

State of Hawaii 2020 Air Monitoring Network Plan

Submitted to the U.S. EPA Region 9
July 1, 2020

Prepared by:
State of Hawaii
Department of Health

Environmental Management Division
Clean Air Branch
and

State Laboratories Division
Air Quality Monitoring Section

Document Control Number
HDOH – AMNP – 2020 - v01

This page intentionally left blank

Table of Contents

List of Tables.....	3
List of Figures	3
Acronyms and Definitions	4
Introduction	5
Appendix A	78
Appendix B	79
1.0 Network Purpose and Design	6
1.1 Overview	6
1.1.1 SLAMS	6
1.1.2 SPMS	6
1.2 Network Design and Review Process	7
1.2.1 Monitoring Objectives and Site Types	7
1.2.2 PM _{2.5} Network Changes	8
1.3 Organizational Structure and Responsibilities	8
2.0 Network Evaluation	9
2.1 PM ₁₀ Network	9
2.2 PM _{2.5} Network.....	11
2.3 O ₃ Network	14
2.4 Pb Network.....	16
2.5 CO Network.....	17
2.6 NO ₂ Network.....	18
2.7 SO ₂ Network.....	19
2.8 NCore	22
2.9 H ₂ S Network.....	22
2.10 Site Closure – Waiau DRR/SLAMS.....	22
2.11 Site Addition – Leilani Community Association Center SPMS	23
2.12 Site Modifications	23
2.12.1 Kapolei/NCore	23
2.12.2 Mountain View and Niualu SPMS	24
2.12.3 Hilo and Pearl City – SPMS and SLAMS	24
2.12.4 Honaunau and Kailua-Kona SPMS	24
2.12.5 Keeau SPMS.....	24
2.12.6 Naaleahu SPMS.....	25
2.12.7 Pahoa SPMS.....	25
2.12.8 Waikoloa Temporary and Long-term SPMS.....	25
2.13 Summary of Network and Changes.....	25
3.0 Detailed Site Descriptions	28
(DH) HONOLULU.....	29
(KA) KAPOLEI SLAMS and NCore	31
(PC) PEARL CITY	36
(SI) SAND ISLAND	38
(KH) KIHEI	40
(KL) KAHULUI.....	42
(NI) NIUMALU	44
(HL) HILO.....	46
(KN) KONA.....	48
(MV) MOUNTAIN VIEW	50
(OV) OCEAN VIEW.....	52
(PA) PAHALA.....	54

(HN) HONAUNAU	56
(KK) KAILUA-KONA	58
(KS-T) KEAAU – Temporary	60
(KS-LT) KEAAU – Long-term	62
(NA-TP) NAALEHU – Temporary PM _{2.5}	64
(NA-TS) NAALEHU – Temporary SO ₂	66
(WL-T) WAIKOLOA – Temporary	68
(WL-LT) WAIKOLOA – Long-term	70
(LE) LEILANI COMMUNITY ASSOCIATION CENTER.....	72
(KE) KAHE	74
(WI) WAIU.....	76

List of Tables

Table 2-1	PM ₁₀ Network and Concentrations for the Honolulu MSA.....	9
Table 2-2	PM ₁₀ Minimum Monitoring Requirements for Each MSA	9
Table 2-3	PM _{2.5} Network and Concentrations for Each MSA.....	11
Table 2-4	PM _{2.5} Minimum Monitoring Requirements for Each MSA.....	12
Table 2-5	PM _{2.5} Co-located Network.....	12
Table 2-6	O ₃ Design Values for the Honolulu MSA.....	14
Table 2-7	O ₃ Minimum Monitoring Requirements for Each MSA	14
Table 2-8	Minimum Pb Monitoring Requirement at NCore	16
Table 2-9	Minimum Near-Road NO ₂ Monitoring Requirements for the MSA	18
Table 2-10	Minimum SO ₂ Monitoring Requirements.....	20
Table 2-11	Number of Monitors by Pollutant or Program.....	26
Table 2-12	Summary of Network Changes	26
Table 3-1	State of Hawaii Ambient Air Monitoring Network	28

List of Figures

Figure 2-1	PM ₁₀ Network.....	10
Figure 2-2	PM _{2.5} Network.....	13
Figure 2-3	O ₃ Network	15
Figure 2-4	CO Network	17
Figure 2-5	NO ₂ Network.....	18
Figure 2-6	SO ₂ Network	21
Figure 2-7	New Leilani Community Association Center SPMS Site Location	23

