QUALITY ASSURANCE PROJECT PLAN FOR BAM 1022

Kootenai Tribe of Idaho

Environmental Department

Revision 2

7/24/2026

A1. TITLE AND APPROVAL

A.1 For the Kootenai Tribe of Idaho

Name: Gary Aitkens Jr
Title: Tribal Council Co -Chairperson

Signature: _____ Date: July 24, 2026

Name: Karen Schumacher
Title: Environmental Manager/Air Quality Coordinator

Signature: Karen Schumacher Date: July 24, 2026

For the United States Environmental Protection Agency, Region 10:

Name: Vanessa Marshall
Title: Tribal Air Quality Project Manager

Signature: Vanessa Marshall Digitally signed by Vanessa Marshall Date: 2026.07.27 10:47:20 -07'00' Date: _____

Name: Cindy Fields
Title: Quality Assurance Manager

Signature: JOSEPH RICHARDSON Digitally signed by JOSEPH RICHARDSON Date: 2026.07.27 13:34:57 -07'00' Date: _____

A2. TABLE OF CONTENTS

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A3. DISTRIBUTION LIST

Version 1. 2021 Created for new BAM1022. Signed February, 2022 by Tribal Leadership and EPA

Version 2. 2026 Amended to include S.O.P.s for operation/maintenance and reflect new audit standards and timing. Signed July, 2026

The final version and all subsequent revisions of the Quality Assurance Project Plan for the Met One BAM1022 FEM monitoring operations for The Kootenai Tribe of Idaho will reside in the offices of the Environmental Program Manager's office. Copies will be distributed to those listed below as well as anyone who requests a copy. Copies may be in either an electronic or printed format.

Tribal Council Kootenai
Tribe of Idaho

Genny Hoyle, genhoyle@kootenai.org,
Environmental Director, Kootenai Tribe of
Idaho

Karen Schumacher,kschumacher@kootenai.org,
Environmental Program Manager, Kootenai Tribe of Idaho

Joey Richardson, Senior Air Monitoring Specialist
United States Environmental Protection Agency (EPA) Region 10

Vanessa Marshall, Tribal Air Quality Project Officer
United States Environmental Protection Agency (EPA) Region 10

Cindy Fields, Quality Assurance Manager
United States Environmental Protection Agency (EPA) Region 10

A4. PROJECT ORGANIZATION

This document has been prepared to describe the procedures to be used by Kootenai Tribe of Idaho's Environmental Department to operate its Ambient Air Quality Monitoring Station utilizing a Met One BAM-1022 air monitor. Implementation of the quality assurance (QA) and quality control (QC) procedures described herein is the responsibility of the personnel described in the following section.

It is the responsibility of each respective participant to document deviations from these quality assurance documents in writing, to be reviewed, approved and filed by the Environmental Department. The Environmental Department, in turn, will report significant deviations to the Tribal Air Quality Officer. All such reports will be written and signed.

It is the responsibility of the personnel described herein to read and comply with the procedures described. Specific project responsibilities are outlined in A.4.1.

A.4.1. Specific Project Responsibilities

It should be noted that the Kootenai Tribe of Idaho does not have an independent Quality Assurance department or staff. There is not an organizational Quality Management Plan. For those reasons, the Environmental Program Manager who also has the role of Air Quality Specialist will objectively assess the data according to the quality indicators included in this QAPP and the Environmental Director will also act as the Quality Assurance Manager (QAM).

Environmental Department's CAA Program Responsibilities

- Prepare and maintain project documents and records as required
- Prepare project status reports and submit them to the Environmental Director and EPA Project Officer
- Order equipment and supplies when necessary to perform the work and maintain control and inventory of these items
- Update and understand the project QAPP and SOP documents when necessary, and implement it as described
- Establish a database compatible with the US EPA Air Quality System (AQS)
- Review, validate and verify air quality data
- Interpret data collected during the project
- Document and report deviations from approved QA documents to the Environmental Director
- Conduct ambient air monitoring for fine particulate ($PM_{2.5}$) to assess the quality of the air shed using the identified field equipment
- Serve as the Documents and Records Manager
- Ensure preparation and upkeep of Ambient Air Quality Monitoring QAPP and applicable Standard Operating Procedures (SOP)

- Ensure that appropriate SOP is up-to-date and used to ensure that routine tasks are conducted consistently
- Obtain project records and documents and handle in a manner consistent with the project QAPP and SOP
- Provide all essential information, documentation and actions to Tribal Council approval, if deemed necessary

Although independent audits are not required, the Kootenai Tribe of Idaho has an MOU with Idaho Department of Environmental Quality (IDEQ) which provides for an annual, independent audit to be performed. Audits will be performed by IDEQ with the Air Quality Specialist in attendance. Results of the audit will be provided to the Environmental Director and AQS.

US EPA Region 10 Responsibilities
The CAA 105 Project Officer (PO) will:

- Review and approve the QAPP and any necessary updates
- Serve as the primary EPA point of contact for the project
- Review and coordinate approval of the QAPP and any subsequent revisions
- Ensure compliance with grant terms, EPA QA requirements, and applicable guidance
- Review project reports and data submissions
- Provide technical assistance and coordinate EPA support
- Support or coordinate audits and corrective actions, as necessary

A5. PROBLEM BACKGROUND/DEFINITION

The Kootenai Tribe of Idaho is part of the Ktunaxa Nation, a transboundary Indigenous Nation. Ktunaxa Territory consists of portions of what is now NE Washington, North Idaho, NW Montana, SE British Columbia, and SW Alberta. The Tribe exercises rights and environmental stewardship throughout the Territory.

The air monitor for the Tribe is located at latitude 48.90575 and longitude -115.83126 on the Mission Parcel of the Kootenai Indian Reservation. The Mission Parcel of the Reservation is located in the northern panhandle of Idaho and is approximately 3 miles northwest of the city center of Bonners Ferry, Idaho.

Vistas in the valley are part of the Tribe's spirituality and sense of place. The majestic peaks surrounding the valley provide important scenic value. Smoke causes regional haze, decreases visibility, and has a negative impact on this value. Obscured vistas can also negatively impact local tourism. This is of particular concern because the Tribe's major financial support is revenue from the Kootenai River Inn and Sturgeon Station; both of which are highly dependent on tourism.

Sources of smoke in the valley include agricultural crop residue burning, (approximately 20,000 acres of land in the Kootenai River valley have the potential to be treated by crop burning), wildlife habitat enhancement burning, (U.S.F.&W. refuge 1 mile west of the reservation), forest management silvicultural burning, residential woodstove smoke, and an increasing number and intensity of wildfires. These all have a significant impact on the severity and duration of unhealthy air quality.

The BAM1022 was purchased from Met One and delivered in December 2020. Following revisions to the air platform, programming to the Campbell Scientific Datalogger 1000x, acceptance of our QAPP by EPA and training by Met One, the unit began gathering data in July 2021.

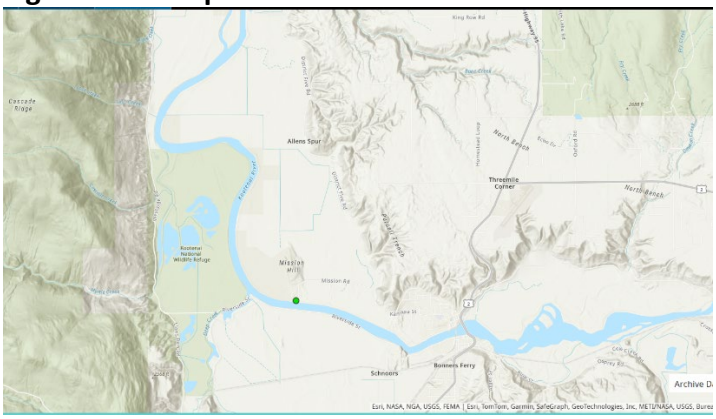
This QAPP describes project methods and establishes quality assurance and quality control procedures for ambient air monitoring by the Kootenai Tribe of Idaho to ensure consistent, reliable, and comparable data.

The Tribe and the State of Idaho Department of Environmental Quality (IDEQ) each desire

to cooperate with the monitoring of ambient air for criteria pollutants such as particulate matter ($PM_{2.5}$) and other air quality parameters. The Tribe and IDEQ have continued their Memorandum of Agreement (MOA) on air quality monitoring. Currently, the Tribal Air Quality Program provides real-time particulate matter ($PM_{2.5}$) data from its monitoring site and on the Kootenai Tribe Natural Resources website, Home | Kootenai Tribe of Idaho Natural Resources | Bonners Ferry, Idaho.

A6. PROJECT DESCRIPTION – Data Quality Objectives

Figure A6.1 Map of Kootenai Tribe PM 2.5 Monitor Air Station Site



The Ambient Airs $PM_{2.5}$ data will be collected at the following site (48° 42' 19" N and 116° 22' 12" W) located on the Kootenai Indian Reservation.

This Air Monitoring effort provides real-time, publicly available air quality data for particulate matter 2.5 microns ($PM_{2.5}$). Air quality is tracked and made public, increasing awareness and allowing the public to be better informed in decisions regarding activities during poor air quality times. The data also informs decision makers when air quality issues impact the economy and environment. Long-term data gathering and statistical analysis will allow for the opportunity of measurable and significant changes to be identified and control methods implemented.

Data for this network is submitted to the U.S. Environmental Protection Agency (US EPA) Air Quality System (AQS) via QREST on a periodic basis. Submissions are made in accordance with the Memorandum of Agreement between the Tribe, the US EPA, and the Idaho Department of Environmental Quality (IDEQ).

The Kootenai Tribe of Idaho Ambient Air Quality Monitoring program quantifies the concentration, in units of micrograms per cubic meter (µg/m3), of pm particulates less than or equal to 2.5 micrometers (µm) that have been collected on a 30 mm glass fiber filter tape. The Air Quality Specialist (AQS) will operate and maintain the Met One BAM-1022 $PM_{2.5}$ monitor in accordance with the operator's manual and the attached SOP. All

field activities described in this document or the related SOP will be performed by qualified staff in the Environmental Department and recorded on the BAM 1022 Site visit sheet (Appendix B)

The ambient air quality data collected will be reviewed with the National Ambient Air Quality Standards (NAAQS) standards for particulate matter 2.5; one of the six criteria pollutants set by EPA. Table A.6.2 displays current NAAQ Particle Pollution. We use the 24-hour and annual NAAQS levels as benchmarks for interpreting the $PM_{2.5}$ levels measured at our monitor in terms of human health impacts standards for $PM_{2.5}$.

Table A.6.2 EPA's NAAQS Particle Pollution 2.5

Particle Pollution	PM 2.5	Primary	1 year	9.0 µg/m^3	Annual Mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m^3	Annual mean, average over 3 years
		Primary/Secondary	24 hours	35µg/m^3	98th percentile average over 3 years

A7. QUALITY OBJECTIVES AND CRITERIA FOR MEASURING DATA – Data Quality Indicators

This section describes data performance criteria of Data Quality Indicators (DQI's) used to define acceptance and rejection criteria for ambient $PM_{2.5}$ measurements. The DQI's evaluated for this project include accuracy, bias, representativeness, comparability, and completeness. Data quality objectives are qualitative and quantitative statements that clarify the intended use of the data, define the type of data needed, and specify the tolerable limits on the probability of decision error due to uncertainty in the data. Once the DQI is established, the quality of the data must be evaluated and controlled to ensure that it is maintained within the established acceptance criteria. Measurement quality objectives (MQOs) are the translation of the DQIs into parameters that are directly measurable. The MQOs are set so that if they are met, the data user can assume that the DQIs have been met. MQOs are designed to evaluate and control various phases (sampling, preparation, and analysis) of the measurement process. The MQOs for the Kootenai Tribe of Idaho Monitoring Program will be defined in terms of the Data Quality Indicators (DQIs), listed below.

Accuracy

Accuracy is defined as the degree of agreement between a measured value and the true or accepted reference value of the parameter being measured. Accuracy is influenced by both random error (precision) and systematic error (bias) inherent in the measurement process, including environmental sampling and analytical operations.

The accuracy of the Met One BAM-1022 is assessed through comparison with measurements obtained using independent audit equipment calibrated against a different primary standard than that used to calibrate the instrument being evaluated. Performance audits of the BAM-1022 will be conducted by qualified entities with appropriate technical expertise. The Kootenai Tribe of Idaho will have IDEQ perform an annual audit beginning March, 2026

Bias

Bias is the systematic error that causes a measurement to differ consistently from the true value. Bias is evaluated by comparing measured values to a known reference standard and is expressed as a positive or negative percentage of the reference (true) value.

Representativeness

Representativeness is defined as the degree to which the data accurately and precisely characterize the ambient air quality conditions at the monitoring site. Representativeness is achieved through proper site selection, adherence to approved sampling methods, and implementation of the accuracy and precision procedures described in this QAPP and associated SOPs.

Completeness

Completeness is defined as the percentage of valid data obtained compared to the amount of data expected to be collected under normal operating conditions. The minimum completeness requirement for this project is 75 % valid data per calendar quarter, with a project goal of 100% completeness per calendar quarter.

Completeness is calculated as follows:

Percent Completeness (%) = (Number of Valid Results ÷ Number of Potential Samples) × 100

Comparability
Comparability is the confidence with which one dataset can be compared to another. Comparability is ensured through the use of consistent sampling and analytical methods, standardized data reporting units, and adherence to approved operating procedures. For this project, comparability is maintained by:

- Reporting all $PM_{2.5}$ concentrations in micrograms per cubic meter (µg/m³)
- Using an accepted, properly calibrated monitoring instrument
- Operating the BAM-1022 in accordance with its designated monitoring method and applicable guidance
- Following approved Standard Operating Procedures (SOPs) and the Met One BAM-1022 Operation Manual for all routine and repetitive tasks

Measurement Quality Objectives:
Measurement quality objectives (MQOs) are the translation of the DQOs into parameters that are directly measurable. The MQOs are set so that if they are met, the data user can assume that the DQOs have been met. MQOs are designed to evaluate and control various phases (sampling, preparation, and analysis) of the measurement process.

The MQO's for the STOI Ambient Air Quality Monitoring Program are listed in **Table 7.1**.

- Table A7.1: Measure Quality Objectives for $PM_{2.5}$ and meteorological parameters.

Table A7.1 Measurement Quality Objectives – $PM_{2.5}$ and Meteorological parameters		
Parameter	Criteria	Frequency
Continuous Method for $PM_{2.5}$ (BAM)		
Completeness	75% per instrument, per quarter	Quarterly
Verification, flow	± 4%	Quarterly
Verification, temperature	± 2.0°C	Quarterly
Verification, barometric pressure	± 10 mmHg	Quarterly
Verification, leak check	1.5 lpm	Quarterly

A8. SPECIAL TRAINING/CERTIFICATION

Adequate experience and training are integral to any monitoring program to ensure reliability, comparable data. AQ staff assigned to this ambient air monitoring network will meet the

combination of educational, work experience, responsibility, and training requirements for their positions. Records on personnel qualifications will be maintained by Tribal Human Resources. Training records will be kept by staff. Both will be accessible for review during outside audit activities.
Workshops and courses hosted by Northern Arizona University's Institute for Tribal Environmental Professionals (ITEP), EPA and other similar resource agencies will be made available to project personnel. Training is aimed at increasing the effectiveness of employees and the AQP.
The Kootenai Tribe of Idaho (KTOI) will employ professional personnel having at least the following qualifications:

- Sufficient professional and supervisory stature to communicate and cooperate effectively with program participants and professional contacts.
- Knowledge gained through a combination of formal education, training and experience in scientific discipline.
- Knowledge of data validation, quality assurance procedures and problem solving.
- Knowledge of appropriate federal laws, EPA regulations and policies, and ambient air quality protection programs.

A9. DOCUMENTS AND RECORDS

An Air Station binder shall be maintained and will include a copy of this QAPP, the Kootenai Tribe of Idaho BAM-1022 SOP (Appendices B), the air station audit sheet (Appendix A)and the Met One BAM-1022 Operation Manual as well as the purchase history of the BAM 1022 and any supplies.
A logbook is used to record air station visits and events directly related to the collection of ambient air quality data and the quality assurance activities described in this QAPP. These records include, but are not limited to:

- Site visits conducted for operation, maintenance, and inventory activities.
- Calibration and audit records
- Events and observations affecting operations,
- Measurements and data integrity

Ambient air quality data collected during the project will be stored on a database maintained by the AQS. Data will be backed up to the Tribal server monthly.
The Air Quality Specialist is responsible for maintaining original field monitoring records and will also serve as the Documents and Records Manager and ensure that copies of all identified documents and all project data are maintained in electronic form for a minimum period of five (5) years and are available for review during audits or assessments.

B1. Sampling Process Design

The Met One BAM-1022 is a continuous, fixed-site ambient air monitor designed to measure fine particulate matter ($PM_{2.5}$) concentrations using a Federal Equivalent Method (FEM). The sampling design is intended to provide representative, real-time $PM_{2.5}$ data for assessing ambient air quality trends, population exposure using the National Ambient Air Quality Standards (NAAQS) as a benchmark standard.

All sampling activities are conducted in accordance with the Met One BAM-1022 operation manual, EPA ambient air monitoring requirements, and approved Standard Operating Procedures to ensure data quality, comparability, and defensibility.

