**Information Security Officer – EPA Sensor/IoT Technology Check List**

This checklist was originally developed for projects that incorporate a technology (i.e. sensors, instruments, etc.) that report information to a cloud. Since the original development of this checklist, a security incident occurred (i.e. Ransomware on scientific devices) and was captured in an OIG Memo. With this, we have expanded the use of this checklist to capture all sensor types regardless of location and/or whether they report to the cloud. Please include this filled-out template as an Appendix to your QAPP. This will be a standalone document transmitted to your Office’s Information Security Officer (ISO). Please fill in each section. If there are sections where information is unknown or cannot be obtained by the manufacturer, please note this.

1. **Summary of project/effort/business justification:** 
   1. Project name, effort, and business justification:
      1. High frequency spatial and temporal dynamics of freshwater cyanobacterial HABs. Part of SSWR 4.3.1 and focus on high priority EPA research area of Harmful Algal Blooms
   2. POC(s):
      1. Jeff Hollister, Stephen Shivers
   3. QA Manager:
      1. Joseph LiVolsi
   4. Length of project/effort:
      1. May 2021 - TBD
2. **Cloud/Manufacturer / Server Use.**
   1. Sensor cloud(s):
      1. https://wqdatalive.com
   2. The physical location of the servers (manufacturer or cloud) the data will be stored on:
      1. Suwanee, GA
   3. Will the data from the sensor device be immediately displayed on the manufacturer’s website?
      1. Yes If yes, see d.,
   4. How is the sensor /data logger depicted (i.e. name, number, or other)?
      1. Site Name (e.g. Shubael Pond) and buoy name (X2-CB-C-VZ4G-20193)
   5. What sensor data is depicted?
      1. All of it (see 3b)
   6. Does researcher/scientist have access to the data displayed on the cloud?
      1. Yes
   7. Does the cloud provider make the sensor data available to the public? If so, what information is the public able to see.
      1. It is password protected and only available to named users that researcher has identified.
3. **Technology (Device/Identification). Include Model Name and Number(s).** 
   1. General Description/Use.
      1. Nexsens CB-150 data buoys and X2-CB logger with YSI EXO2, Trios NICO, and Airmar 200WX
   2. Identify/Name all Device models (i.e. logger, sensor, instrument model) in use and by vendor that will be utilized.
      1. Data Logger:
         1. Nexsens X2-CB
      2. Sensors;
         1. Trios NICO UV Nitrate
         2. Airmar 200WX with Rel Baromteric Pressure, Air Temperature, Relative Humidty, Dwpoint, Wind Direction, Wind Speed, Pitch, Roll
         3. YSI EXO2 With Temperature, pH, Specific Conductivity, Dissolved Oxygen, Turbidity, Chlorophyll, Phycocyanin, and FDOM
   3. Do the sensors or instruments have an embedded operating system (i.e. Windows)?
      1. No
   4. Is there a computer (laptop) used to manage the sensors? If Yes, please provide the OS and PC name.
      1. LZ2626XJHOLLIST, Widows 10
      2. lz26jhollist, Windows 10
4. **National Defense Authorization Act.**
   1. Is the Vendor on the prohibited National Defense Authorization Act (NDAA) Section 889?
      1. No
   2. Does the vendors technology utilize components from NDAA Section 889 forbidden vendors?
      1. No (Section 889 form submitted as part of purchase)
5. **Physical Location and placement:**
   1. Where (Field Site/location, EPA room number, building, etc) will the sensors be placed?
      1. These are field deployed and will not be in an EPA building. One will be in Shubael Pond, Barnstable, MA and the other in Hamblin Pond, Barnstable MA.
   2. Describe the physical security of the device (any physical security implementations to protect the device from tampering).
      1. Buoys will be placed at the center of the ponds which limits access. Additionally, each buoy weights ~100lbs and will be moored with a 70lb anchor and 10 feet of 3/8in chain. Tampering with the buoys would be extremely difficult. Also we are working with local partners that will regularly check the buoys and EPA staff will be on site every other week.
6. **Communication:**
   1. Description of sensor communication/connection (i.e. internet, cell, satellite)?
      1. USEPA Verizon cellular
   2. What will be the primary communication method used for communicating data from the devices?
      1. Cellular and SFTP
   3. What systems will the data be communicated to (i.e Viper, EPA GoAnywere Server, etc.)?
      1. Vendor site then SFTP to EPA GoAnywhere
   4. What type of interfaces does the device have (serial, ethernet, Wi-Fi, Bluetooth, USB, etc.)?
      1. Serial to USB
7. **Configuration:**
   1. How do you plan to configure / maintain the device (if at a remote/field location)?
      1. Sensors and data logger are configured and calibrated prior to deployment and will be monitored remotely. Additionally, sensors will be re-calibrated every 4-6 weeks and the buoy performance checked at the deployment location.
   2. Do you plan to remotely administer the device(s)? If so, please describe.
      1. Devices can be remotely administered via the vendor site, WQDataLive. This will be done on an as needed basis but most troubleshooting will occur during site visits and thus will not be conducted remotely
   3. Can a password be configured for the device? If yes, do you plan to use this feature. If not, why not?
      1. Yes.