Acronyms and Definitions

AADT	Annual Average Daily Traffic
AQI	Air Quality Index
AQMS	Hawaii Department of Health Air Quality Monitoring Section
AQS	Environmental Protection Agency Air Quality System
BAM	Beta-Attenuation Mass Monitor
CAB	State of Hawaii Department of Health Clean Air Branch
CBSA	Core-Based Statistical Areas
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DOH	Hawaii State Department of Health
DOT	Hawaii State Department of Transportation
DRR	Data Requirements Rule
DWS	Hawaii County Department of Water Supply
ECA	(North American) Emissions Control Area (Maritime)
EPA	United States Environmental Protection Agency
EMD	State of Hawaii Department of Health Environmental Management Division
FEM	Federal Equivalent Method
FRM	Federal Reference Method
H ₂ S	Hydrogen Sulfide
HECO	Hawaiian Electric Company
IMPROVE	Integrated Monitoring of Protected Visual Environments
LERZ	Kilauea Volcano Lower East Rift Zone
MSA	Metropolitan Statistical Area
MSL	Mean Sea Level
MWC	Municipal Waste Combustor
NAAQS	National Ambient Air Quality Standards
NCORE	National Core Multi-pollutant Monitoring Stations
NEI	National Emissions Inventory
NO ₂	Nitrogen Dioxide
O ₃	Ozone
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
PGV	Puna Geothermal Ventures
PM _{2.5}	Particulate matter less than or equal to 2.5 microns in aerodynamic diameter
PM ₁₀	Particulate matter less than or equal to 10 microns in aerodynamic diameter
PM _{10-2.5}	Particulate matter coarse
PQAO	Primary Quality Assurance Organization
PPB	Parts per billion
PPM	Parts per million
PSD	Prevention of Significant Deterioration
PWEI	Population Weighted Emissions Index
QC	Quality Control
SLAMS	State and Local Air Monitoring Stations
SLD	State Laboratories Division
SLDIT	State Laboratories Division Information Technology
SO ₂	Sulfur Dioxide
SPM(S)	Special Purpose Monitoring (Stations)
STN	Speciation Trends Network
TPY	Tons per Year
TSP	Total suspended particulates
VOG	Haze due to volcanic emissions
WD	Wind direction
WS	Wind speed
µg/m ³	micrograms per cubic meter of air

Introduction

The State of Hawaii Department of Health (DOH) plans, operates and maintains the statewide ambient air quality monitoring network. Monitoring data is used for a variety of reasons including determining compliance with National Ambient Air Quality Standards (NAAQS), timely reporting of the U.S. Environmental Protection Agency's (EPA) Air Quality Index (AQI), tracking and characterizing air quality trends, evaluating emission control strategies, and supporting health studies.

The DOH manages all of the State and Local Air Monitoring Stations (SLAMS), Special Purpose Monitoring Stations (SPMS), and the National Core Multi-Pollutant Monitoring Station (NCore). Additionally, Hawaii has two Interagency Monitoring of Protected Visual Environments (IMPROVE) stations located at Haleakala National Park on Maui and Volcanoes National Park on the island of Hawaii. The IMPROVE stations are operated and maintained by the National Park Service through their federal land management agency. DOH is also overseeing two ambient air stations on the island of Oahu that are operated by Hawaiian Electric Company (HECO) to meet the Data Requirements Rule (DRR).

This annual review evaluates the state's existing ambient air monitoring network to determine adequacy in meeting monitoring objectives, optimizes the network by closing, moving or adding stations, and ensures that air quality issues important to the state are being addressed. The review ensures that the network is providing adequate, quality assured and useful data to meet the needs of stakeholders.

This plan encompasses the 18-month period from July 1, 2020 through December 31, 2021. However, unplanned modifications may occur due to funding reductions, unanticipated site changes, or changes in EPA monitoring requirements. This plan is being submitted to the EPA Region 9 according to the Code of Federal Regulations (CFR), Title 40, Part 58, Section 58.10.