B2. Sampling Methods

The BAM-1022 Beta Attenuation Mass Monitor is US-EPA designated (#EQPM-1013-209 with BGI/Mesa Labs VSCC cyclone) continuous monitor and is operated as a **Federal Equivalent Method (FEM)** monitoring system for the measurement of ambient $PM_{2.5}$ concentrations. The AQS and Environmental Staff look at the National Ambient Air Quality Standards (NAAQS) in comparison as a benchmark. The monitor is configured and operated in accordance with its FEM designation and applicable EPA requirements.

Ambient air is drawn into the monitor at a **constant volumetric flow rate** through a **$PM_{2.5}$ size-selective inlet**, which removes particles larger than 2.5 micrometers in aerodynamic diameter. The sampled particulate matter is collected on a **glass fiber filter tape**, which advances automatically at regular intervals to allow continuous operation.

The BAM-1022 operates on an **hourly sampling cycle**, during which beta radiation attenuation is used to determine the mass of particulate matter deposited on the filter tape. Hourly $PM_{2.5}$ concentrations are calculated from the measured mass and sampled air volume and are stored electronically for data review, validation, and reporting.

Sampling occurs **continuously (24 hours per day, 7 days per week)** at a **single, stationary monitoring location** selected to be representative of community-scale ambient air conditions. The site meets applicable EPA siting criteria to ensure data representativeness and minimize localized interferences.

Measurement methods include using the continuous $PM_{2.5}$ data to the National Ambient Air Quality Standards (NAAQS) presented in Table A.6.1. The use of the 24-hour and annual NAAQS levels are benchmarks for interpreting the $PM_{2.5}$ levels measured at our monitor in terms of human health impacts. Measurements are intended to meet or exceed 75 percent data completeness on both an annual and daily basis.

Annual completeness must meet or exceed 75 percent of valid data. Daily data completeness requires a minimum of 18 valid hourly measurements per 24-hour period (75 percent). If fewer than 24 valid hourly measurements are available, the daily average concentration will be calculated using all available valid data, provided minimum completeness requirements are met.

Measurement Objectives described above are designed to ensure that $PM_{2.5}$ data collected at the Kootenai Tribe of Idaho ambient air monitoring site are representative, reliable, and suitable for their intended use. The Kootenai Tribe of Idaho BAM-1022 SOP (Appendices B), along with the Met One BAM-1022 Operation Manual, will be used to guide equipment operation, quality control, and quality assurance activities to produce high-quality ambient air monitoring data.

B3. Sampling Handling

The continuous data does not require laboratory or chain of custody handling procedures. In this case, sample custody is data custody. Measurements will be made in the field using a BAM-1022 fine particulate matter ($PM_{2.5}$) monitor. Resultant measurement data will be collected via the Campbell Scientific 1000x datalogger, stored electronically and backed up to a server and/or the cloud.
Filter tape will be stored immediately after removal from BAM-1022 tape spools, in its container box, marked with the date and time of application and removal.

B4. ANALYTICAL METHODS

The Air Quality Specialist will use the Met One BAM-1022 continuous $PM_{2.5}$ monitor to obtain daily average data for calculation of 24-hour- and annual average values. The NAAQS is used in comparison as a benchmark. The monitor shall operate in accordance with its US EPA FEM designation for $PM_{2.5}$ (number EQPM-0308-170). In addition, short term (e.g., ten-minute interval) data will be available for evaluation for transient variation of $PM_{2.5}$ concentration. The BAM 1022 employs an in-line sampling geometry in which the attenuation of beta rays across filter media is measured and particulate matter is sampled simultaneously. This allows ambient sampling to occur for virtually 60 minutes each hour. It also allows for beta ray measurements to be made for virtually the entire hour thereby improving sensitivity and time resolution. The BAM 1022 employs a unique “insitu” sampling technique where the beta measurement is kept at a near fixed temperature above ambient conditions, thereby minimizing measurement error due to loss of semi-volatile particulate material or due to excessive moisture in the sample stream.

It is a differential measurement: what is being measured is the change in mass that occurs during the measurement cycle. For the BAM 1022 this change in mass is mainly caused by particulate deposition onto the filter tape during the sampling process and changes in air density above and below the filter tape during the measurement process caused by fluctuations in temperature and pressure. The BAM 1022 continuously monitors the air temperature and pressure above and below the filter tape, determines the changes in these measured parameters during the measurement cycle and then compensates for them in order to accurately determine mass deposition that occurs on the filter tape during the measurement event. The filter tape mass remains constant during the measurement process and therefore is not part of the differential mass

B5. QUALITY CONTROL REQUIREMENTS

To optimize data quality, the Kootenai Tribe of Idaho Environmental Department will assess the quality of the data using this document, BAM-1022 SOP; Appendices B as well as with guidance from the Met One BAM-1022 Operation Manual when necessary.

Table B5.1: Quality Control and Accuracy Matrix.

Activity	Frequency	Acceptance Criteria	Deviation procedure
Continuous BAM 1022 $PM_{2.5}$ Measurement Systems - Verification			
Flow Rate	Quarterly	± 4% of transfer standard	re-calibrate instrument
Ambient Temperature	Quarterly	± 2° C of transfer standard	re-calibrate instrument
Barometric Pressure	Quarterly	± 10 mmHg of transfer standard	re-calibrate instrument
Leak Check	Quarterly	<1.5 lpm	follow operating manual to eliminate leak

B6. INSTRUMENT TESTING, INSPECTION, AND MAINTENANCE

Instrumentation in this project is routinely checked and calibrated as necessary. Calibration specifications are detailed in Table in Section A7 - Table B5.1.

Preventive Maintenance

Table B6.1 summarizes the preventive maintenance procedures for this project. The airstation and equipment are visited and assessed weekly. Any emerging needs can then be identified and addressed in a timely manner. In the event there are environmental factors (Smoke, Construction) the background determination maintenance will be paused until such time that these events will not negatively impact the determination. Preventative Maintenance is scheduled out as follows:

Table B6.1: Preventive Maintenance Schedule.

Component	Item	Interval	Procedure/reference

BAM 1022 Instrument	Replace the filter tape	Bi - Monthly	Operating manual Sec. 4.2
	Basic leak check	Quarterly	Operating manual Sec. 6.2
	Nozzle, vane and pinch roller cleaning	Quarterly	Operating manual Sec. 6.6
	Self-Test (Tape movement, flow, pressure)	Weekly	Operating Manual
	Flow check (verify and/or calibrate flow system)	Quarterly	Operating manual Sec. 6.4
	Clean PM10 inlet particle trap	As Needed	Bam 1022 Manuel/Check with MetOne
	Clean $PM_{2.5}$ cyclone particle trap	As Needed	Bam 1022 Manuel/Check with MetOne
	Verify or set the clock	8 weeks	Operating manual Sec. 3.5.1
	Span Mass Audit	Semi-annually	Operating manual Sec. 6.8
	Background determination	Annually	Operating manual Sec. 6.5
	Internal Nozzle Cleaning	Quarterly	Operating manual Sec. 6.7
	Replace the pump muffler	As needed	Operating manual Sec. 3.4.11
	Build AC Pump	As needed	BX-126 Manual
	Empty PM10 inlet water jar	As needed	Bam 1022 Manuel/Check with MetOne

B7. INSTRUMENT CALIBRATION

Calibrations include adjusting the instrument or sensor to produce a response that is consistent with a standard. Calibration of a flow rate, for example, must consist of at least three separate flow rate measurements (a multipoint calibration, which is different than a multipoint verification) approximately evenly spaced within the range of the operational flow rate. Table B7.1 summarizes the calibration frequency and requirements of the equipment used in this project. Calibration activities follow a two-step process:

1. Certifying the calibration standard (this may be a thermometer kept in the office except when it is used for calibrations, a flow rate transfer standard, a barometer, or whatever is appropriate to the sensor or instrument being calibrated) against a NIST standard (usually done by sending the calibration standard to a weights and measures laboratory), and
2. Comparing the calibration standard and/or transfer standard against the routine samplers or sensors.

Field standards requiring calibration include flow transfer standard, temperature standards, altimeters/barometers, and manometers and the calibrations are done yearly. The procedures used for these calibrations are detailed in Appendix A, Standard Operating Procedures. These calibrations are the responsibility of the AQ Specialist and are usually subcontracted.

Calibration Methods

Flow rate verifications via the self-test are performed on a quarterly basis. If verification is out of

specification, then a software calibration is conducted. A software flow controller calibration is conducted when either verifications or audits are out of specification and semi-annually. The BAM mass audit is scheduled for every six months and annually the background determination is made.

Single point ambient temperature and barometric pressure calibrations are performed annually or when verifications or audits are out of specification. Annual audits are performed by Idaho Department of Environmental Quality (IDEQ) through agreement between the Tribe and State to provide an independent audit.

If any measurements are found out of specification, the sampler is then calibrated. The Standard Operating Procedures used for these calibrations are detailed in operation manuals located in Appendix A and are the responsibility of the AQ Specialist.

Table B7.1: Calibration Thresholds

Continuous BAM 1022 $PM_{2.5}$ Measurement Systems – Calibration Assessment			
Flow Rate	Quarterly	± 4% of transfer standard	re-calibrate instrument
Ambient Temperature	Quarterly	± 2° C of transfer standard	re-calibrate instrument
Barometric Pressure	Quarterly	± 10 mmHg of transfer standard	re-calibrate instrument
Leak Check	Quarterly	<-l.5 1pm	follow operating manual to eliminate leak

B8. EQUIPMENT, SUPPLIES, AND CONSUMABLES

The AQ Specialist uses a variety of supplies. When these are received, they are inspected for proper part number, size, and condition. Vendors are contacted if any problem is observed. Various supplies and consumables are used in association with this project. Consumables are purchases that meet the criteria specific for the application. Each item received is visually inspected by the AQ Specialist for integrity before being placed in service.

B9. NON-DIRECT MEASUREMENTS

No data obtained from the Internet, computer bulletin boards, or databases from outside organizations shall be used in creating reportable data or published reports unless documentation of the source of the data is attached to the report.
Data from the EPA AQS database may be used in published reports with appropriate caution. Care must be taken in reviewing/using any data that contain flags or data qualifiers. If data is flagged, such data shall not be utilized unless it is clear the data still meets critical QA/QC requirements. It is impossible to assure that a database such as AQS is completely free from errors including outliers and biases, so caution will be used in all cases. The AQ Specialist should review available QA/QC information to ensure that the external data are comparable to Tribe measurements and that the original data generator had an acceptable QA program in place.

B10. DATA MANAGEMENT

This section provides a description of data validation, storage, transfer, reporting and backup requirements and special documentation requirements.
Continuous $PM_{2.5}$ Monitoring: Continuous $PM_{2.5}$ measurements are recorded by the Campbell Scientific 1000x data logger as hourly averages. Data is automatically stored on a data logger at the monitoring site. Data sets are downloaded at least once a month and loaded into an Excel spreadsheet. The Air Quality Specialist visually scans the data for unusual values and checks any missing data to see if it should be invalid or flagged. The AQS may know why the data is missing or can check the flag assigned to the data to see if it is reasonable. Data is submitted to the Air Quality System via QREST (Quality Review and Exchange System for Tribes)on a regular basis and submitted, in report format, to EPA quarterly.
QREST is an open-source, web-based data management tool designed to help collect, validate and share air quality data in compliance with federal and industry standards.
Data is downloaded from the Campbell Scientific Datalogger, located on the airstation and connected to the BAM1022. Once downloaded and reviewed, the data is loaded into an Excel spreadsheet and uploaded into QREST. A two step review and approval process is followed to

mark the data as acceptable for loading into AQS. Once the review process is complete, the data is submitted to AQS for approval and acceptance. An email is generated by AQS providing the status of the data submitted. (See D2, Validation and Verification Methods)
See Appendix C: SOP Accessing Data

Field Logs: Field notebooks (e.g., site logs and maintenance logs) will be maintained in the Environmental Department office. Field logs will detail activities, observations and events affecting, or thought to affect the performance and data of the air station.

C1. ASSESSMENTS AND RESPONSE ACTIONS

An assessment of data, procedures and quality control methods annually will be used to identify problems and ensure that work is performed in compliance
The Air Quality Specialist will assess any work performed and the Environmental Director will periodically monitor and evaluate the work.
Any significant findings will be documented in writing and submitted to the EPA Region 10 Project Officer. These evaluations of performance will be based on how closely actual work activities compare to those described in this QAPP and the SOPs.

Field notebooks and database spreadsheets prepared by the AQC will be evaluated by the Environmental Director for accuracy. The AQC will evaluate the results of the quality control samples and summarize the findings in writing to the Environmental Director who will review the findings, discuss them with the Air Coordinator and determine any appropriate corrective action(s).

Although no formal assessments are planned, the Regional Quality Assurance Manager, or any other EPA Region 10 representation may conduct an assessment or technical audit of the project or any of its specific work activities or processes at any time.

C2. REPORTS TO MANAGEMENT

The Air Quality Specialist will validate and verify field data and enter results into the database monthly. The spreadsheet of monthly data will be provided to the Environmental Director for review. The data collected will be reviewed and reported on in a quarterly report submitted to the EPA Project Officer and copied to the E.D.

D1. DATA REVIEW, VERIFICATION AND VALIDATION

All data collected will be reviewed, verified and validated in accordance with this QAPP, the S.O.P. for the data collection for the BAM 1022 and with input from the Met One User Manual. Exceptional events, operational error and/or equipment failure may result in data that needs close examination, comparison to other verified data and, finally, the decision to either flag or invalidate that data set.
A description of this process is below.

D2. VALIDATION AND VERIFICATION METHODS

All data validation and verification will be under the umbrella of ensuring accuracy. To that end the following will be standard review questions for reasonable determination:

- Was the data operations performed according to the SOPs governing those operations?
- Did the sample or monitor perform correctly?
- Was there Individual checks such leak checks, flow checks, meteorological influences, and all other assessments, audits, and performance checks? All must have been acceptably performed and documented.
- Did the environmental sample pass an initial visual inspection?
- Have manual calculations, manual data entry, or human adjustments to software settings been checked?
- Were automated calculations verified and accepted prior to use?

D3. RECONCILIATION WITH USER REQUIREMENTS

Evaluation of quality control samples by the Air Specialist and Environmental Director will ensure that the data is validated or rejected and can be used by tribal decision makers or tribal air program development. Any data that does not meet the data quality criteria listed in this QAPP and supported by the BAM- 1022 SOP will be considered invalid.

Appendix A: Air Station Audit Sheet

Date: _____
Staff: _____
Start Time: _____
End Time: _____

Parameters		BAM	Ref Std	Allowed Variance	Pass?
Ambient Temperature C:				2degCelcius +/-	
Barametric Pressure mmHg:				10 mmHg +/-	
Flowrate lpm	14.00			4% dif +/-	
	17.50				
	16.70				
MECHANICAL PARAMETERS:					
		(y/n)			(y/n)
Pump muffler unclogged:			PM10 trap cleaned:		
Sample nozzle clean:			PM10 drip jar empty:		
Tape support vane clean :			PM10 bug screen clean:		
Capstan shaft clean :			PM2.5 trap cleaned:		
Rubber pinch rollers clean:			Inlet tube seal OK:		
Chassis ground wire installed :			Inlet tube aligned OK:		

Self Test	Leak Test:
(circle one) pass fail	(circle one) pass fail

COMMENT FIELD:

Washington State Department of Ecology
BAM 1022 Quality Control Check Results

Revised 122021

AQS No.		Date	
Location		Operator	
Sampler Serial No.		QC Start Time	PST
State Tag No.		QC Stop Time	PST
Model No.	PM2.5 BAM 1022		
		Temp Std. Serial No.	
Flow Std. Model		Temp Std. Cert. Date	
Flow Std. Serial No.		Pressure Std. Serial No.	
Flow Std. Cert. Date		Pressure Std. Cert. Date	

As-Found Leak Check

Indicated flow (≤1.5 lpm)	
Pass/Fail	

As-Left Leak Check

Indicated flow (≤1.5 lpm)	
Pass/Fail	

Advanced Leak Check

Perform only if As-Found Leak Check Fails

Indicated flow (≤0.3 lpm)	
Pass/Fail	

Clock Verification

Data logger time	
BAM time	
BAM time adjusted?	

Temperature QC

Ambient Temp	Act:		°C
	Ind:		°C
±2ºC	Diff:		°C

Pressure QC

Barometric Pressure	Act:		mmHg
	Ind:		mmHg
±10mmHG	Diff:		mmHg

Flow QC

Sampler Design Flow Rate	Indicated Flow Rate (BAM) lpm	Actual Flow Rate (STD) lpm	% Difference (±4%)
Flow 1 (16.7)			
Flow 2 (17.5)			
Flow 3 (14.0)			
	Design Flow Difference (±5%)		

Mass Span QC

Mass Span	Calc mass:		µg
	ABS mass:		µg
±5%	Perc Diff:		%

QC Result:

Comments:

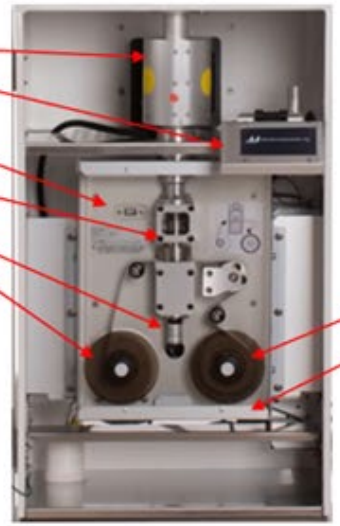
OPERATING AND MAINTAINING THE BAM 1022

Setting Up the BAM-1022

Do not lift the BAM 1022 monitor by the angled solar radiation shield mounted to the top of the enclosure. It is not designed to hold the weight of the full assembly and can easily be damaged if used to lift the monitor. Instead, firmly grasp the sides of the housing and lift. It would be easiest to have at least two people for this step.