Note: do not use preset manufacturer passwords.

* 1. Do you plan to connect this device to the Internet (i.e. Wifi, cell, hot-spot, Bluetooth, satellite, etc.). Please describe.
     1. Yes, via EPA Verizon Cell plan. Device communicates only with the vendor site.
  2. What software (name, version) runs on the devices?
     1. Proprietary: NexSens Connect 2.20.5.6
  3. Please provide the vendor name and their support phone number:
     1. Nexsens, <tel:+19374262703>

1. **Information Type(s).** 
   1. What type of Information is collected (i.e. air or water quality, temperature, etc)?
      1. Water Quality
2. **Official EPA Record.**
   1. Can data be download directly from the sensor itself?
      1. Yes
   2. If so, is there a planned frequency for downloading this data (information)?
      1. Yes, but still to be determined
   3. Where will the data be kept/stored (i.e. ORD provided file share):
      1. Project leads will maintain files on OneDrive and once data approved for public release copies will be made available via USEPA Github.
3. **Data Integrity.** 
   1. Describe briefly and in general terms how the integrity of the data will be verified before decision/action:
      1. Data from the buoys will be verified through comparison with data collected, in person, by EPA staff every other week. We will compare measurements from the buoys to data collected via handheld version of the same sensors on the buoy as well as compared to water samples collected at the buoy location and independently processed in the lab.
   2. If this effort is required to use a Quality Assurance Project Plan (QAPP), how is the integrity detailed in the related project?
      1. A QAPP is required and these details are documented in the appropriate sections in the QAPP, in particular Sections B and D.
4. **Data Ownership.**
   1. Please provide manufacturer terms and conditions or correspondence describing the ownership of the data if the data is directly reported to a vendor cloud.
      1. https://www.wqdatalive.com/privacy
      2. See attached email
5. **Security Incidents. (Acknowledge)**
   1. Security incidents for any device (sensor, instrument, desktop, etc.), either in a remote location or on EPA site MUST be reported to:
      1. **EPA CSIRC** via one of the following methods:

[**CSIRC@epa.gov**](mailto:CSIRC@epa.gov) **,** or

**EPA Call Center 1-866-411-4372**

**(option 1** for security incidents)

**AND**

* + 1. **Your Office ISO/Alt. ISOs:**

Caroline Parton, [**parton.caroline@epa.gov**](mailto:parton.caroline@epa.gov), ORD Primary ISO

Tim Rowan, [**rowan.tim@epa.gov**](mailto:rowan.tim@epa.gov), Alt Primary ISO

Nancy Broom [**broom.nancy@epa.gov**](mailto:broom.nancy@epa.gov), Alt Primary ISO

Rachel Cain [c**ain.rachel@epa.gov**](mailto:cain.rachel@epa.gov), Alt Primary ISO

* 1. **DO NOT** **REMEDIATE** the device prior to coordinating with EPA CSIRC and the Office Primary/Alt ISOs.
  2. 