Notification of the plan availability for public inspection was provided through public notices published on June 3, 2020 in the daily newspapers of all counties. The plan was available for review on the Clean Air Branch website, <http://health.hawaii.gov/cab>, for 30 days from June 3, 2020 to July 2, 2020 (due to social distancing protocols put in place in response to the Covid-19 pandemic, the plan was only available online and not at all county District Health offices). Documentation of public notification is provided in **Appendix A**. No comments were received.

1.0 Network Purpose and Design

1.1 Overview

EPA established NAAQS for the following criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), particulate matter 10 microns or less in aerodynamic diameter (PM₁₀) and particulate matter 2.5 microns or less in aerodynamic diameter (PM_{2.5}). Additionally, there is a state standard for hydrogen sulfide (H₂S) that was established primarily to monitor the ambient air effects of geothermal energy production activities on the island of Hawaii. In 2011 the state established the NCore station as required by 40 CFR 58. The NCore station monitors for PM_{2.5}, speciated PM_{2.5}, particulate matter coarse (PM_{10-2.5}), O₃, SO₂, CO, nitrogen oxides (NO/NO₂/NO_y) and the meteorological parameters wind speed, wind direction, ambient temperature and relative humidity. Hawaii's air quality surveillance network consists of compliance stations monitoring for criteria pollutants as well as the NCore station and special purpose monitoring stations.

The annual review ensures that the state meets monitoring and siting requirements, the three basic monitoring objectives, addresses the six site types in 40 CFR 58 Appendix D, provides information for non-regulatory data goals and the requirements of 40 CFR 58 appendices A, C, D, and E as follows:

- *Appendix A: Quality Assurance Requirements for SLAMS, SPMSs and PSD Air Monitoring;*
- *Appendix C: Ambient Air Quality Monitoring Methodology*
- *Appendix D: Network Design Criteria for Ambient Air Quality Monitoring*
- *Appendix E: Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring*

1.1.1 SLAMS

SLAMS are established primarily to demonstrate compliance with the NAAQS, and to meet minimum monitoring requirements as required in 40 CFR 58 Appendix D. All SLAMS must meet quality assurance, methodology, and siting requirements of 40 CFR 58 Appendix A, C and E, respectively. All data is submitted to EPA's Air Quality System (AQS) within 90 days at the end of each calendar quarter, as required in 40 CFR 58.16.

EPA mandated that each state establish a minimum of one NCore station to support tracking of long-term trends of criteria and non-criteria pollutants, model evaluation, long-term health and ecosystem assessments, and other scientific and technological studies. Hawaii's NCore station became fully operational on January 1, 2011. The SLAMS network excludes SPMS but includes NCore and other stations that have not been specifically designated as SPMS.

1.1.2 SPMS

SPMS are operated for specific areas of interest to the state and do not count in meeting minimum monitoring requirements. Hawaii's SPM network is established primarily to monitor air quality impacts of emissions from Kilauea volcano, hydrogen

sulfide (H₂S) emissions from geothermal energy production and impacts from cruise ships on the island of Kauai. The DOH utilizes Federal Reference Method (FRM) or Federal Equivalent Method (FEM) analyzers for all criteria SPMS, meets the quality assurance requirements of 40 CFR 58 Appendix A and E, and submits criteria pollutant data to AQS. All data from SPMS which have operated for more than 24 months is eligible for comparison to relevant NAAQS.

1.2 Network Design and Review Process

The network review determines if: modifications are needed to reduce or eliminate redundancy and low value monitoring; new NAAQS monitoring requirements or programs are met; sufficient data is being collected using the best technology and schedule that resources allow; and corrective actions are needed to ensure compliance with all siting and quality assurance requirements.

Modification decisions are made using a variety of tools, including but not limited to: data trend analyses; performance and technical systems audits; regular site inspections; cost and value analyses; assessment of unfavorable site changes such as loss of lease or construction that adversely affect data collection; and the need to address special studies or new regulatory as well as non-regulatory monitoring objectives.

1.2.1 Monitoring Objectives and Site Types

Ambient air monitoring networks must be designed to meet three basic objectives as stated in 40 CFR 58 Appendix D:

- 1) Provide air pollution data to the general public in a timely manner;
- 2) Support compliance with NAAQS and emissions strategy development; and
- 3) Support air pollution research studies.