Parts of the BAM-1022

- ✓ Heater
- ✓ Touch Display
- ✓ USB-A/B
- ✓ Nozzle
- ✓ Detector
- ✓ Tape Take-up



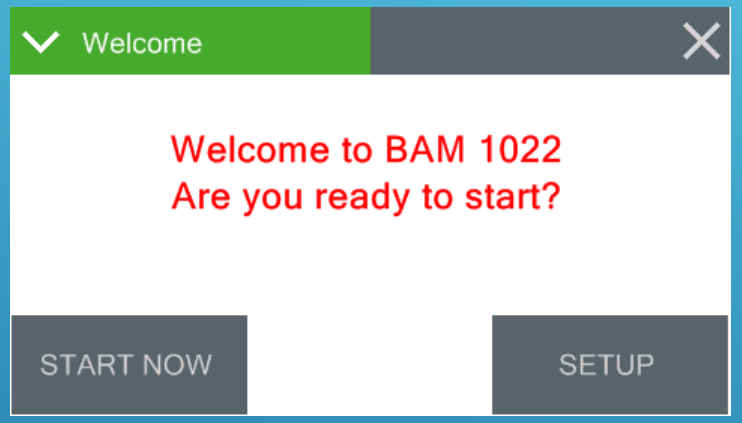
- ✓ PM_{10} Inlet
- ✓ VSCC
- ✓ 597/597A
- ✓ Enclosure
- ✓ Transport Box
- ✓ Pump Box
- ✓ Tape Supply
- ✓ Cover

For the first time or after relocating:

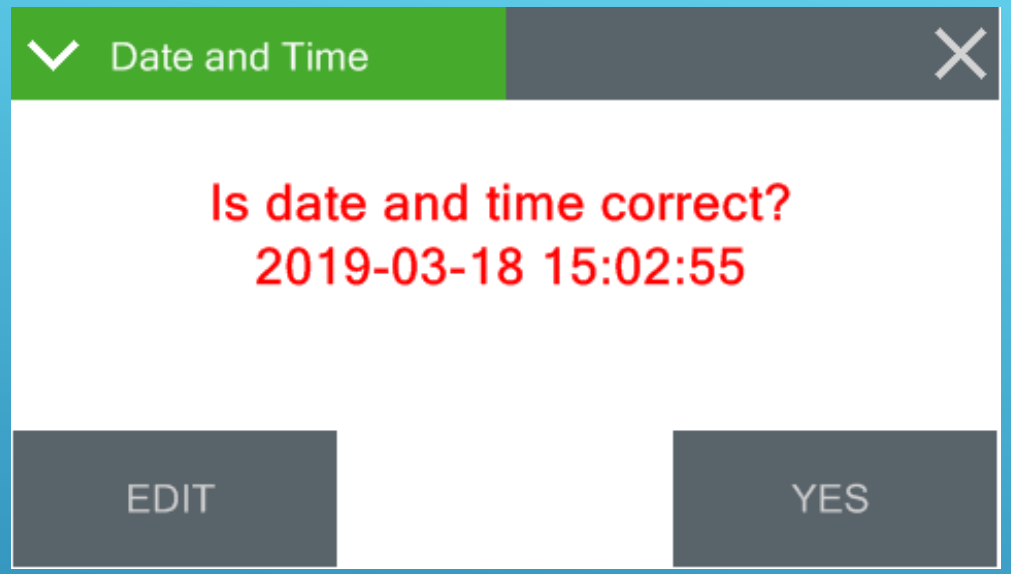
- Prior to turning on the BAM 1022 for the first time or after relocating, confirm that all equipment set up procedures have been completed.

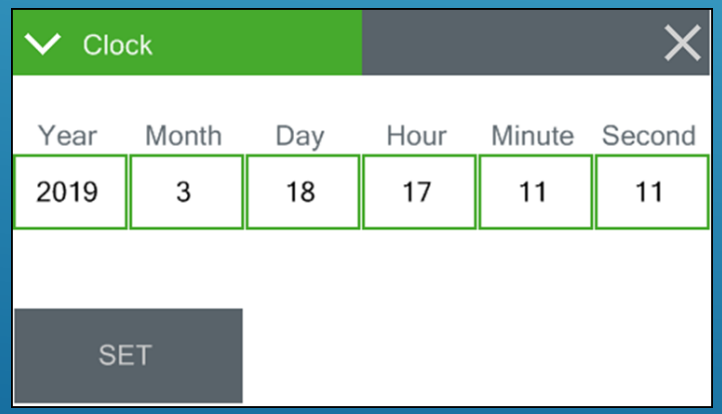
- The BAM 1022 power switch is located behind the rear panel near the bottom of the enclosure on the left hand side. Upon initial power up, the touchscreen will display a 60 second countdown. The display will beep once every six seconds while counting down. After 60 seconds have elapsed, the monitor will advance the tape one spot and begin sampling.

- If tape is missing, or hardware errors (such as a missing sensor) are detected, the monitor will remain idle.



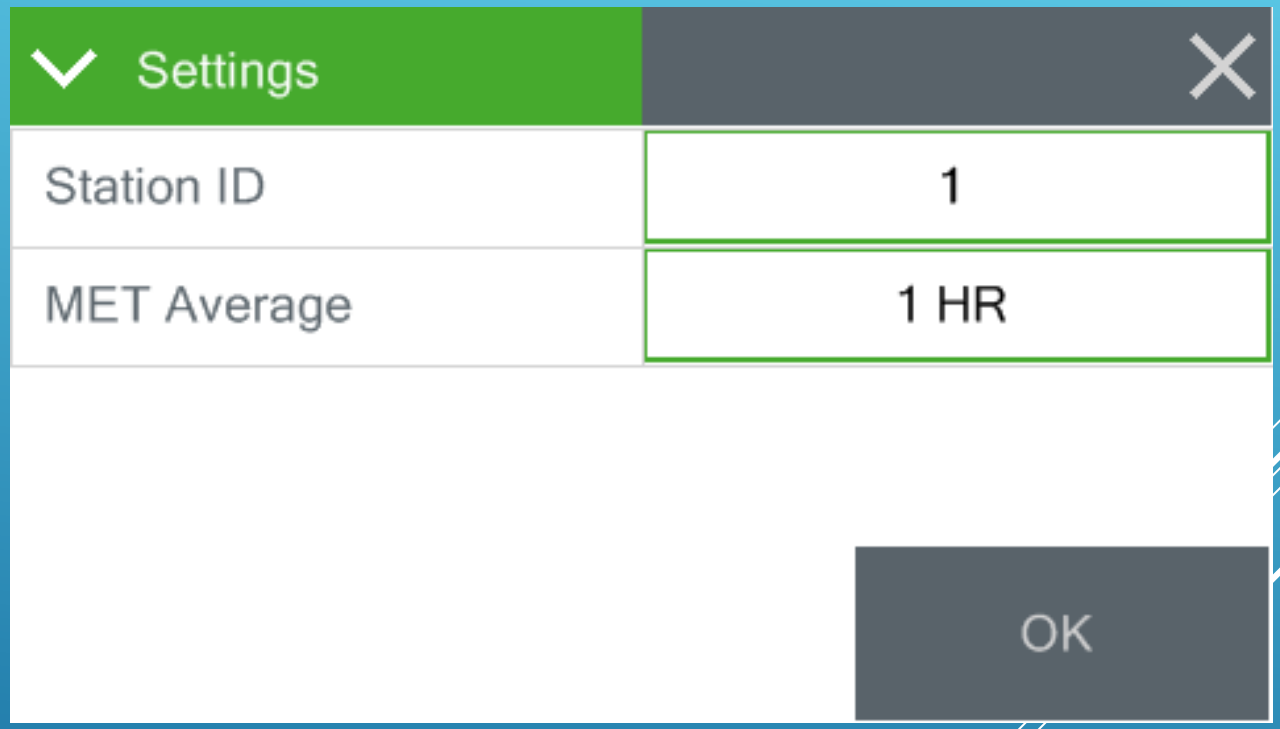
When power is applied to the BAM 1022, the unit will show the startup splash screen for the touchscreen display for a moment, then display the welcome screen:





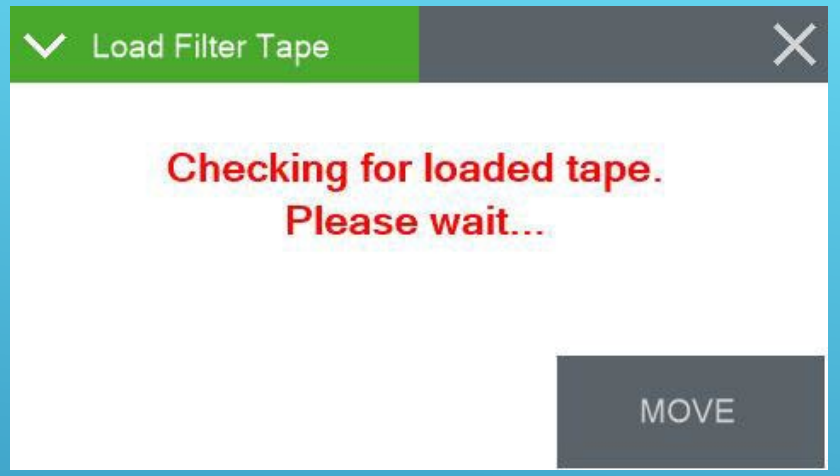
Press the SETUP button and the clock screen is displayed as shown below left. If the time and date are correct, press the YES button again. If you need to change the date or time, press the EDIT button.

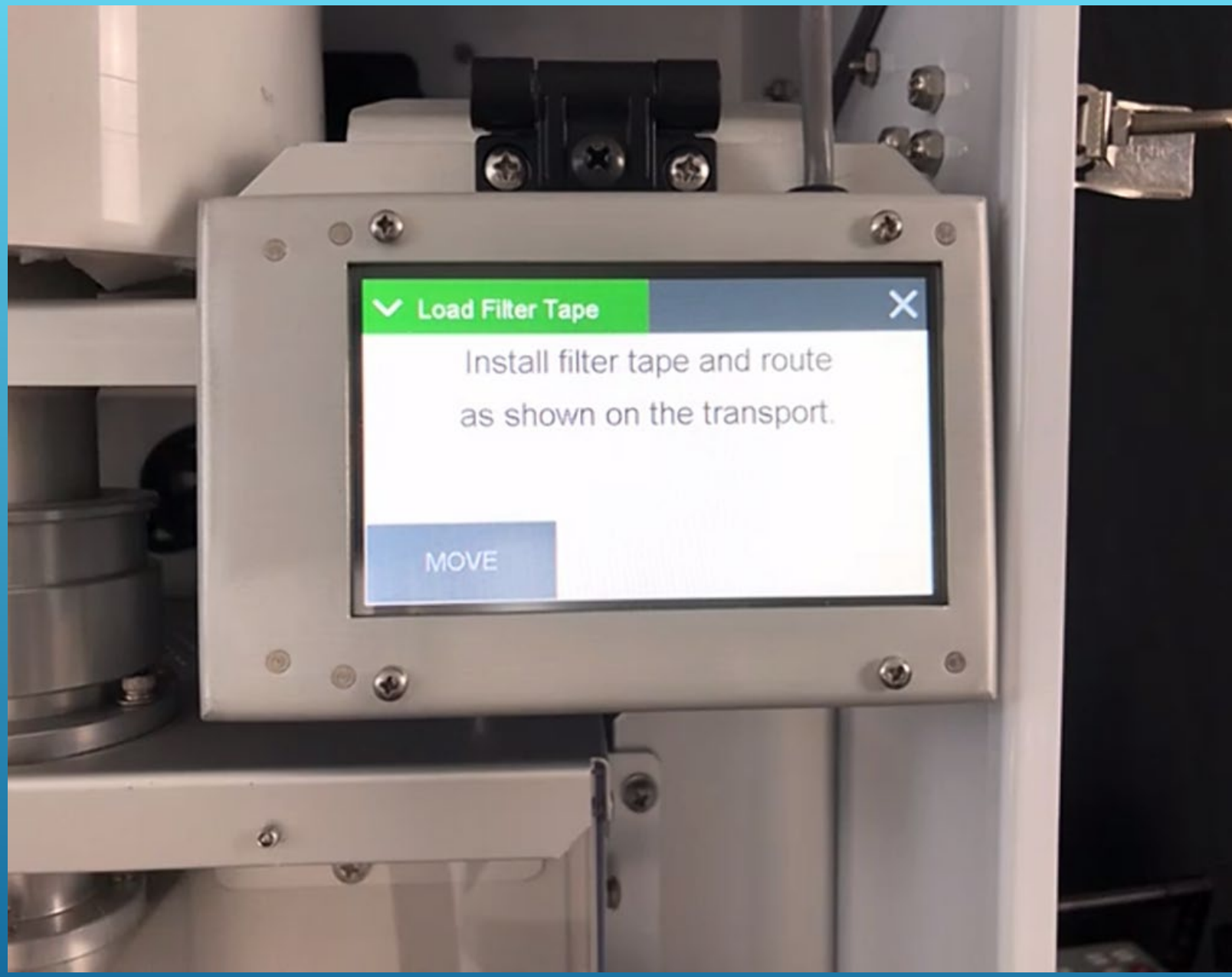
If the settings need to be changed, press the green bordered value box to be updated and the associated edit screen will be displayed.



Loading Filter Tape

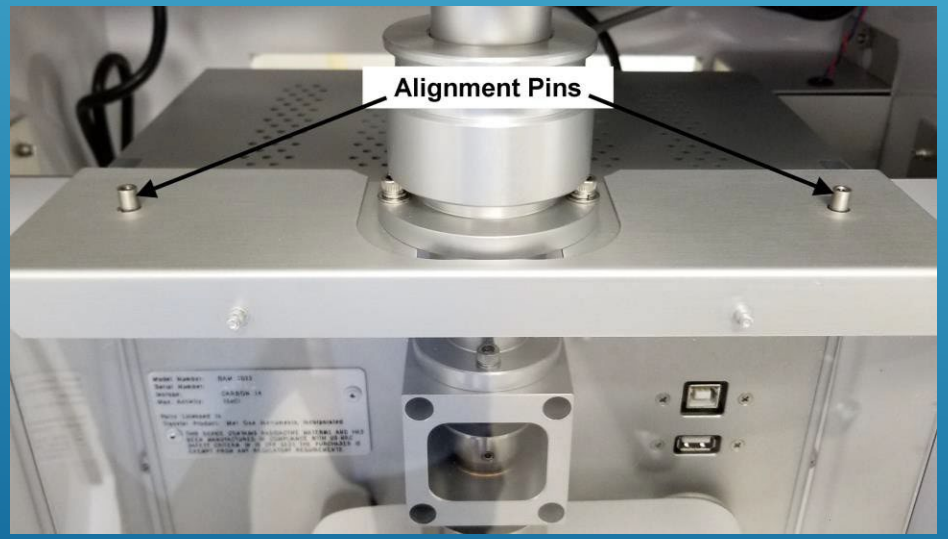
After verifying the settings, the BAM 1022 will need to check whether or not a roll of filter tape is installed. First, you will be instructed to remove the shipping vane protector if it is installed. Then the monitor will then check the tape installation. If no tape is detected, the unit will prompt you to install a new roll:




Load Filter Tape
Install filter tape and route
as shown on the transport.
MOVE

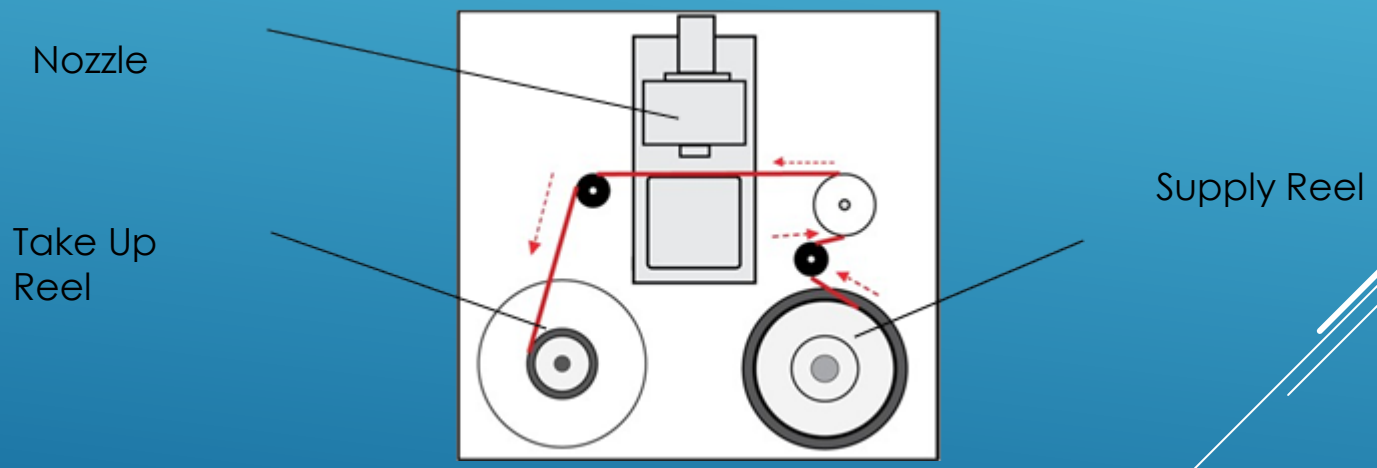
Filter tape must be installed before sampling will commence. Use the following steps to load the roll of filter tape:
Press the “Operate Menu” button and select the “LOAD FILTER TAPE” option.
Entering this screen will cause the nozzle to raise and instructions to load the tape per the door mounted diagram are displayed.

