

**Sampling and Analysis Plan
for
Louden Tribe Air Quality Monitoring
with
QuantAQ Sensors**

December 2024

This Sampling and Analysis Plan was prepared by:

Louden Tribe
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[Louden Tribe](#)

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Project Approvals

Prepare *Tirzah Bryant* **Date:** 1/28/2025
Tirzah Bryant, Louden Tribe
Environmental and Education
Coordinator

Approved By: _____ **Date:** _____
Cindy Fields, EPA R10 QA Manager

Approved By: _____ **Date:** _____
India Young, EPA R10 Project Officer

Approved By: *Rodman* **Date:** _____
Rochele Rodman, ADEC AMQA QA Manager

1. Project Management

1.1 Distribution List

The following personnel will be emailed regarding all aspects of this sampling and analysis plan (SAP).

Name	Phone	Email
Tirzah Bryant, Louden Tribe Environmental and Education Coordinator	907-656-7212	Tirzah.bryant@loudentribe.com
Brooke Sanderson, Louden Tribe Tribal Administrator	907-656-1711	Brooke.sanderson@loudentribe.com
Cindy Fields, EPA Region 10 QAM	206-553-1893	fields.cindy@epa.gov
India Young, EPA AK Tribal Air Lead	206-553-1219	Young.india@epa.gov
Sarah Waldo, EPA Region 10 Senior Air Monitoring Specialist	206-553-1504	Waldo.sarah@epa.gov
Rochele Rodman, QA Manager, ADEC Division of Air Quality Monitoring and Quality Assurance	907-465-5344	Rochele.rodman@alaska.gov
Lydia Johnson, Data Manager, ADEC Division of Air Quality Monitoring and Quality Assurance	907-451-2130	Lydia.johnson@alaska.gov
Barbara Trost, Program Manager, ADEC Division of Air Quality Monitoring and Quality Assurance	907-269-6249	Barbara.trost@alaska.gov

1.2 Project/Task Organization

Sampling Organization:	Louden Tribe PO Box 244 Galena, AK 99741 1(907) 656-1711 Contact: Tirzah Bryant
Analytical Organization:	Realtime data, no lab analysis required
Lead Organization:	Alaska Department of Environmental Conservation Air Monitoring and Quality Assurance Program, (AMQA). See section 4 of the Community-Based Air Network Quality Assurance Project Plan

Supporting Organization: EPA

1.3 Problem Definition/Background

Galena, Alaska has an increase in wildfire smoke and road dust in the summer months and exhaust and wood stove smoke in the winter months. The community of Galena would like to see real time PM1, PM2.5 & PM10 health information that is accessible to the public. Previously, the community had purple air sensors located on the old Tribal building, but they have not been in use recently. ADEC placed one QuantAQ Modulair sensor on Galena's City Hall building in the Fall of 2023. In 2022, the EPA funded an ARP grant that would allow the Louden Tribe of Galena to purchase two QuantAQ Modulair Sensors to be installed in the community based on the success of ADEC's sensor installment in the Fall of 2023. The QuantAQ Modulair sensor will provide the Louden Tribe with real time estimates of PM1, PM2.5, PM10, particle size distribution, and four gas-phase measurements (see figure 1).

This project will follow ADEC's approved Community-Based Air Sensor Network Quality Assurance Project Plan¹. That document establishes the quality objectives and criteria, network description, necessary training, site location requirements, quality control (including collocation), equipment testing, inspection, and maintenance, data management, and data assessments and corrective actions. The Louden Tribe will work directly with ADEC personnel on training and instrument collocation. Air quality measurements from the sensors deployed in Galena will be included in ADEC's data reporting.

The purpose of this SAP is to outline how the 2 Galena sites will be selected, define roles and responsibilities of Louden Tribal Staff, and describe additions/deviations from the ADEC QAPP, notably the final data to be shared with the public.



Figure 1. QuantAQ Modulair Sensor

¹ <https://dec.alaska.gov/air/air-monitoring/guidance/quality-assurance-plans/>

1.4 Project/Task Description

Louden Tribe will gather information to determine where the next QuantAQ Modular sensors should be installed. Louden Tribe will develop a list of proposed locations for ADEC and the EPA to review based off ADEC's Division of Air Quality Assurance siting criteria as laid out in Table 10-1 of ADEC's Community-Based Air Sensor Network QAPP. Louden Tribe will install and maintain two QuantAQ Modular Sensors.

1.5 Quality Objectives and Criteria

Data will be measured, processed, and reported according to the quality objectives and criteria for measurement data as outlined in section 7 of ADEC's Community-Based Air Sensor Network QAPP.

2. Data Generation and Acquisition

2.1 Sampling Process Design

The QuantAQ Modular sensor collects data three ways: on an SD card, on the QuantAQ cloud console, and on the QuantAQ API.

The location of the potential sampling sites was chosen with the assistance of ADEC. The Galena Interior Learning Academy (GILA) Site and the Louden Tribal Council (LTC) sites were chosen as the official installation sites after consultation with ADEC and were determined based on ADEC's siting criteria which is outlined in Appendix 4.