The state's ambient air monitoring network achieves all three objectives as follows:

- 1) Air pollution data from all SLAMS and SPMS are exhibited near real-time on the DOH public website. Additionally, continuous PM_{2.5} and O₃ data is provided to EPA's AIRNow website for use in calculating the AQI;
- 2) Data from SLAMS are used to demonstrate compliance with the NAAQS and in development and tracking of emissions control strategies. Similarly, data from the NCore station is used to demonstrate compliance with the NAAQS and to track long-term trends of criteria and non-criteria pollutants as well as support emissions control strategies;
- 3) All SLAMS, SPMS, and NCore monitoring provide valuable information in support of air pollution, health and other scientific studies.

In order for the network to support the three basic objectives outlined above, it must be designed with a variety of monitoring site types. The six general site types are:

- 1) Determine the highest pollutant concentrations expected in the network;
- 2) Measure typical concentrations in areas of high population density;
- 3) Determine the impact of significant sources or source categories on air quality;
- 4) Determine general background concentrations;
- 5) Determine the extent of regional pollutant transport between populated areas;

- 6) Measure pollution impacts on visibility, vegetation, crops, animals and buildings.

The site type for each station in the network is included in its detailed description in Section 3.0 of this document.

1.2.2 PM_{2.5} Network Changes

According to 40 CFR 58.10 (c), this network plan must document how the state will provide for a review of changes to a PM_{2.5} monitoring network that impact the location of a violating PM_{2.5} monitor or the creation or change to a community monitoring zone, including a description of the proposed use of spatial averaging for purposes of making comparisons to the annual PM_{2.5} NAAQS as set forth in Part 50 Appendix N. The agency must also document the process for obtaining public comment and include any comments received through the public notification process within the submitted plan.

The state does not have, nor is intending to create, any community monitoring zones and does not utilize spatial averaging for comparison to the PM_{2.5} NAAQS. The state has in place a public notification procedure which includes posting notice in the newspapers of all counties and on the agency web site allowing for public viewing and comments of the changes that are in the annual network plan document.

1.3 Organizational Structure and Responsibilities

The DOH Clean Air Branch (CAB) is the state agency responsible for planning, management, and regulatory activities associated with the state's air program. The HDOH serves as the Primary Quality Assurance Organization (PQAO) with two separate divisions within the DOH responsible for quality assurance oversight and data collection.

The CAB in the Environmental Management Division (EMD) is responsible for the overall planning, siting, and quality assurance management of the ambient air monitoring program, is organizationally independent of data collection activities and provides quality assurance oversight of the Air Quality Monitoring Section (AQMS) of the State Laboratories Division (SLD). The AQMS is responsible for all data collection activities including operating and maintaining the stations and data validation. The SLD - IT provides quality assured data to AQS. AQMS contracts out laboratory support for co-located PM_{2.5} mass analyses.

2.0 Network Evaluation

There are minimum monitoring requirements for PM₁₀, PM_{2.5}, O₃, SO₂, and Pb for each Metropolitan Statistical Area (MSA) in the state as described in 40 CFR 58 Appendix D. In 2013, the U.S. Office of Management and Budget designated two MSAs in the State of Hawaii, Urban Honolulu and Kahului-Wailuku-Lahaina (Maui County, excluding Kalawao County). The 2019 census population was estimated at 974,563 for the Urban Honolulu MSA (hereafter called Honolulu) and 167,417 for the Kahului-Wailuku-Lahaina MSA (hereafter called Maui). There are five counties in the state: Kauai (islands of Niihau and Kauai); City & County of Honolulu (island of Oahu); Maui (islands of Maui, Molokai, Lanai, Kahoolawe, excluding Kalawao County); Kalawao (Kalaupapa Settlement on Molokai) and Hawaii (island of Hawaii).

2.1 PM₁₀ Network

The minimum number of required PM₁₀ monitoring stations for the MSA is dependent upon population and concentration measurements. High concentration areas are those for which the ambient PM₁₀ data show concentrations exceeding the PM₁₀ NAAQS by 20 percent or more. Medium concentration areas are those for which ambient PM₁₀ data show concentrations exceeding 80 percent of the NAAQS. Low concentration areas are those for which ambient PM₁₀ data show concentrations less than 80 percent of the NAAQS.