Remove the Plexiglas cover by pulling out at the bottom to release the Velcro holding strip, and then lifting the cover off of the two alignment pins at the top (see below).



1. Unscrew and remove the two clear plastic reel covers and both tape spool cores.
2. Make sure the BAM nozzle and vane are completely clean of debris.
3. Slide an empty tape spool core on to the take-up reel (on the left).
4. Unwrap a new roll of filter tape. Place the full roll on the supply reel and route the tape through the nozzle and vane as indicated on the inside of the door of the instrument.

*Keep old cardboard wheel to put new tape onto



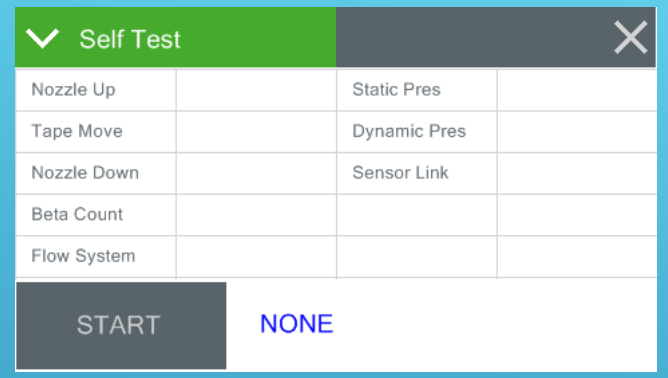
1. Fasten the loose end of the new filter tape to the take-up spool core with a piece of tape.
2. Rotate the spools by hand to remove tape slack. (6 – 7x)
3. Replace the two clear plastic reel covers and fasten the screws tightly by hand.
4. Press the grey MOVE button to move the tape and verify it has been properly loaded.
    i. If the tape is correctly installed, the display will report “TAPE IS OK!” in green letters beside the grey button.
    ii. If there is a problem, it will report “TAPE FAIL” in red letters.
        1. Verify the tape is properly routed
        2. Remove any slack by rolling up loose tape on the tape spools.
        3. Press the MOVE button again to take out any additional slack and verify the tape is loaded correctly.

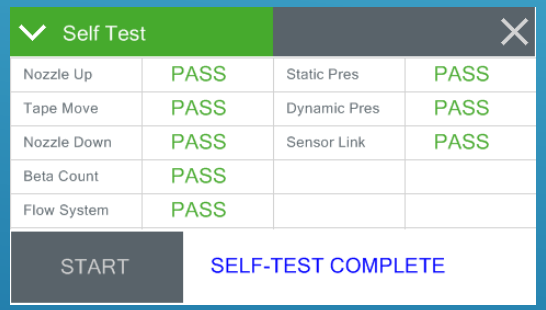
Notes:

- One roll of filter tape will last approximately 8 weeks when the BAM 1022 is set up to operate as a U.S. EPA $PM_{2.5}$ FEM.
- Filter tape should never be re-used. This will lead to measurement errors.

If tape is detected, the unit will proceed to the Self Test screen as shown in the images.

Press START to start the self test. After the self test is complete, press X to exit and start operation.





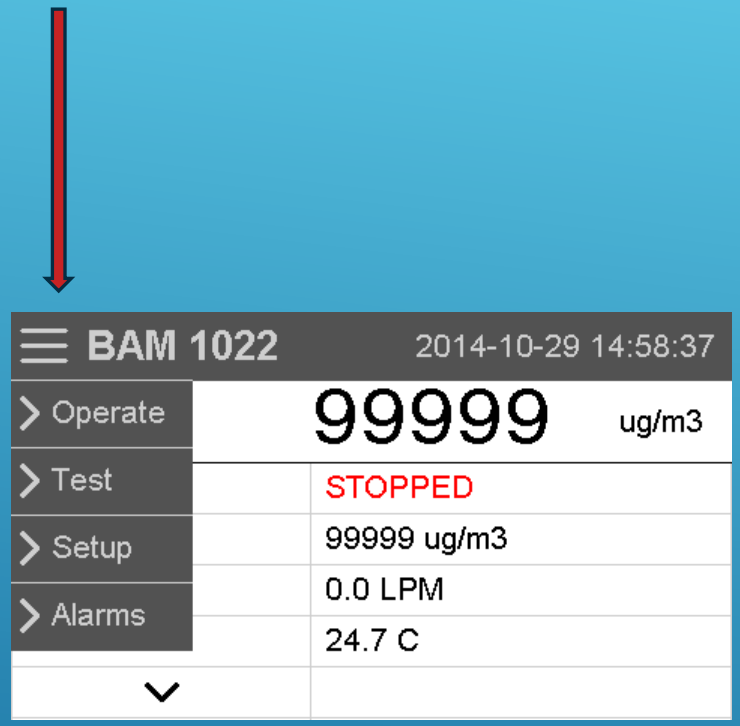
Begin all maintenance and/or calibrations at, or very soon after the top of the hour.

The BAM 1022 measurement cycle is essentially one hour. The BAM 1022 always reports the hourly PM concentration at the top of the hour

When the cycle commences, the BAM 1022 will automatically advance the tape to the next sampling spot. The nozzle will be lowered on to the tape and sampling will begin. Flow rates are actively controlled, and beta ray transmission is monitored throughout the cycle. At the end of the sampling event, the BAM 1022 will shut off the sample pump and repeat the cycle. The gap between measurements is one minute.

The BAM 1022 calculates, reports and records hourly PM concentrations at the top of each hour.

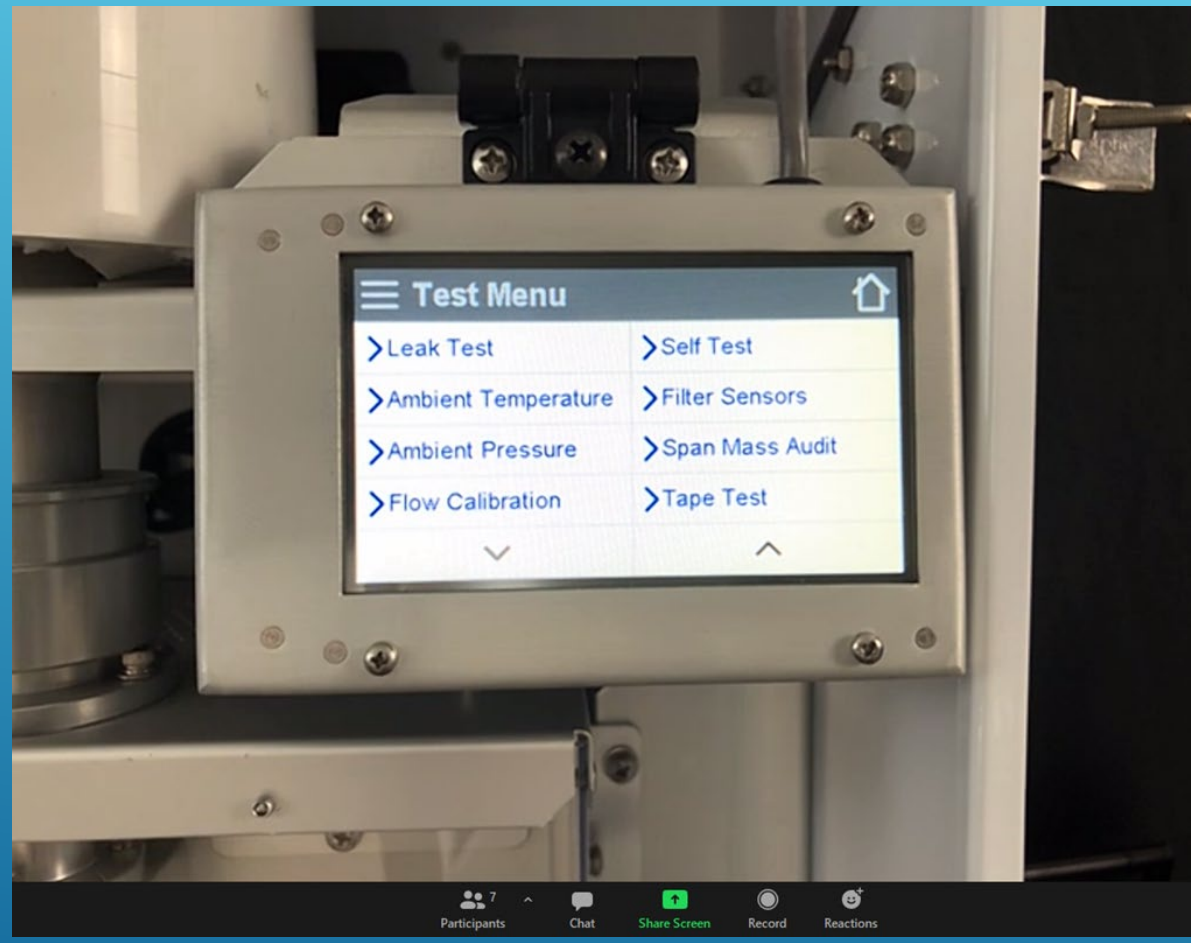
ORDER	Maintenance Item	Interval	Reference
1.	Nozzle, vane and pinch roller cleaning	8 Weeks	Sec. 6.6
2.	Replace the filter tape - U.S. EPA PM2.5 FEM Applications	8 Weeks	Sec. 4.2
3.	Basic leak check	8 Weeks	Sec. 6.2
4.	Flow audit (verify and/or calibrate flow system)	Semi Annually	Sec. 0
5.	Verify or set the clock	Semi Annually	Sec. 3.5.1



To access the various main menus, press the three horizontal lines in the top left corner. A drop down menu will appear to allow selection of any of the four main menus. This option is available on all main menu screens and on the main operating screen.

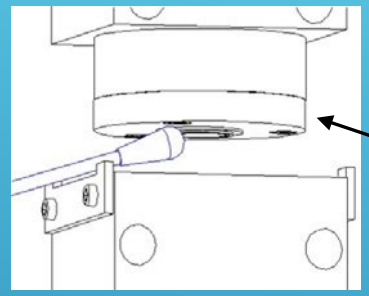
On Schedule and Upon *Deployment or Relocation*

1. Nozzle/Vane Cleaning
2. Replace Tape if needed
3. Leak Test
4. Test/Set Ambient Temperature
5. Test/Set Pressure
6. Flow Calibration

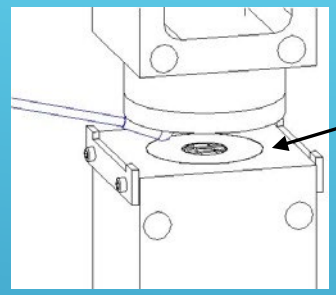


Background Determination (Mass Offset)

It is recommended that the BAM 1022 undergo a background test upon initial deployment, annually, and after any major repairs have been performed.



Nozzle

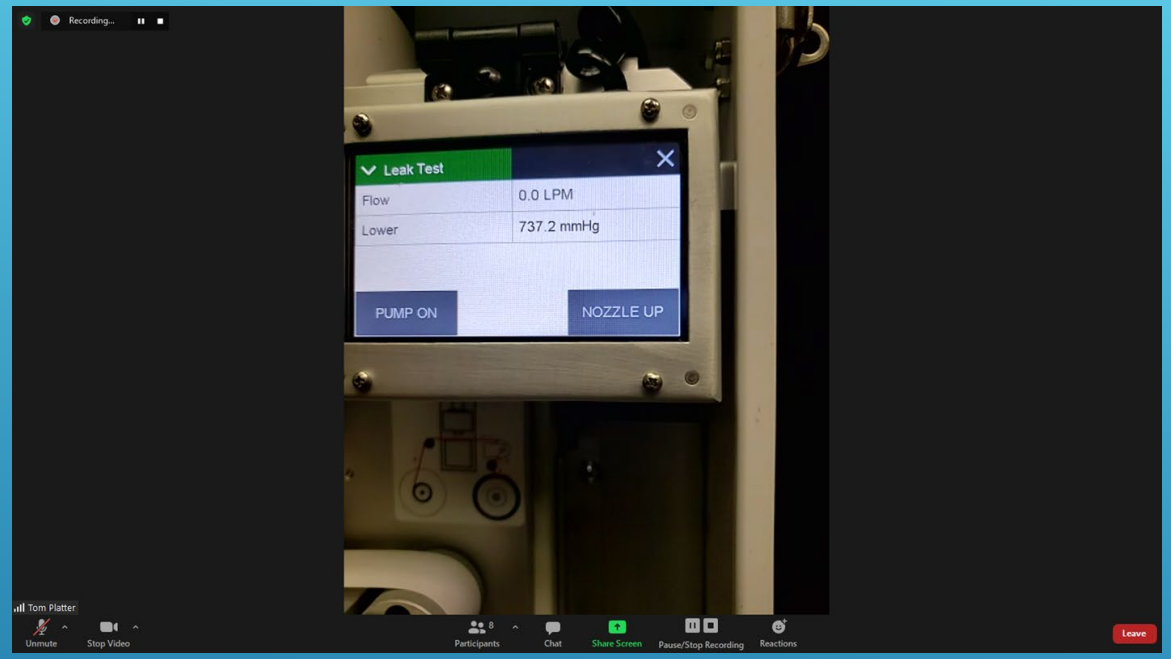


Vane

Use the following steps to clean the nozzle and vane assembly:

1. Navigate to the Test>Leak Test menu and raise the nozzle, if needed.
2. Remove the BAM 1022 filter tape.
3. Thoroughly clean the nozzle seal and vane with a clean swab dipped in alcohol. Do not use any sharp tools. Allow the alcohol to dissolve hardened deposits. Since the beta detector is located beneath the vane, prevent debris from falling through the holes.
4. If debris falls through or is found beneath the vane, carefully clean the cavity with a blast of compressed air.
5. Re-install the BAM 1022 filter tape per section 4.2 and perform a leak check as instructed in section 6.2.

Leak Test: Upon commissioning and after replacing filter tape (8 weeks).



Basic Leak Check

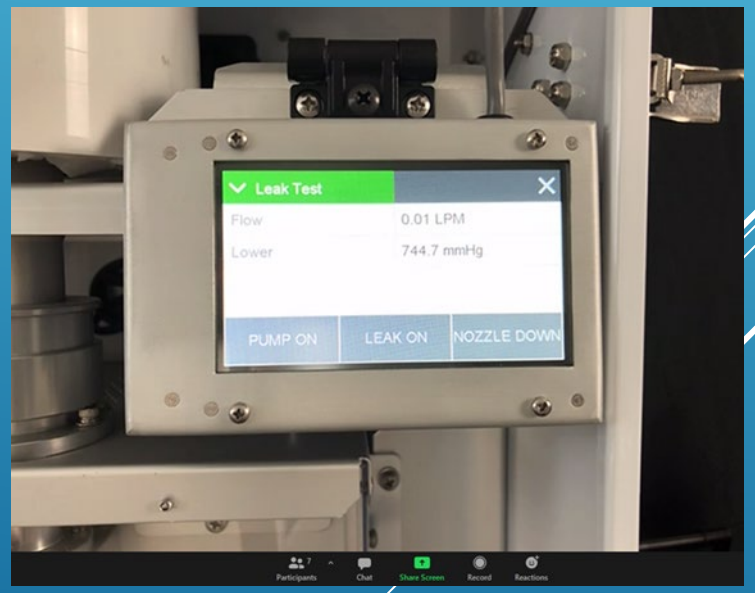
The BAM 1022 requires periodic leak checks to ensure that the sample flow is not being diluted. The majority of leaks will occur at the nozzle - tape interface. A leak may also be caused by degraded O-rings, or an improper inlet tube to receiver connection.

Leak Test

Remove the PM10 size selective inlet from the sample tube and install the BX-305 leak check valve (or BX-302 zero filter). If a PM2.5 cyclone is being used, it should be left in place and included in the leak check. Verify that the leak valve is in the open position.