Potential sampling sites are summarized in Table 1 and Figure 2.

Table 1. Potential sampling sites

Name	Coordinates
GILA Site	64.74161, -156.95242
USFWS Site	64.73309, -156.92926
LTC Site	64.74063, -156.87350

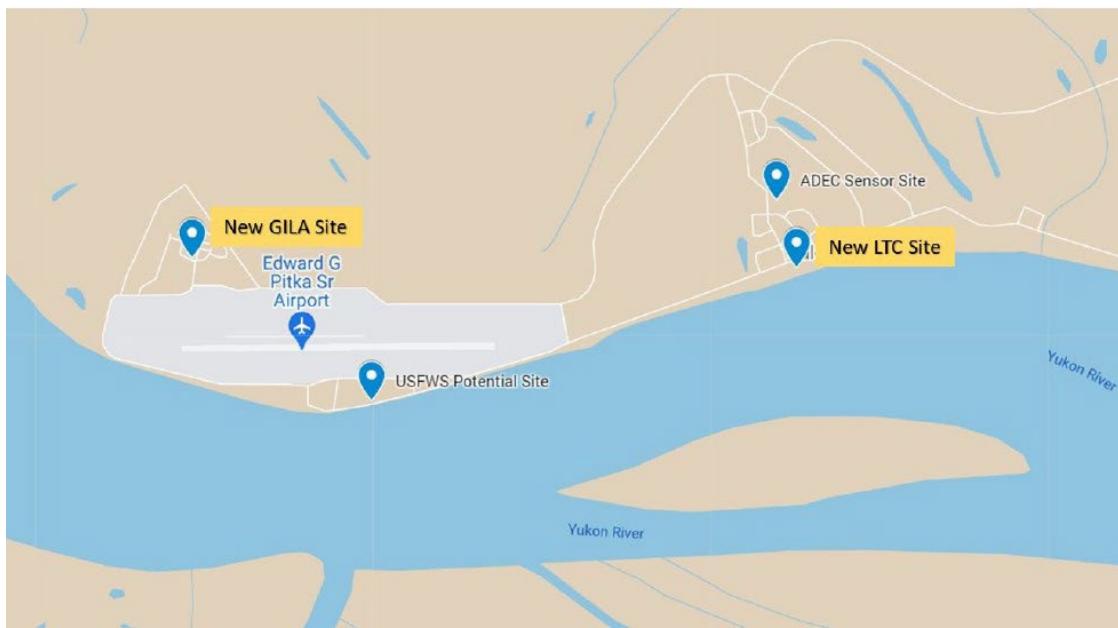


Figure 2. Map of Sampling Sites

2.2 Sampling Methods

QuantAQ Modulair sensors utilize particle measurement technology which combines nephelometry with single-particle scattering to measure particle concentrations, particle size, and gas phases. For more information, see section 11.2 and 11.3 of ADEC's Community Based Air Sensor Network QAPP.

2.3 Quality Control

See section 14 of ADEC's Community-Based Air Sensor Network QAPP. The Louden Tribe plans to perform an initial collocation prior to deployment at ADEC's NCore Site in Fairbanks, and will also participate in periodic auditing by ADEC with their "gold standard pod".

2.4 Roles and Responsibilities

Tirzah Bryant, Louden Tribe Environmental and Education Coordinator, will be responsible for all planning and operations tasks identified in Section 4 of the ADEC Community-Based Air Sensor Network QAPP, including:

- Complete required project partner training
- Communication and Coordination with ADEC
 - o Training

- Pre-deployment sensor collocation
- Periodic Audits
- Installation and maintenance of QuantAQs
- Outreach and reporting of results to community

ADEC Community-Based Air Sensor Network Lead, Lydia Johnson

- Coordinate with the Louden Tribe on training, collocation, correction action resulting from assessments, and audits
- Perform data assessments, reviews, and validation.

2.5 Data Management

The data from these sensors will be displayed in real time on ADEC's AQI website [AQI Dashboard \(Public\)](#) and will be managed as outlined in section 19 of ADEC's Community-Based Air Sensor Network QAPP.

3. Appendix 1

MEMORANDUM OF AGREEMENT BETWEEN

LOUDEN TRIBE

AND

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FOR

CONDUCTING AIR QUALITY MONITORING

This memorandum of agreement (MOA) is made and entered into between the Alaska Department of Environmental Conservation, hereinafter referred to as DEC, and the Louden Tribe.

PURPOSE AND OBJECTIVE

The purpose of this MOA is to develop a cooperative process for assistance with Louden Tribe's American Rescue Plan Act (ARPA) air quality project in Galena. The objective is to build capacity within Louden Tribe staff or coordinators to address potential air quality impacts in Galena. Capacity building includes assistance and guidance in ambient monitoring project planning, site selection, instrument installation, instrument troubleshooting, monitoring operations, data collection, data analysis, and data quality assurance.

This agreement is effective from the final signature date of this agreement until June 30th, 2026.