PM₁₀ data for 2019 showed the Honolulu MSA to be a low concentration area (Table 2-1) and, therefore, is required to have one to two PM₁₀ monitors (Table 2-2). In the absence of a PM₁₀ design value for the newly designated Maui MSA and with a population <250,000, no PM₁₀ monitoring is required in that MSA. The state meets the minimum PM₁₀ monitoring requirements with three PM₁₀ stations in the Honolulu MSA.

Table 2-1. PM₁₀ Network and Concentrations for the Honolulu MSA¹

Site Name	AQS No.	2019 Maximum 24-Hr Value (µg/m ³)	Percent of 24-Hr NAAQS	Sampling Frequency
Honolulu	150031001	35	23	Continuous
Kapolei	150030010	42	28	Continuous
Pearl City	150032004	36	24	Continuous

¹ There is currently no PM₁₀ monitor operating in the Maui MSA

Table 2-2. PM₁₀ Minimum Monitoring Requirements for Each MSA

MSA Population Category (2010 Census) (40 CFR 58 Appendix D Table D-4)		High Concentration ≥120% of NAAQS (≥180 µg/m ³)	Medium Concentration >80% of NAAQS (>120 µg/m ³)	Low Concentration <80% of NAAQS (<120 µg/m ³) ¹	
>1,000,000		6-10	4-8	2-4	
500,000-1,000,000		4-8	2-4	1-2	
250,000-500,000		3-4	1-2	0-1	
100,000-250,000		1-2	0-1	0	
MSA	2019 Census Population (estimated)	Highest 24-hr Value (2019)	Required # of Monitors	# of Active Monitors in the MSA	# of Monitors Needed
Honolulu	974,563	42 µg/m ³	1-2	3	0
Maui	167,417	No data available	0 ¹	0	0

¹ 40 CFR Part 58 Appendix D Section 4.6 Table D-4 states that in the absence of a design value, these minimum monitoring requirements apply.

Figure 2-1 is a map of the current PM₁₀ sites in the state. All of the PM₁₀ stations are in the Honolulu MSA.

Figure 2-1. PM₁₀ Network



2.2 PM_{2.5} Network

The state must operate a minimum number of required PM_{2.5} monitors based on population and the most recent 3-year design value in each MSA. There are four PM_{2.5} SLAMS in the Honolulu MSA and one SLAMS in the Maui MSA with complete design values. The design value for the annual PM_{2.5} standard is the most current 3-year average annual mean for each site. The design value for the 24-hour PM_{2.5} standard is the most current 3-year average of annual 98th percentile 24-hour values recorded at each monitoring site. Table 2-3 shows the annual and daily design values for complete data years 2017 to 2019.

The most recent 3-year design values in the Honolulu and Maui MSAs were less than 85% of any PM_{2.5} NAAQS. Table 2-4 shows that the state operates more than the minimum monitoring requirements for PM_{2.5} in each MSA. Additionally, in 2019, the state operated one SPMS in the Maui MSA and ten SPMS on the island of Hawaii for volcanic emissions, and one SPMS on the island of Kauai to monitor cruise ship emissions.

Part of DOH's response to the 2018 eruption at the Lower East Rift Zone (LERZ) of Kilauea volcano, was to supplement the existing PM_{2.5} network with additional SPMS sites on Hawaii island. Six new SPMS sites were identified and temporary monitors were set up in communities around the island.

At the time of plan publication, a few of the monitors were still operating at the temporary locations but are slated to be relocated to the selected SPMS/long-term sites when appropriate. See Section 2.12 for discussion on site modifications and Section 3.0 for detailed location information.

The IMPROVE monitoring station (HACR1) at Haleakala National Park on Maui, operated by the National Park Service, serves as the background/transport PM_{2.5} site for the state's network. All primary PM_{2.5} monitors operated by the state are continuous FEM. Figure 2-2 shows the map locations of all the PM_{2.5} stations in the state, including the IMPROVE monitor and SPMS (existing stations as well as the six new stations being established).