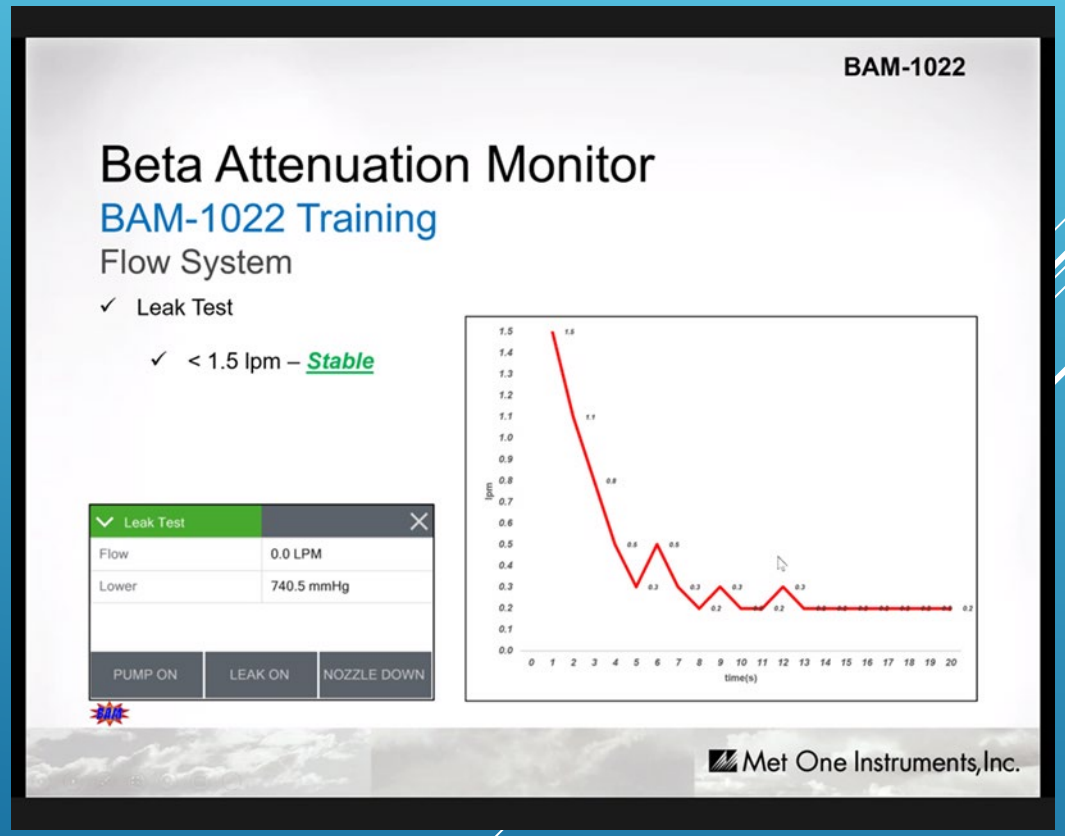
Go to the TEST>FLOW CALIBRATION menu. On the ZERO FLOW test screen, verify the Flow value indicates 0.00 LPM. If it does not, press the grey zero button and confirm that the FLOW value changes to 0.00 LPM.

- Navigate to the TEST>LEAK TEST menu
- Verify the nozzle is in the down position. If it is not, press the nozzle control button to lower it. The BAM 1022 is ready to begin the leak test.
- Press the PUMP ON button and the BAM 1022 will start the pump. Monitor the flow rate on the BAM 1022 display and allow it to stabilize at 16.7 LPM
- Press the LEAK ON button.
- Close the BX-305 valve. The flow rate should begin dropping as the sampling system is evacuated.



The pump flow rate should drop below 1.5 LPM.
If the flow rate is 1.5 LPM or less, the leak check is satisfactory, Exit to the main menu.

- Slowly open the BX-305 valve to release the vacuum inside the BAM 1022.
- Remove the BX-305 and replace the PM_{10} size selective inlet.



If the basic leak check fails, advanced leak tests will isolate the problem. Refer to your operators manual for performing the following:

Total System Leak Test

This procedure will create a positive seal at the nozzle / vane interface. With this seal in place, the rest of the flow system can be tested for leaks

Lower System Leak Test

This procedure will split the flow system at the nozzle / vane interface. With this seal in place, only the portion of the flow system downstream of this location will be placed under vacuum and tested for leaks.

Filter Tape Leak Test

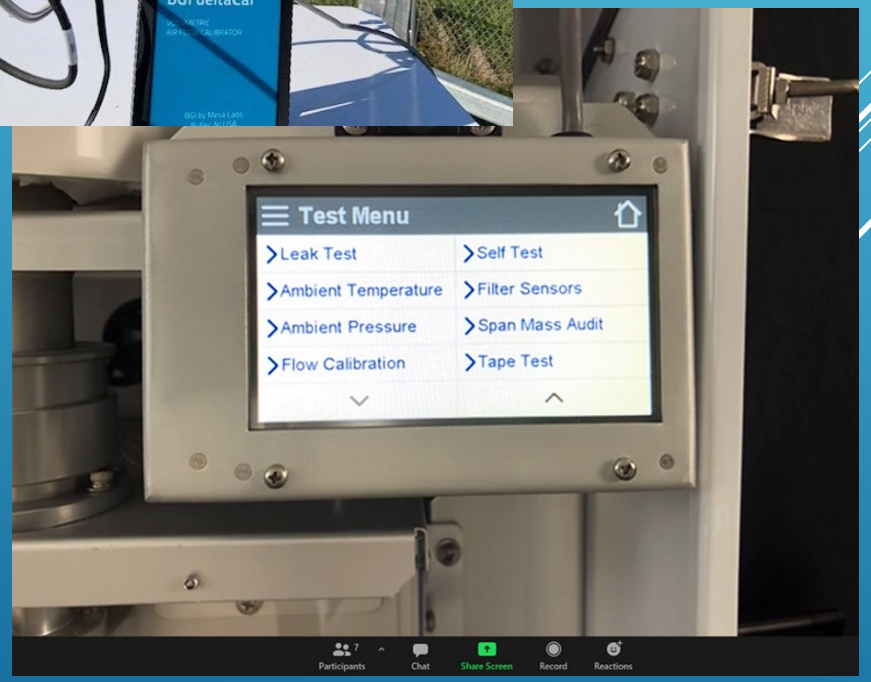
Use this procedure to assess a high flow rate at the nozzle / tape interface. It is assumed that the Basic Leak Check and the Total System Leak Test have both already been performed and a high flow rate at the nozzle / tape interface was found. It is also assumed that the filter tape is still not installed.

See Troubleshooting for further information

Calibrations for Ambient Temperature and Pressure

Use the following steps to verify and calibrate sensors associated with the BAM 1022 sample flow control system.

1. Make certain that the BAM 1022 has warmed up for at least 60 minutes prior to performing calibrations. Also, allow the calibration transfer standard (CTS) on the BGI to equilibrate to ambient conditions for no less than 30 minutes.
2. Go to the Operate menu and select Stop Sample to stop the current sample.
3. Remove the size selective inlet(s) from the sample tube and install the calibration transfer standard (CTS).
4. Enter the Test > Ambient Temperature screen.

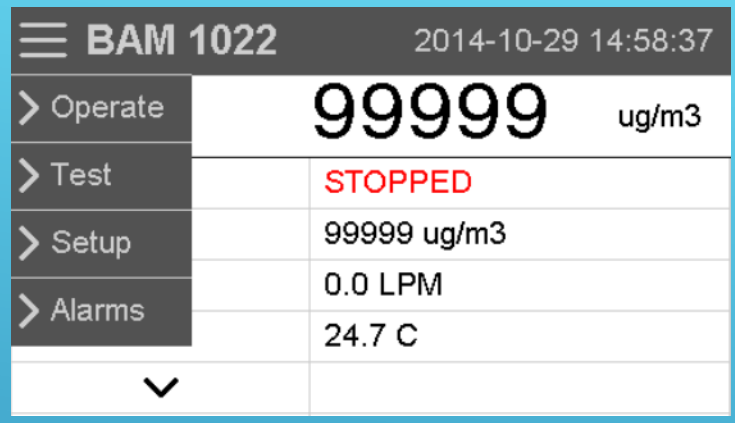


Ambient Temperature

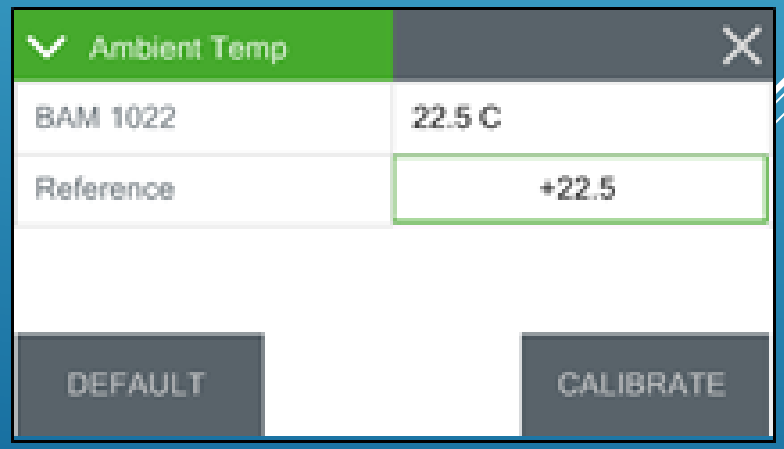
Enter the Test > Ambient Temperature screen.

This screen provides the options and indications needed to default, verify, and calibrate the ambient temperature sensor as part of the flow audit and calibration.

Use F.T. (Filtered Temperature) numbers.



If the temperature needs to be adjusted, press the green bordered value box (Reference Box) and the numerical entry keypad will be displayed.
Enter the CTS value (On BGI Delta Cal) in the Standard field and press OK to return to the Ambient Temperature screen.

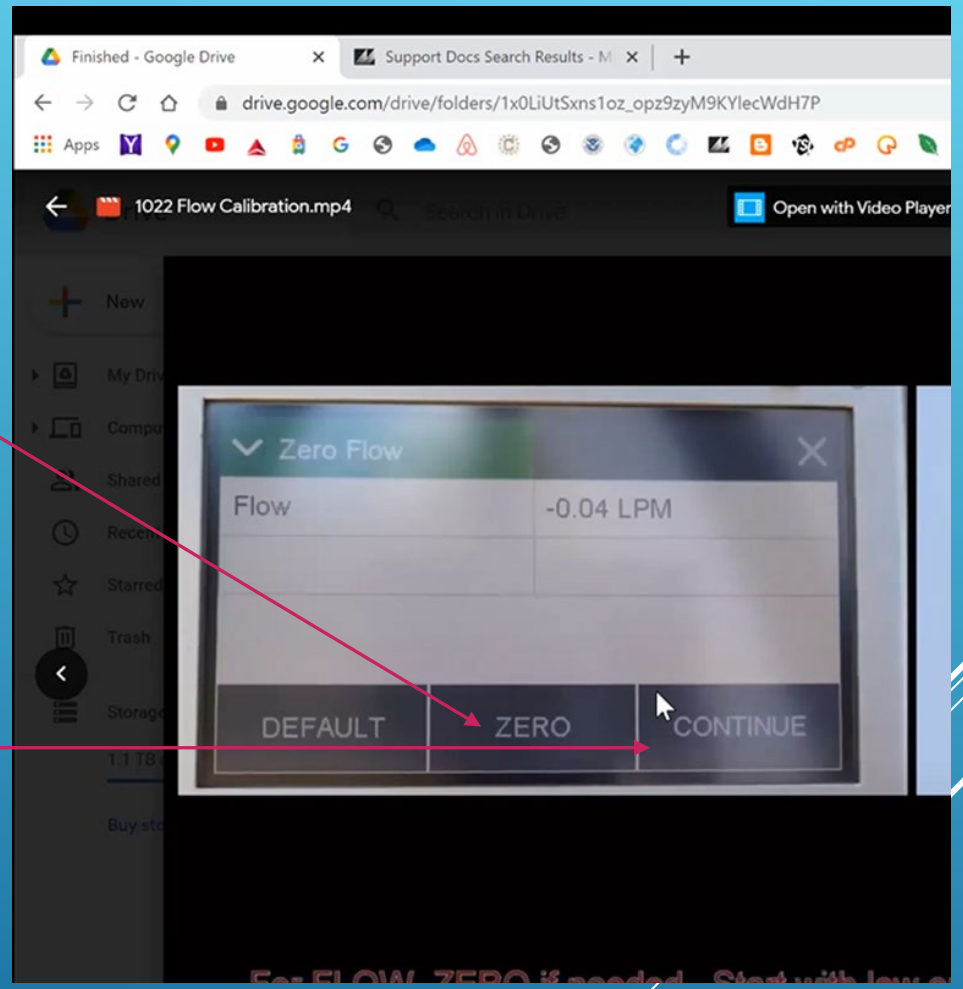


Flow Calibration

From Test Menu – Enter Flow Test

On the Zero Flow test screen, verify the Flow value indicates 0.00 LPM. If it does not, press the grey ZERO button and confirm that the Flow value changes to 0.00 LPM.

Press the grey CONTINUE button to proceed to the Flow Calibration screen. The pump will start automatically and adjust flow to the 16.7 LPM test point.



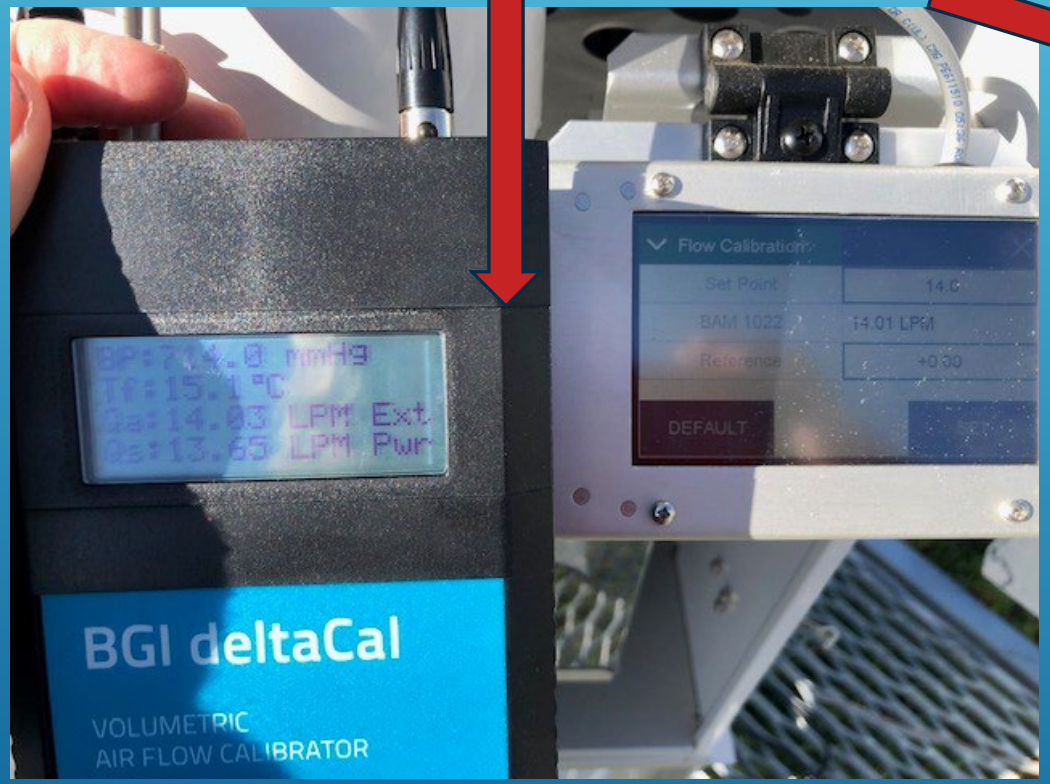
Flow Calibration

Press the green bordered value box the flow rate test set point selection will appear.
Select the 14.0 LPM set point and then press the OK button. The display will return to the Flow Calibrate screen and adjust the flow to the new test point.
Allow the BAM and CTS reading to stabilize (at least one minute) and then compare the BAM 1022 flow measurement and CTS flow reading.

.

Beginning Set Point = 16.7
Calibrate from low to high
Begin with 14.0

Using QA# (LPM) from the BGI , enter into the standard on the BAM and press SET



If the BAM 1022 flow rate exceeds the criteria, press the grey DEFAULT button to remove any previous offsets for all three flow settings. If the flow rate now passes, skip the next step.

If the flow rate still needs to be adjusted, press the green bordered value box and the numerical entry keypad will be displayed.

Enter the CTS value in the Standard field and press OK to return to the Flow Calibrate screen. Press the grey CALIBRATE button to enter the new calibration offset.

- Press SET to apply the change. When setting the 16.7 LPM flow rate, the SET option will change to read CALIBRATE.
- Repeat steps 15 through 18 above for the 17.5 LPM flow rate.
- Repeat steps 15 through 18 above for the 16.7 LPM flow rate

Parameter	Acceptance Criteria
Flow Rate	± 4% of transfer standard
Ambient Temperature	± 2º C of transfer standard
Barometric Pressure	± 10 mmHg of transfer standard

Every 8 weeks – Nozzle, Vane & Pinch Roller Cleaning

Nozzle, Vane & Pinch Roller Cleaning

Over time, a gradual build-up of filter tape debris and particulate may form on the nozzle and vane sealing surfaces. Follow the steps below to clean particulate filter tape debris from these surfaces.