AGREEMENT

The Louden Tribe, through its Environmental Program or other staff, does hereby agree to:

1. Ship the two (2) QuantAQ Modulair™ sensors to DEC for a collocation study at one of DEC's regulatory monitoring sites.
2. Travel to Fairbanks to assist with the installation and deinstallation of the sensors and participate in data analysis.

3. Perform sampling according to the state's Quality Assurance Project Plan (QAPP) requirements for the air quality sensors.
4. Allows posting of the sensor data on DEC's AQI website, to provide real time access to the tribal members and the public at large.
5. Develop capacity to conduct air quality assessments in Galena for the protection of public health.
6. Assist DEC in communicating air monitoring results to residents.

The DEC does hereby agree to:

1. Install two (2) Louden Tribe sensors at the Fairbanks NCore regulatory site for a collocation period.
2. Serve as technical experts in the area of ambient air monitoring and provide training to tribal coordinators to build capacity in conducting air quality field assessments.
3. Provide real time access to the sensor data and assist in data analysis, communication and reporting of results.

MUTUAL AGREEMENT AND UNDERSTANDING

These are conditions which are mutually agreed upon by all parties:

1. Each party agrees to comply with all applicable federal or state laws regulating ethical conduct of public officers and employees.
2. Each party agrees to comply with applicable laws, regulations and executive orders relative to Equal Employment Opportunity.
3. The effective date of this agreement shall be from the date of the final signature and shall terminate on June 30, 2027.
4. Either party may terminate its participation in this agreement by providing written notice to the other party 30 days in advance of the date on which its termination becomes effective. In the event of termination, the tribal site operator shall be paid for the expenses incurred pursuant to this contract through the date of termination, including non-concealable obligations as stated in the agreement above. All sampling equipment shall be delivered to DEC prior to termination.
5. No claim for additional services not specifically provided in the agreement or within the agreement performance period will be allowed unless the work or material is requested in writing via an amendment by the agreement administrator and approved by the agency head.
6. Amendments: This agreement may be amended by mutual written consent of the parties.
7. Any terms contained in this agreement which conflict with any applicable law shall cease to be effective: the remaining terms shall remain in effect. If the parties fail to resolve differences over how to interpret any provision

under this agreement, they shall state their differences in writing for mutual consideration. If the parties subsequently fail to resolve those differences within 30 days, they shall forward their written presentations to respective higher officials for resolution.

4. Appendix 2



Department of Environmental Conservation's Air Monitoring Program Community-Based Air Monitoring Project

Siting Criteria

The pod location should be representative of ambient air conditions and away from sources or obstacles that could bias data higher or lower than ambient conditions. This means there should be no pollutant sources, sources of dispersion or physical obstructions. Details below.

Pods can be mounted either on pole or wall. A mounting plate is used to mount against a wall, and hardware can be provided to mount a pole that's appropriately sized for the sensor.

Pods should be stationed:

- **10 ft away from air outlets or fans**
 - Examples to avoid:
 - Exhaust fan openings
 - Heating vents
- **10 ft away from pollutant sources**
 - Examples to avoid:
 - Smoking areas
 - Building boiler exhausts
 - Chimneys
 - Car idling zones
- **180° of unobstructed air flow.** This means it can be on a flat wall but should not be inside a shelter or placed somewhere that blocks air flow.
- **10 – 40 ft above ground.**
- **In a position that avoids vandalizing or tampering.**
- **If possible, a pod can be stationed under a roof overhang.** This would reduce water and snow access to the inside of the pod.
- **Within range of cellular data network.** Data is transmitted via AT&T and T-Mobile cellular networks.
- **Less than 50 ft from an available power outlet.** This distance is to limit the amount of extension cord used. Look for outlets that are not heavily used. This will reduce possibility of having the pod unplugged when there is a competing need for outlet access.
- **If an extension cord is necessary, please secure and stabilize the cord out of harms way.** For best results, run the cord overhead to prevent damage. If it must be on the ground, place it along a building's edge or away from walkways and consider covering it with mats, tape, or burying it slightly to prevent tripping and damage.



QuantAQ Modulair Sensor Pod

If you have questions, please contact Isaac Van Flein at 907-451-2253 or isaac.vanflein@alaska.gov

To see air quality data already available, be sure to visit our [website](#)

PROJECT CONTACTS

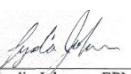
Lydia Johnson, EPM-1 907-451-2130 lydia.johnson@alaska.gov	ADEC -Air Quality 610 University Ave Fairbanks, AK 99709
Tirzah Bryant 907 656 7212 tirzah.bryant@louidentribe.com	Louden Tribe Galena, AK 99741

APPROVALS

IN WITNESS WHEREOF, each party hereto has caused this agreement to be executed by an authorized official(s) on the day and year set forth opposite his/her signature:

Louden QuantAQ SAP
Alaska Department of Environmental Conservation:

Revision 0

Signed: 
Lydia Johnson, EPM-1

Date: 6/20/2024

Signed: 
Louden Tribe

Date: 6/20/24