Table 2-3. PM_{2.5} Network and Concentrations for Each MSA

Site	AQS No.	Sampling Frequency	Annual Design Value (µg/m ³) 2017 – 2019	Percent of Annual NAAQS (12µg/m ³)	Daily Design Value (µg/m ³) 2017-2019	Percent of 24-Hour NAAQS (35 µg/m ³)
Honolulu MSA						
Honolulu	150031001	Continuous	3.3	28	8	23
Kapolei	150030010	Continuous	2.9	24	8	23
Pearl City	150032004	Continuous	3.5	29	10	29
Sand Island	150031004	Continuous	3.5	29	8	23
Maui MSA						
Kihei	150090006	Continuous	4.2	35	13	37

NOTE: Haleakala IMPROVE (150099001) is the PM_{2.5} background/transport site for Hawaii and is operated and maintained by the NPS

Table 2-4. PM_{2.5} Minimum Monitoring Requirements for Each MSA

MSA Population Category (2010 Census) (40 CFR 58 Appendix D Table D-5)		Most recent 3-year Design Value ≥85% of any PM _{2.5} NAAQS (≥29.75 µg/m ³ for 24-hr standard; ≥10.2 µg/m ³ for annual standard)		Most recent 3-year Design Value <85% of any PM _{2.5} NAAQS (<29.75 µg/m ³ for 24-hour standard; <10.2 µg/m ³ for annual standard)		
>1,000,000		3		2		
500,000-1,000,000		2		1		
50,000-<500,000		1		0		
MSA	2019 Census Population (estimated)	Highest Annual Design Value 2017 – 2019	Highest Daily Design Value 2017-2019	Required No. of Monitors	Number of Active Monitors in the MSA	Number of Monitors Needed
Honolulu	974,563	3.5	10	1	4	0
Maui	167,417	4.1	11	0	1 SLAMS/ 1 SPMS	0

Appendix A to 40 CFR 58 requires that 15 percent of each PM_{2.5} monitoring method be co-located. The state currently operates four SLAMS, one NCore and twelve SPMS FEM monitors (seventeen total), all of which are using Method 209 except for one that is using Method 170. The Pahoia station will begin monitoring once the site preparations are completed and would increase the state’s total to eighteen.

One co-located monitor is required for the one station using Method 170. One FRM co-located monitor is operating at the Kapolei NCore station.

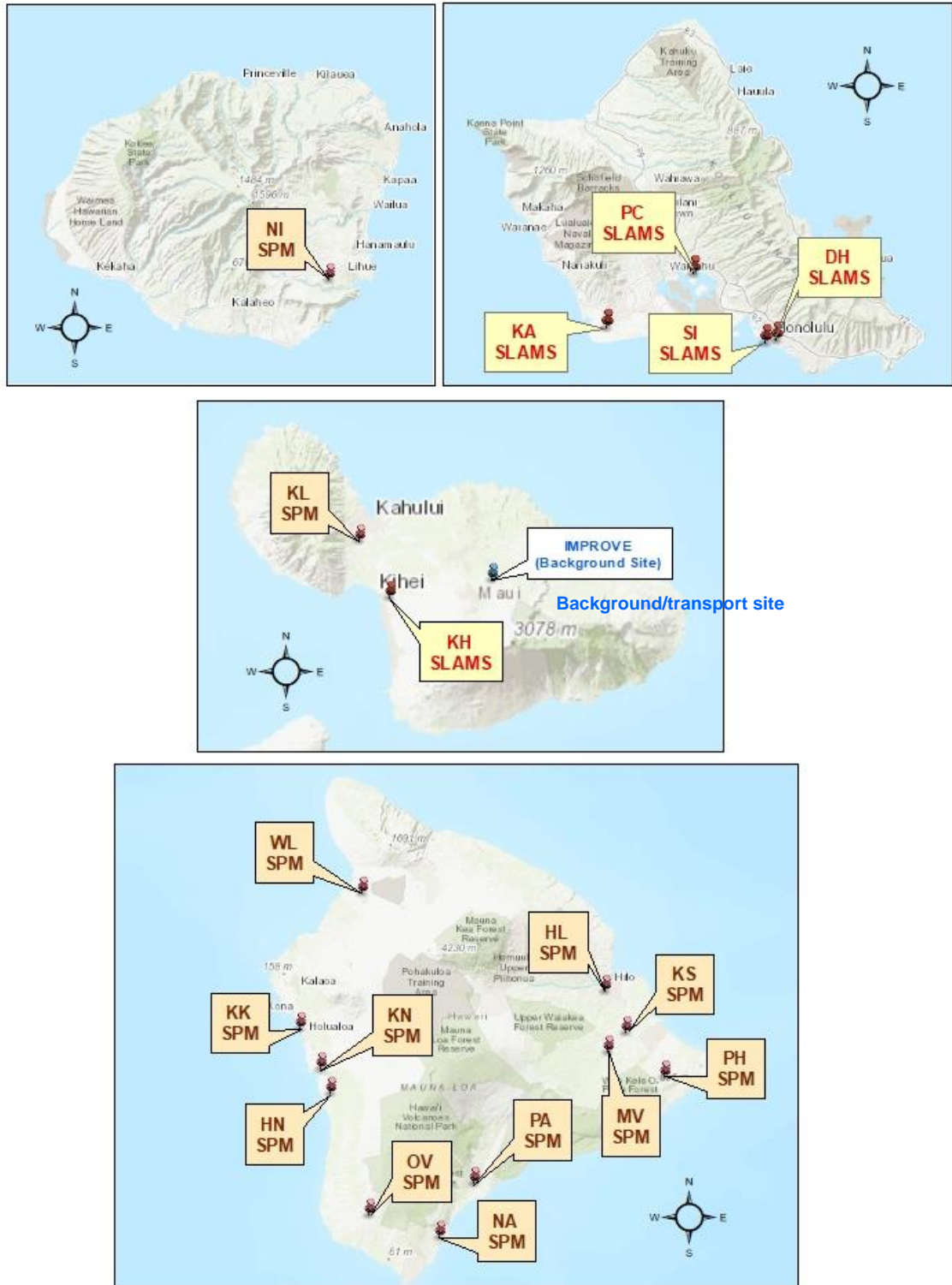
Two co-located monitors are currently required for the sixteen stations using Method 209. One FRM co-located monitor was operating at the Hilo station and was recently relocated to the Pearl City station on Oahu, and a PM_{2.5} FEM is co-located at the Kona station. Once the Pahoia station begins operating, it would increase the state’s total number of FEM monitors to eighteen, with seventeen using Method 209. This would increase the required number of co-located monitors to three, with two FRM and one FEM. It is still to be determined which station this additional FRM sampler would be co-located.