Required Tools: Cotton Tipped Swabs (Met one Instruments Part No. 995217)
Isopropyl Alcohol
Canned Air (a.k.a. Compressed Air Duster) with Tube

Background Determination (Mass Offset)

It is recommended that the BAM 1022 undergo a background test upon initial deployment, annually, and after any major repairs have been performed.

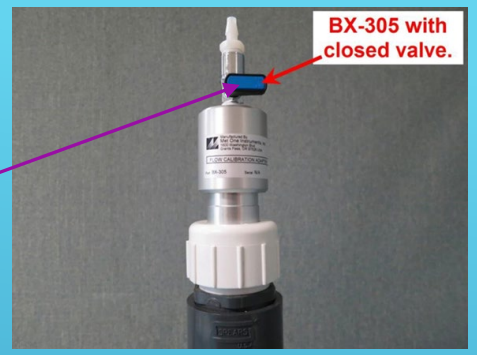
Required Tools: Zero Filter (Met One Instruments Part No. BX-302)

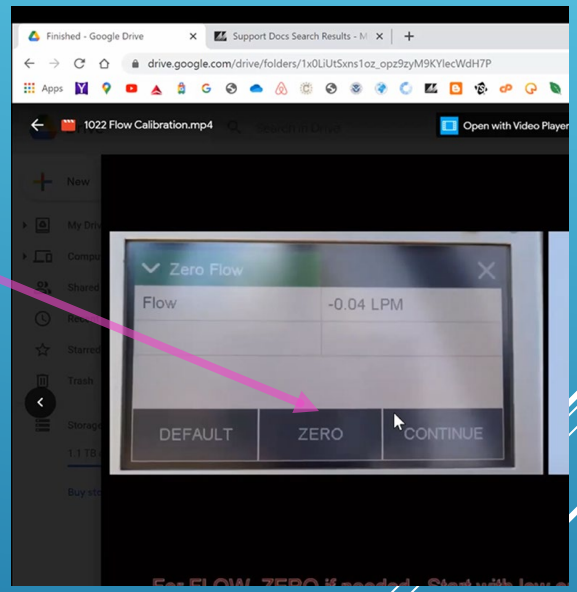
Use the following steps to conduct a zero filter background test and set the mass offset.

- **Ensure that the BAM 1022 has been calibrated and that leaks are not present.**
- Go to the Operate menu and select Stop Sample to stop the current sample.
- Remove the size selective inlet(s) from the sample tube and install the zero filter.

BX-302 Zero Filter Assembly

- Verify that the zero filter leak valve is in the open position.
- Go to the Setup menu and select Calibration.
- Set the Background value to zero.
- Exit the Background menu, go to the Operate menu, select Start Sample, and begin sampling. **WAIT AT LEAST 76 HOURS**





After no less than 76 hours, retrieve the BAM 1022 hourly concentration data

Transfer Data to USB Flash Drive

Insert a USB Drive in the USB port located behind the front door, in the upper right corner of the tape transport. This USB port is not used for any other purpose.

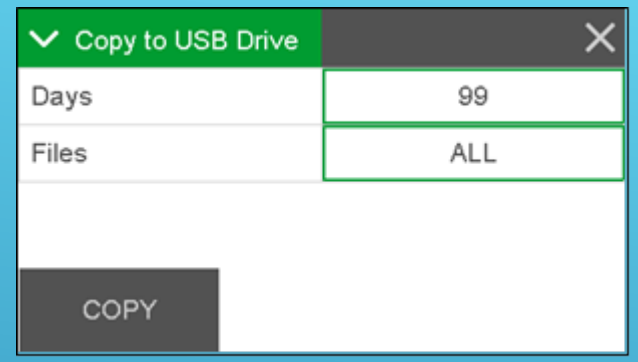
Enter the OPERATE > TRANSFER DATA menu.

a. The Days field determines how many records you download. If you wish to change the number of days being copied, press the green bordered value box and the numerical entry keypad will be displayed. Enter the number of days between 001 and 999.

b. The FILES field determines whether you download all of the stored record types or only

3. Press the grey COPY button to copy the selected data to the USB memory stick.

4. When the COPY COMPLETE message is displayed, remove the USB memory stick and close the front door of the BAM 1022.



Background Determination (Mass Offset)

- Confirm that the monitor ran without disruption. If errors, power outages or maintenance occurred, the test will have to be restarted.
- Calculate the average of the most recent 72 hourly PM concentrations. Record this value.
- Calculate the new Mass Offset value determining the negative of the 72 hour average calculated in the last step.

(For example, if the 72 hour mean = 1.07 µg /m3, the new Mass Offset would be -1.07 µg/m3. Since all Background values are entered in units of mg/m3, you would round to the fourth decimal place and use -0.0011 mg/m3.)

- Return to the Setup menu and select Calibration.
- Enter the new background value.
- Go to the Operate menu and select Stop Sample to stop the current sample, if the monitor is still sampling.
- Remove the zero filter from the inlet tube and install the size selective inlet(s)
- Resume normal sampling.

NOTES: For best results, the zero filter background test should be performed during a period of fairly stable weather.

VERIFYING FILTER TEMPERATURE AND RELATIVE HUMIDITY SENSORS

Navigate to the Test> Filter Sensor menu.

- The pump will start and the menu will display the filter temperature sensor test interface first. Allow the pump to run for at least ten minutes to allow the sensor to equilibrate with the reference standard (see step 2 below).
- Verify that the nozzle automatically raises if it is in the down position. It must be in the up position for these tests.

- Place the AT standard as close as possible to the nozzle opening. Allow at least ten minutes for the standard to equilibrate with the filter sensor while the pump is running.
- Verify the BAM 1022 reading matches the standard within +/- 1 deg C.
  - If the sensors do not match within specification, press the green bordered Standard value field and enter the value reported by the standard.
  - Press the grey CALIBRATE button to set the new calibration.
- Tap the green bordered Filter Sensor field.

VERIFYING FILTER TEMPERATURE AND RELATIVE HUMIDITY SENSORS (CONTINUED)

5. Locate the HUMIDITY option in the sensor list. You may need to use the up and down arrow keys to view the entire list.
6. Tap the HUMIDITY option to select it. The option should turn green. Press the OK button to exit out of the sensor selection list and return to the sensor test screen.
7. Place the RH standard as close as possible to the nozzle opening. Allow at least ten minutes for the standard to equilibrate with the filter sensor while the pump is running.
8. Verify the BAM 1022 reading matches the standard within +/- 4%.
    a. If the sensors do not match within specification, press the green bordered Standard value field and enter the value reported by the standard.
    b. Press the grey CALIBRATE button to set the new calibration.
9. If filter sensor testing is complete, press the X key to return to the Test menu. If pressure sensor testing also needs to be performed, go to section 6.9.2.

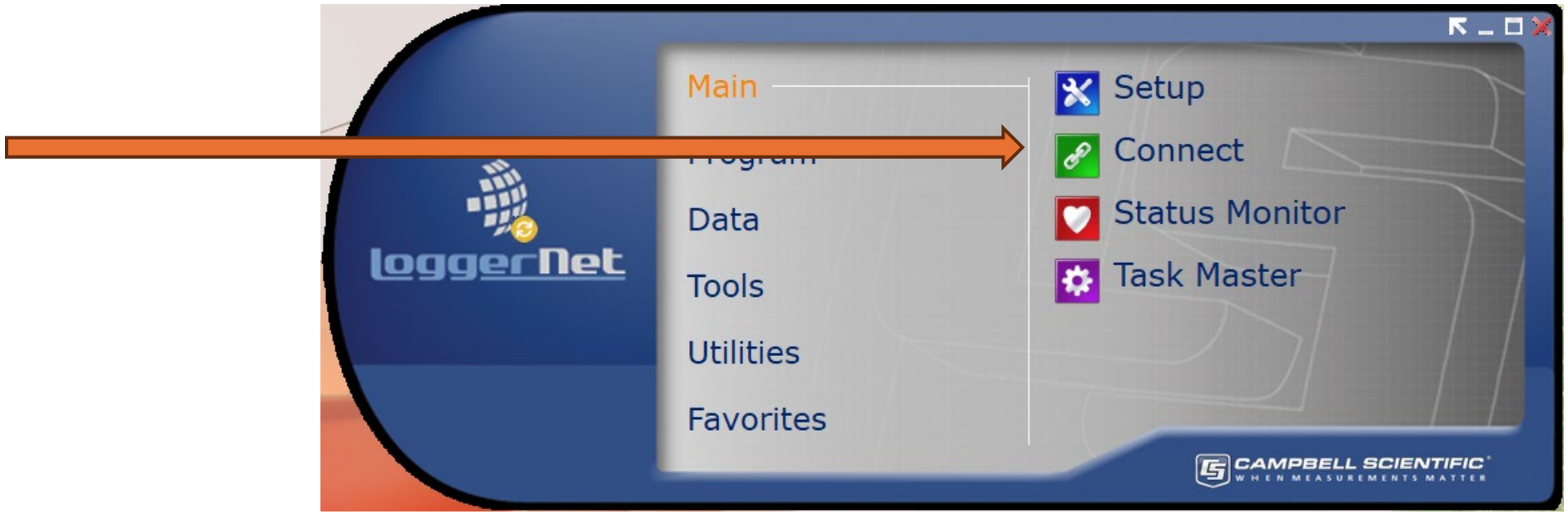
If /When Calibrations are wildly off (beyond standards) Press the Grey DEFAULT button to remove any previous offsets

Parameter	Acceptance Criteria
Flow Rate	± 4% of transfer standard
Ambient Temperature	± 2º C of transfer standard
Barometric Pressure	± 10 mmHg of transfer standard

Data movement – laptop to AQS

- These are the steps for manually loading data into QREST and sending that data to AQS

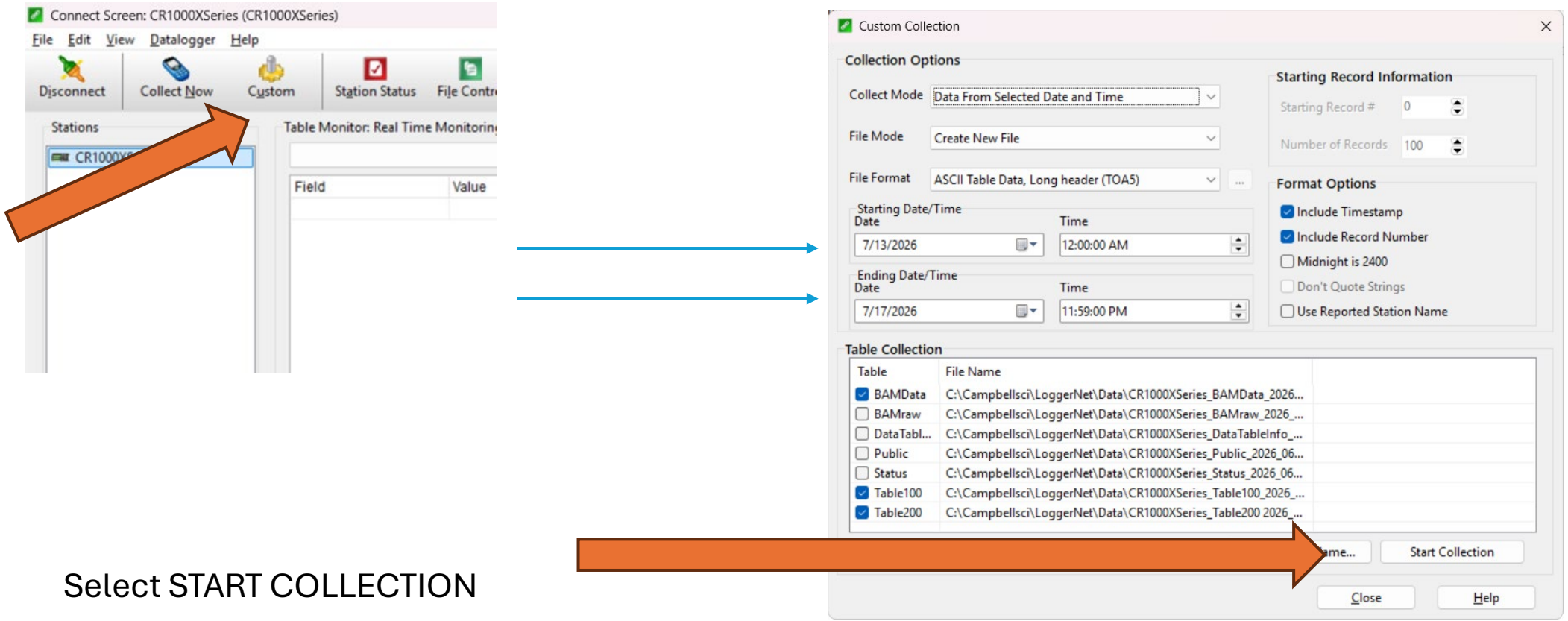
Open LoggerNet – Click on Connect



Select Custom

Enter start and ending dates that you want to download

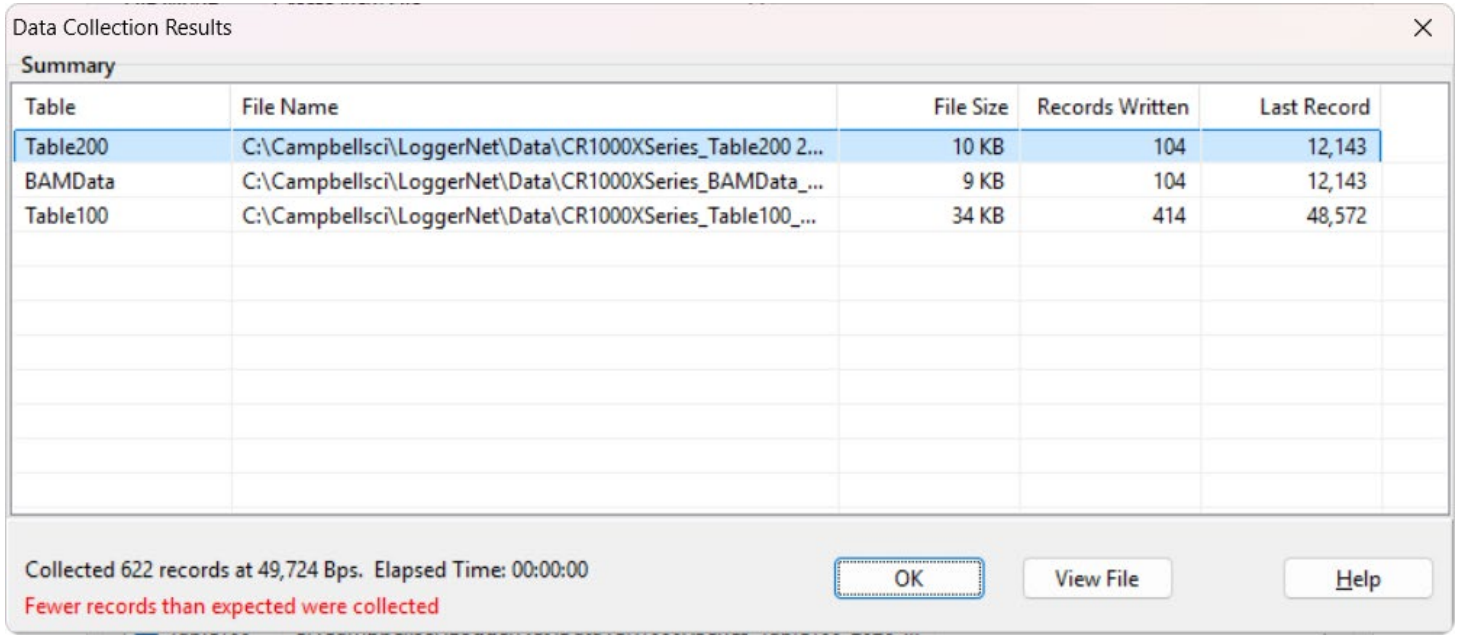
Table Collection should include BAMdata, Table 100 and Table 200



Select START COLLECTION

View File to ensure all records were captured

- If you have not captured a full 24 hours or records are corrupted, you may have fewer records than expected. Ensure one record for every hour on a 24 hour clock



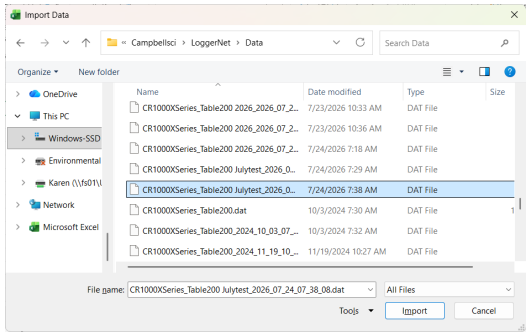
Close out logger net

Find Data for Importing

- Open Excel
- Data – Get Data From File
- From Text/CSV
- C:Campbellsci Loggernet Data
- Change from TEXT Files to All Files
- Table 200 will include the rain gauge

and data will be in the columns for QREST “5 Wspd, 8 Temp, 10 PM2.5, 12 Precip”

