be the focal point of this series of webinars. More about ERNCIP and the TG Water at: <https://erncip-project.jrc.ec.europa.eu/networks/tgs/water>

Water Security Plan

Water systems are vulnerable to natural hazards and man-made threats, which could compromise the delivery of safe drinking water to citizens. In case of a malicious attack, timely detection of contamination is key in order to reduce potential public health and economic consequences. Water security plans are indispensable for addressing vulnerabilities and establishing security measures to detect intentional chemical and biological contamination.

The proposed series of webinars will present a guidance document on the production of a Water Security Plan.

The document is addressed to water utilities and describes in four phases the process from water security planning and preparation to recovery and remediation. The “Guidance on the production of a water security plan for drinking water supply” can be downloaded at: <https://erncip-project.jrc.ec.europa.eu/documents/guidance-production-water-security-plan-drinking-water-supply>.

Elements of the Water Security Plan

Monitoring of drinking water is an obligation laid down in the EU Drinking Water Directive to reassure that drinking water meets EU requirements. Continuous monitoring of water quality is indispensable for detection of potential contamination, both accidental and intentional. This requires the deployment of advanced technologies to collect, integrate, analyse and communicate information, and is a fundamental element of the water security plan. In order to be able to plan online monitoring systems, several advanced techniques are available, such as “hydraulic modelling” or the application of the “spatial model”. Further guidance on technological aspects as well as on advanced techniques for emergency laboratory analyses can be downloaded at: <https://erncip-project.jrc.ec.europa.eu/downloads> (in the folder CB risks to Drinking Water).

The Webinars

High-level experts will present an overview about security aspects in drinking water supply, introduce the elements of the Water Security Plan and present first-hand experiences from implementing water security routines, international projects and online monitoring and will present new scientific models and aspects of cyber security. The series of six webinars will start on 30 November 2020 and will end on 9 December 2020.

Registration

Registration to webinars is required for planning purposes. Each registration link refers to the specific webinar only. Participants may register to all webinars. The webinars are open to the public and free of charge. Each registration process closes 5 days before the specific webinar starts. Registered participants will receive a personal link to join the web-meetings. Please notice that webinars will be recorded and made accessible through the ERNCIP Office. Completed registration implies the acceptance of terms and conditions.

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30.11.2020, 11:00-13:00 CET

Opening Event

- Opening and Welcome
- The European Reference Network on Critical Infrastructure Protection
- ERNCIP'S Thematic Group Water
- View of a national Intelligence Service
- Elements of the Water Security Plan
- Wrap-up

Georg PETER, JRC HoU (tbc)
Georgios GIANNOPOULOS (JRC)

Philipp HOHENBLUM (Environment Agency Austria)
Manuel GONCALVES (Portuguese Intelligence Service)
Rui TEIXEIRA (Município do Barreiro)

Since 2012, the ERNCIP TG Water has been working on scientific aspects and guidance on water security. The Guidance on a Water Security Plan provides the overarching framework which links the various elements that will be presented in this series of webinars.

Registration link:

<https://web.jrc.ec.europa.eu/remjrc/screen/meeting/6967/registration-form>

02.12.2020, 11:00-12:30 CET

Drinking water monitoring from source to consumer incl. the new Drinking Water Directive (DWD)

- EU legislation / background
- Main objectives of the new DWD
- Water quality control and monitoring / Operational control plans - needs and principles set by the new DWD
- Monitoring by purpose: consumer quality control / safety / security / operational efficiency
- Safety vs. Security - how do we distinguish; legal implications
- Technological implications and recommendations, cost considerations
- Overview of some active utilities, globally

Andreas WEINGARTNER (Water Quality Consultant) and
Miquel PARAIRA (Aigües de Barcelona)

The recast of the EU drinking water directive changes the concept from an end-of-pipe approach to a systematic risk-based approach from source to consumer, extends the parameters' scope, and promotes consumer information and transparency. Risk assessment/management and monitoring are key obligations, to be able to prove that sanitary risks are minimized along the whole DW cycle at any time and place in the network. This applies for regular operation, but also during exceptional periods of all sorts of threats. The idea of Water Security Plans will be discussed vs the WHO Water Safety Plans.

Registration link:

<https://web.jrc.ec.europa.eu/remjrc/screen/meeting/6968/registration-form>

03.12.2020, 14:30-16:00 CET

How water quality monitoring can help making drinking water more secure

- Real-life experiences with online monitoring networks
- Lessons learned from several countries
- Why a Water Security Plan is needed
- Pilot in a real network
- Wrap-up

Jordi RAICH (S::CAN)

Guillaume CUSSONNEAU (SUEZ)
Stéphane DEVEUGHÈLE (SUEZ Smart Solutions) and
Emeline GOUNAND (SUEZ)

On-line monitoring is a key element to identify sudden changes of drinking water quality. Experts will report real-life experiences, pilot studies in real networks and lessons learned from several countries. They will also provide arguments for the necessity of a Water Security Plan.

Registration link:

<https://web.jrc.ec.europa.eu/remjrc/screen/meeting/6969/registration-form>

04.12.2020, 11:00-12:30 CET

The Spatial Model

- Methods for water flow time estimation
- Models for pairs of network locations
- Models for triplets of network locations
- Wrap up

Eyal BRILL (Decision Makers Ltd.)

The webinar will present a new paradigm for modelling flow times between water network monitoring stations. The new approach uses pattern recognition and machine learning without any need for the network's physical structure. Using the estimated flow time, differences between the actual and predicted water quality values may help detect abnormal events in water quality or malfunctioning of equipment.

Registration link:

<https://web.jrc.ec.europa.eu/remjrc/screen/meeting/6970/registration-form>

07.12.2020, 11:00-12:30 CET

Hydraulic simulation models as elements in a Water Security Plan

- Enhanced preparedness, mitigation & response
- Offline / online simulation tools (e.g. training simulator, what-if-scenarios, online mitigation tools)
- Results from projects W-Net 4.0 (ongoing), DE/FR project ResiWater (2015-18) and SAFEWATER (2013-15)
- Reverse hydraulic modelling
- Wrap up

Thomas BERNARD (Fraunhofer IOSB)
Jochen DEUERLEIN (3S Consult) and
Huan YIN (SUEZ)

This session will refer to hydraulic simulation models as an element of the Water Security Plan. It will present enhanced preparedness, mitigation and response as well as simulation tools. Also, the concept of 'reverse hydraulic modelling' will be discussed. Results and experiences from several international research projects on water security will be presented.

Registration link:

<https://web.jrc.ec.europa.eu/remjrc/screen/meeting/6971/registration-form>

09.12.2020, 11:00-13:00 CET

Cyber Security

- Cyber security importance in the water sector and the contribution of the STOP-IT project
- Physical and Cyber security integration and modelling at strategic and tactical level
- Cyber-physical solutions for real-time detection at operational level
- Applying Machine Learning algorithms to build anomaly-based cyber and physical detection systems
- Empowering informed decision making with an overarching solution for the security of water critical infrastructures
- Social changes impact on cyber security
- Wrap up of the Day
- Formal closure of the webinar series

Rita Ugarelli (SINTEF)

Christos Makropoulos (NTUA/KWR)

Gustavo Gonzalez-Granadillo (ATOS)

Juan CAUBET (EURECAT)

Dora KARALI (RISA)

Vaclav JIROVSKY (UNI PRAGUE)

Although beyond the scope of the Water Security Plan, cyber security is an important element in an interconnected world. Several aspects of cyber security will be presented and results of international research projects will be discussed.

Registration link:

<https://web.jrc.ec.europa.eu/remjrc/screen/meeting/6972/registration-form>