- Look at date modified column for todays date
- CR1000XSeries_BAMData
- Import
- Change Delimiter to read comma
- LOAD
- File Save As excel spreadsheet

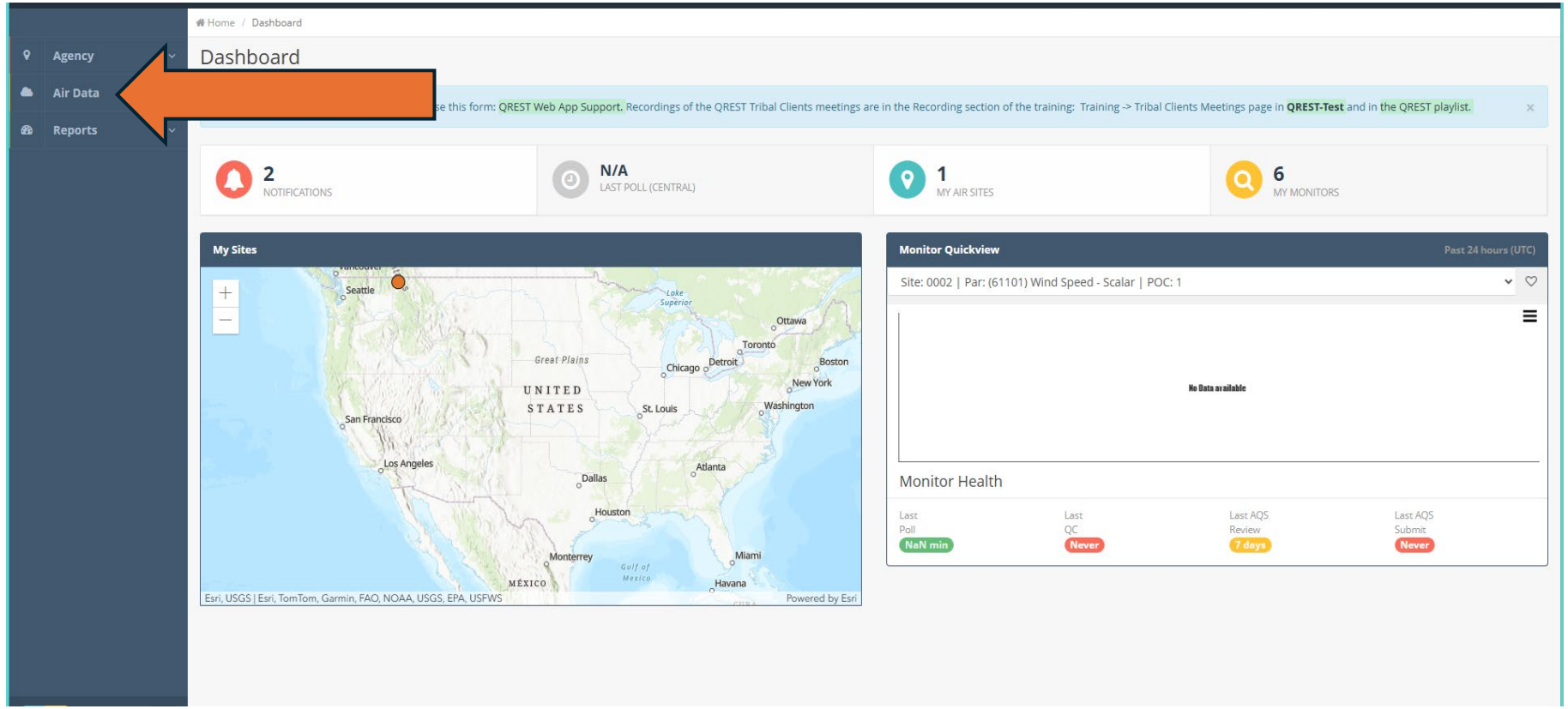


Alternate way to get data onto Excel

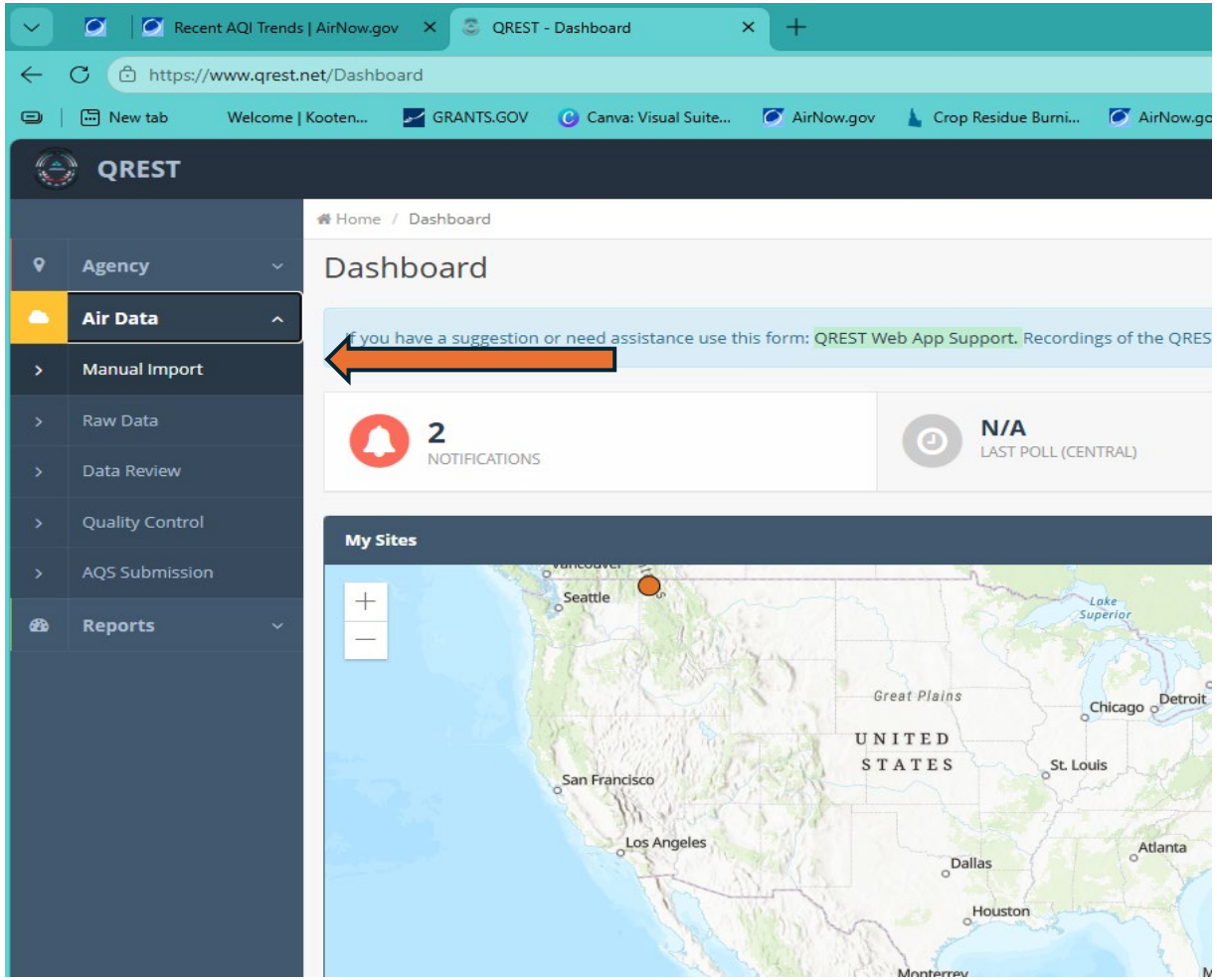
- On LoggerNet after you collect for a specific date range – select Table 200 and view.
- Copy and paste onto a blank excel worksheet. Add a row and type in headers.


Review Data – See QAPP for details

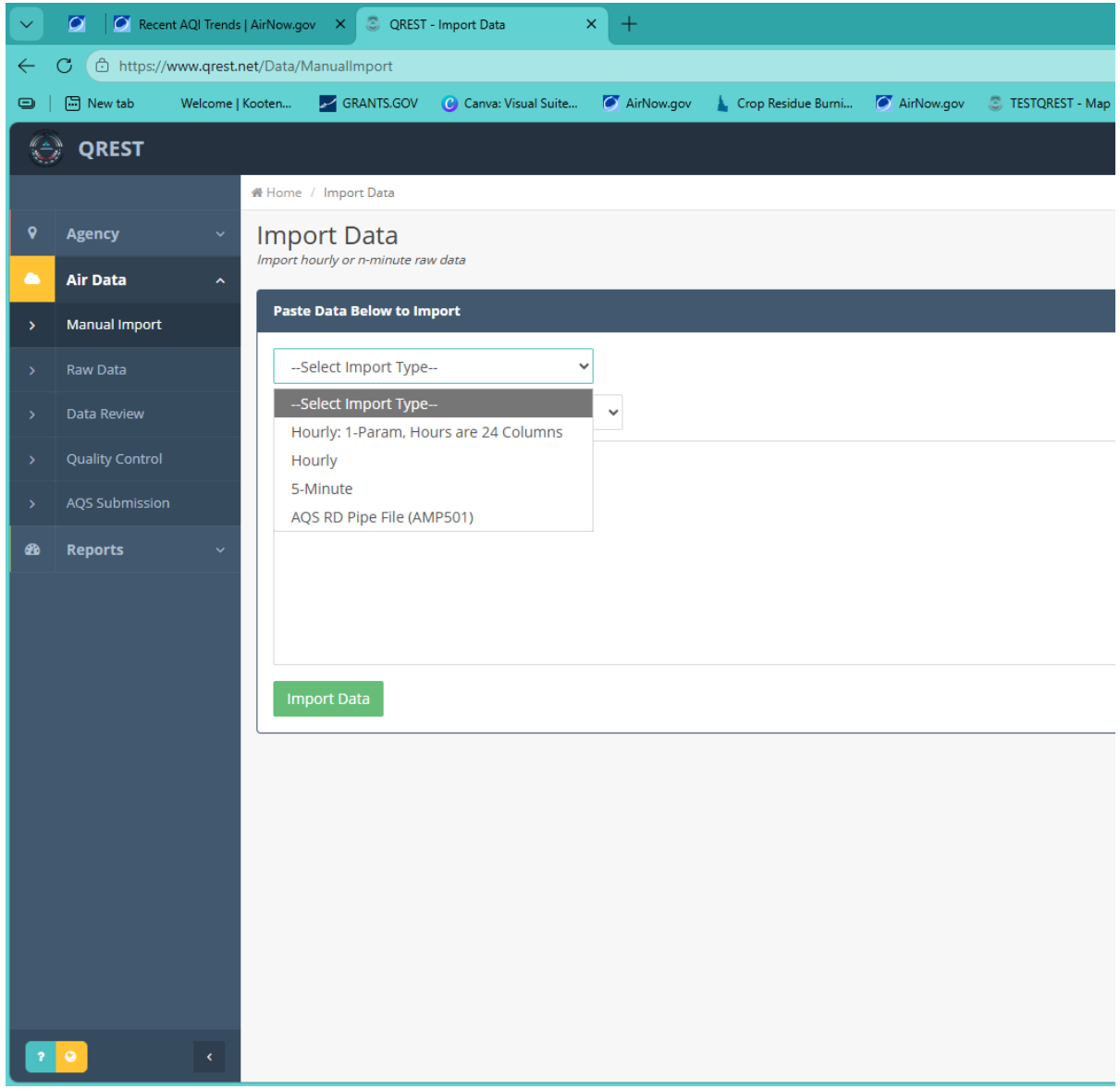
Once logged into QREST, Select Air Data



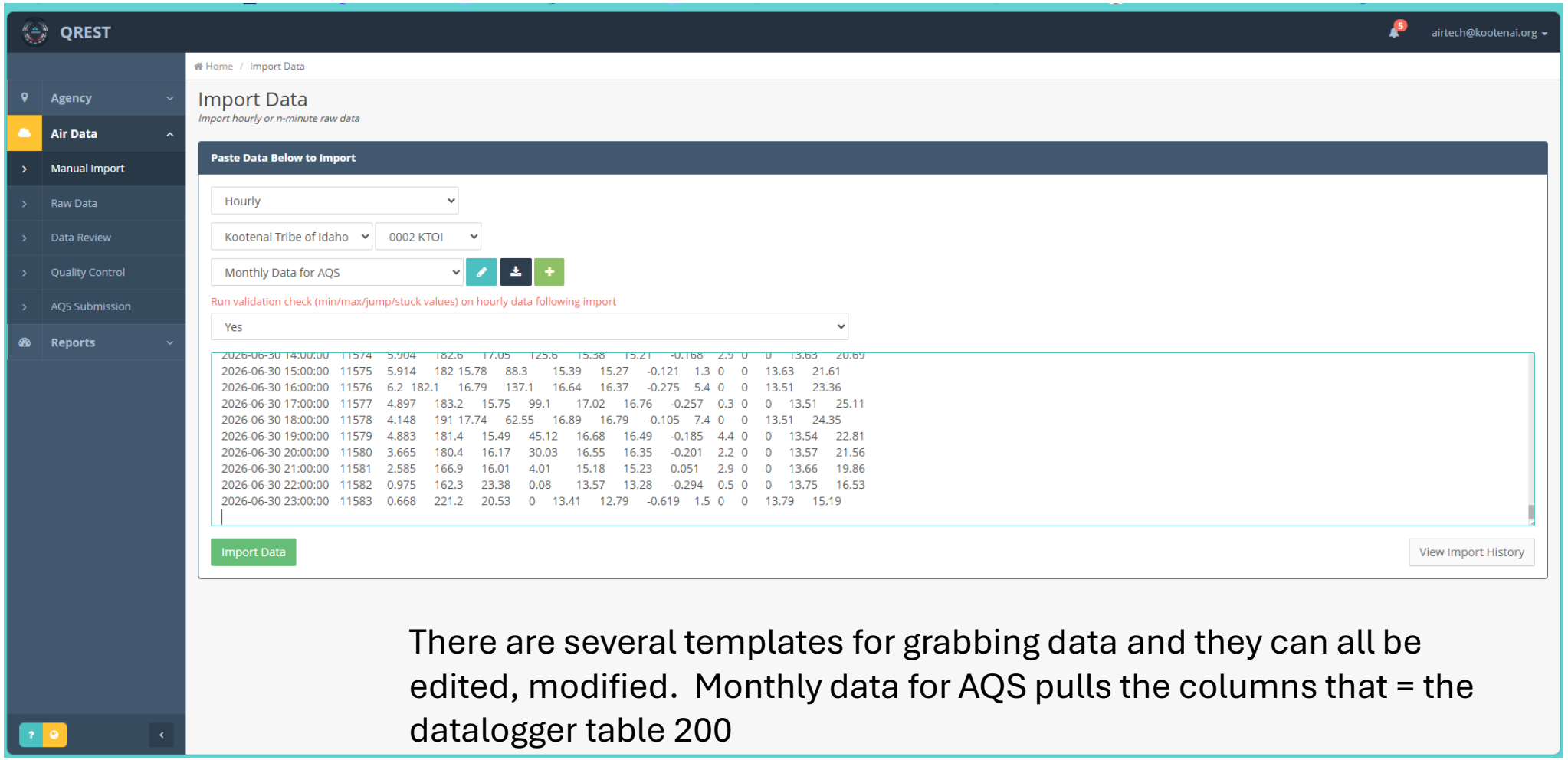
Select Manual Import from drop down window



Select Hourly from the drop down menu

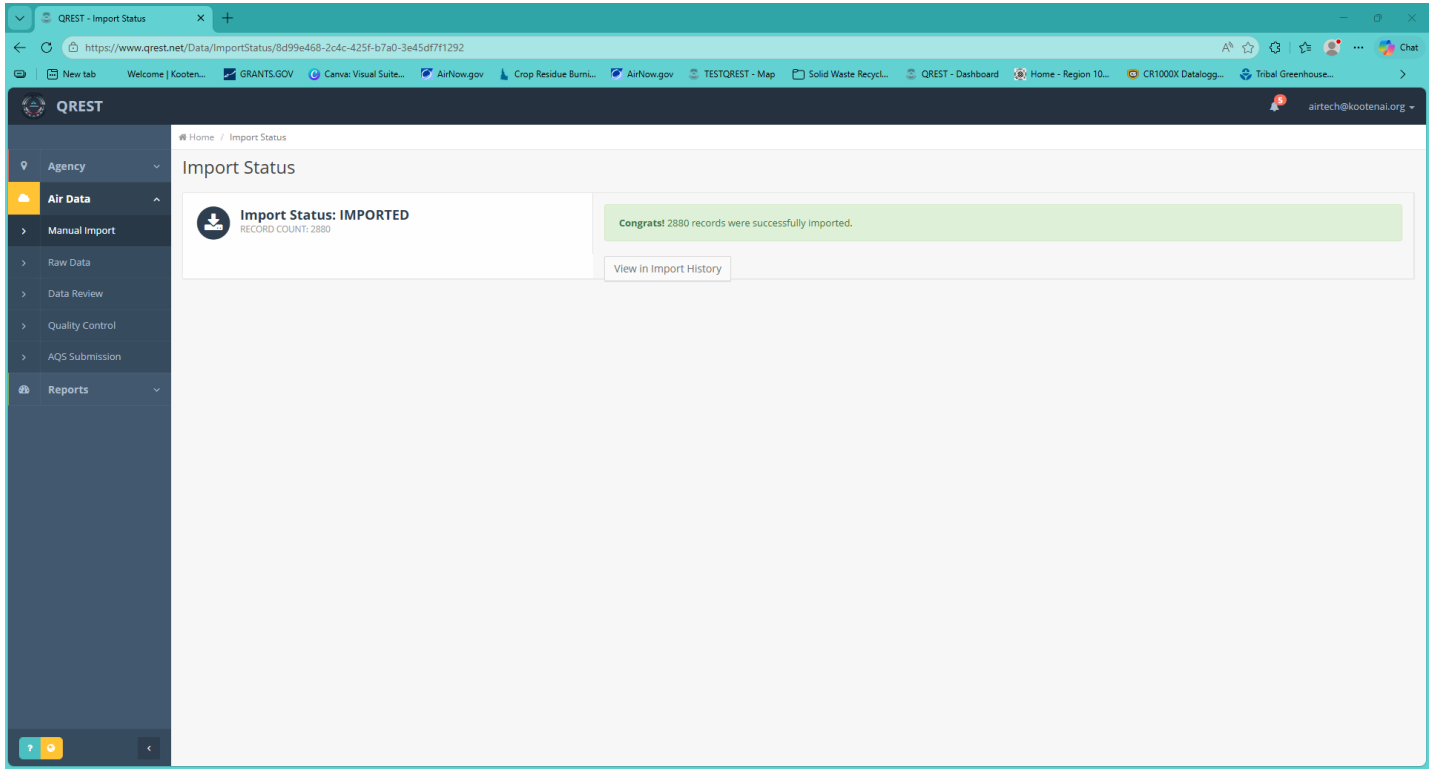


Select Kootenai Tribe of Idaho, 0002 KTOI and *Monthly data for AQS – Paste data copied from Excel Spreadsheet

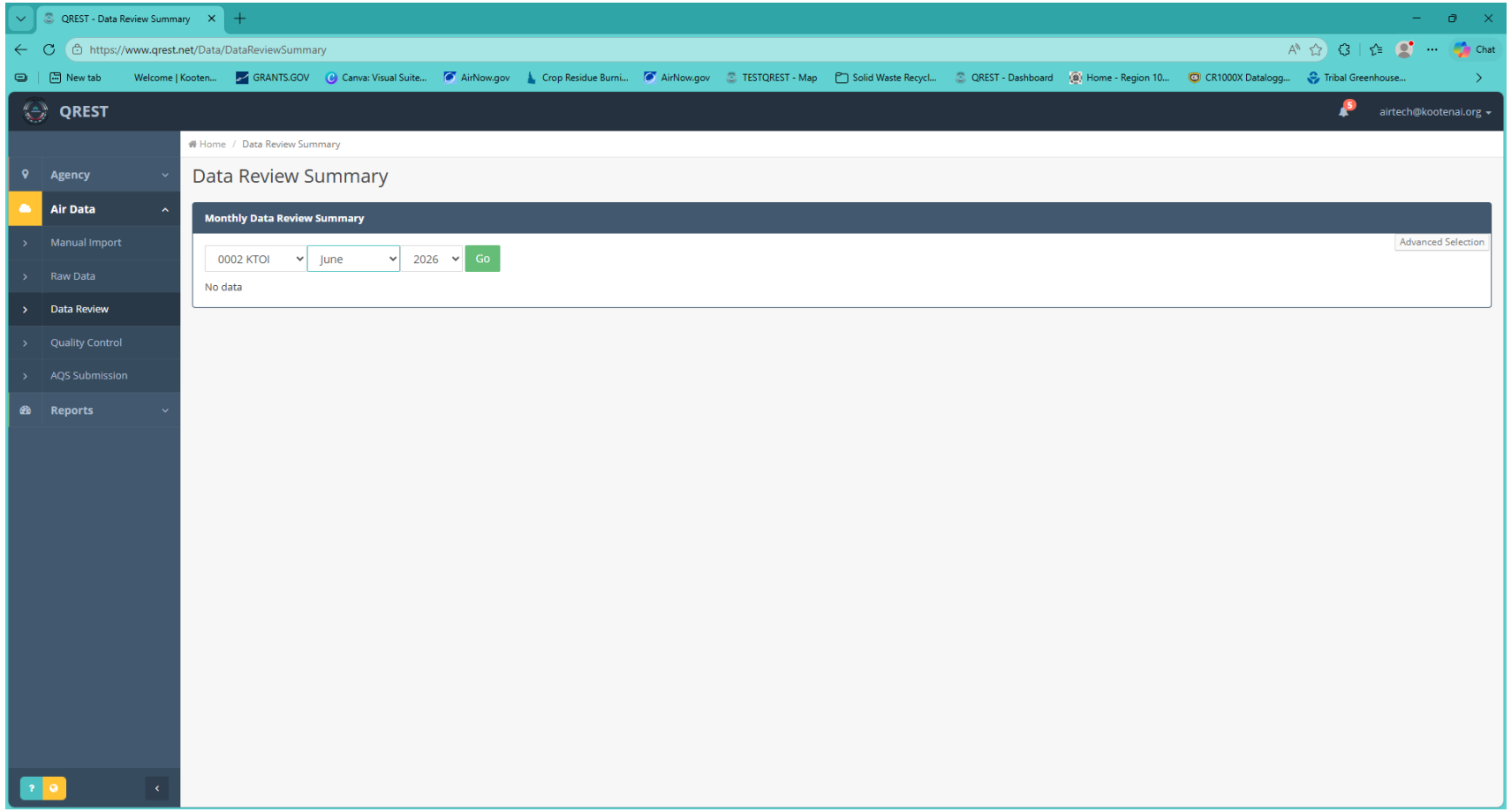


There are several templates for grabbing data and they can all be edited, modified. Monthly data for AQS pulls the columns that = the datalogger table 200

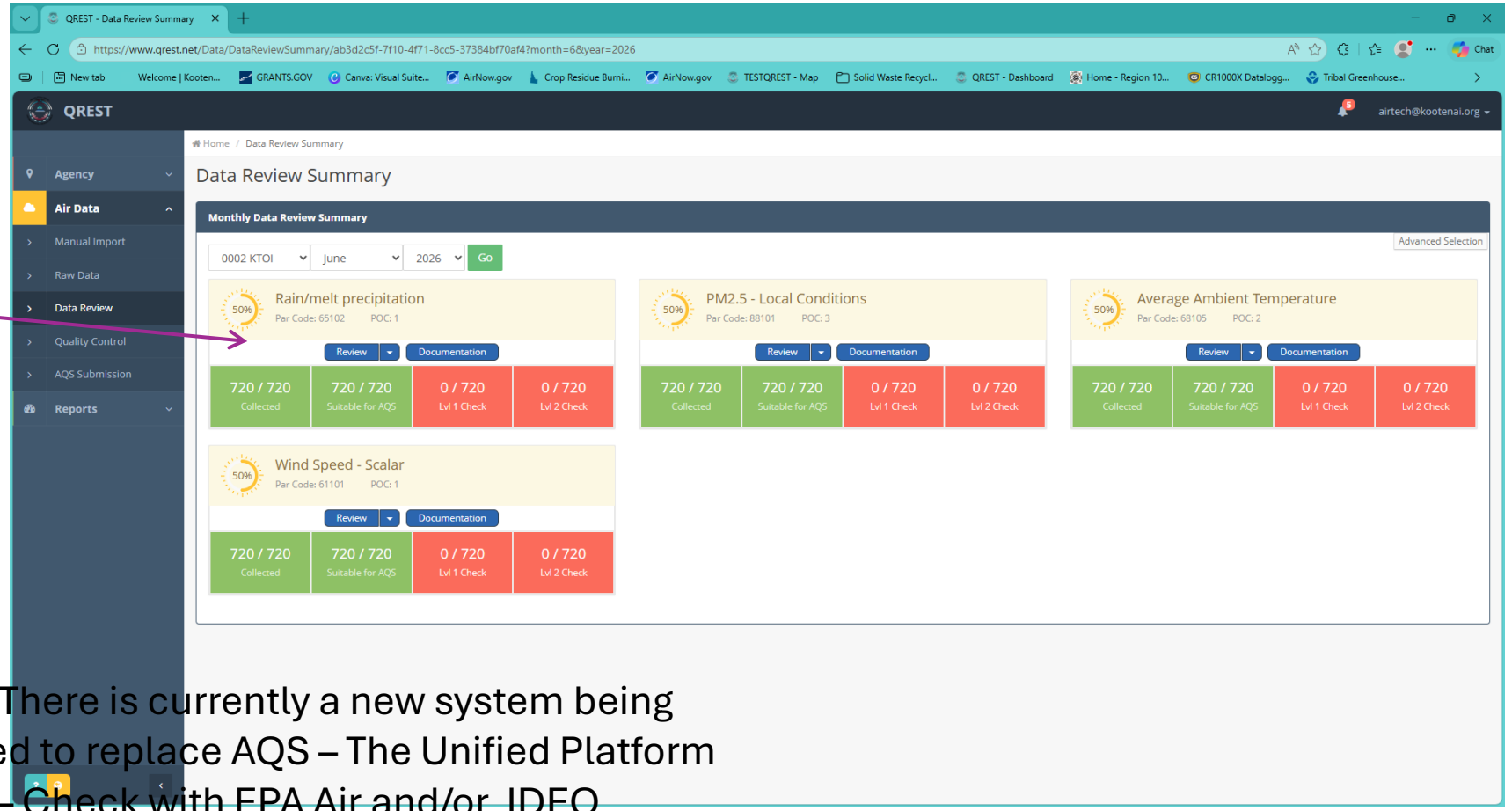
Click Import Data



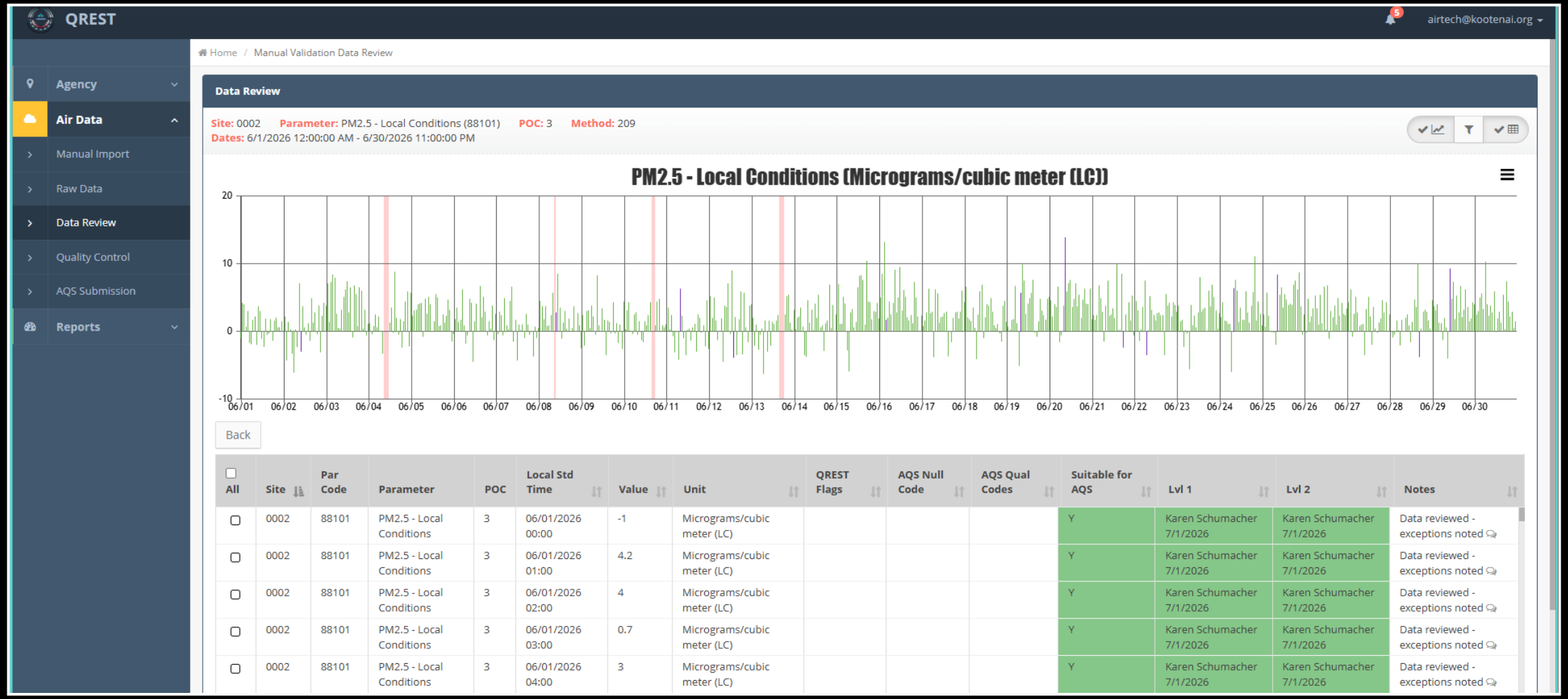
Select Data Review – select 0002KTOI and current month/year - GO



Review data sets – follow guidance for QREST. Data will need to be changed to Level 1 and 2 acceptance prior to submitting to AQS*



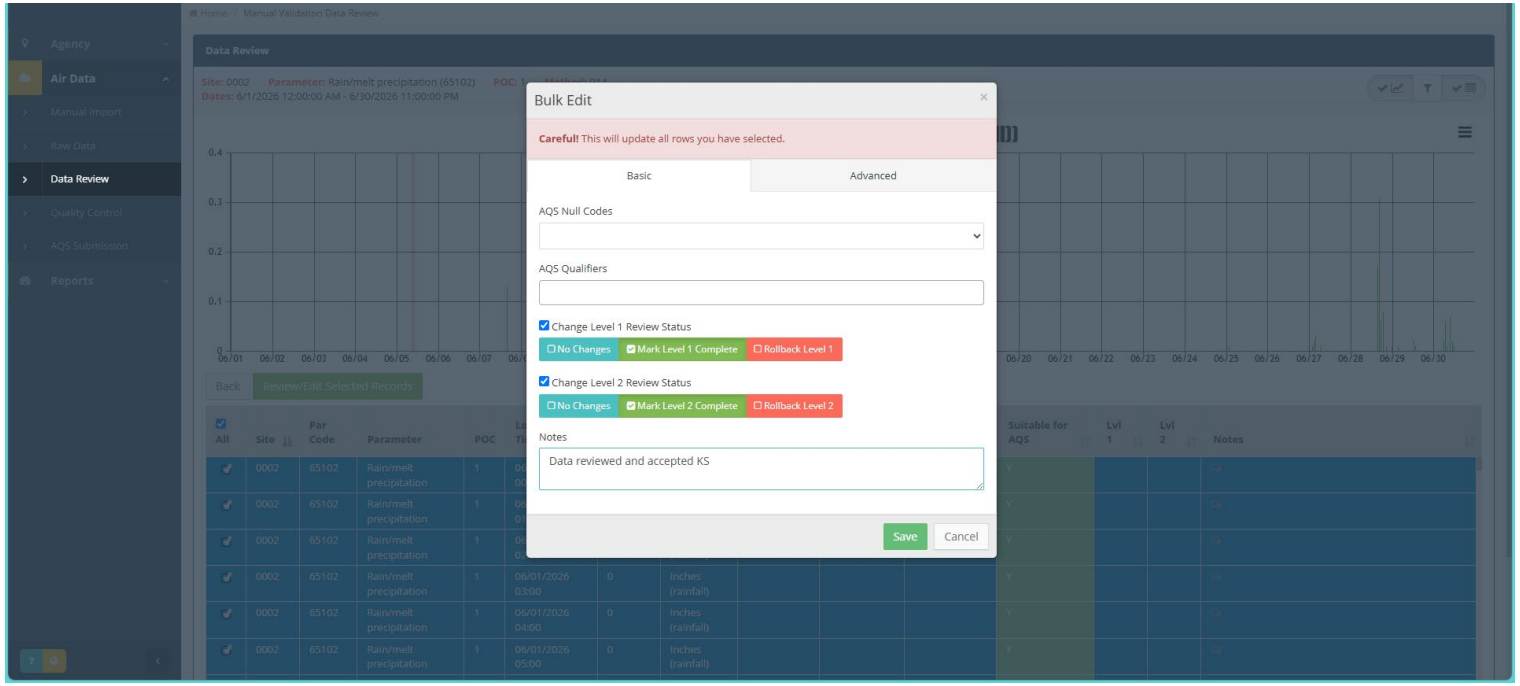
7.2026 There is currently a new system being designed to replace AQS – The Unified Platform Project– Check with EPA Air and/or IDEQ



Select one or any number of events to review and add qualifying /null codes for clarification
ie wildfire smoke day – red marks indicate you have noted events.
Select ALL when changing both level 1 and 2

Use the airstation logbook to verify/check added info

Once verified, change levels to 1, 2 and save



Select AQS submission – Only PM2.5, Review Data - Generate File – Submit to EPA