Table 2-5 summarizes the PM_{2.5} co-located network at the time of plan publication.

Table 2-5. PM_{2.5} Co-located Network

Method Code	# Primary Monitors	# Required Co-located	# Active Co-located FRM	# Active Co-located FEM (same method designation as primary)
170	1	1	1	0
209	16	2	1	1

Figure 2-2. PM_{2.5} Network



2.3 O₃ Network

The state must operate a minimum number of O₃ monitors depending upon MSA population and typical peak concentrations. NCore sites are intended to complement O₃ data collection but can be used to meet the minimum monitoring requirements.

The O₃ monitoring season for the state of Hawaii is 12-months from January to December. The O₃ design value is the 3-year average of the fourth-highest daily maximum 8-hour concentrations measured at each monitor.

The most recent O₃ design value concentrations at the Sand Island and Kapolei NCore stations in the Honolulu MSA showed less than 85% of the O₃ NAAQS (Table 2-6). The Maui MSA does not have any O₃ monitoring. However, with a 2019 census population estimated at 167,417, according to 40 CFR Part 58 Appendix D Table D-2 and, as shown in Table 2-7 below, in the absence of a design value, no O₃ monitor is required in that MSA. The state meets the minimum O₃ network monitoring requirements.

Table 2-6. O₃ Design Values for the Honolulu MSA

Stations in the MSA	8-Hour Design Value 2017 – 2019	2019 MSA Census Population	Required # of Monitors	# of Active Monitors in the MSA	# of Monitors Needed
Sand Island (150031004)	0.048	974,563 (estimated)	1	2	0
Kapolei (150030010)	0.050				
There is no O ₃ monitor in the Maui MSA		167,417 (estimated)	0	0	0

Table 2-7. O₃ Minimum Monitoring Requirements for Each MSA

MSA Population Category (40 CFR 58 Appendix D Table D-2)	Most recent 3-year design value ≥85% of any O ₃ NAAQS (≥.064 ppm, 8-hr standard)	Most recent 3-year design value <85% of any O ₃ NAAQS (<.064 ppm, 8-hr standard) ¹
>10 million	4	2
4-10 million	3	1
350,000-<4 million	2	1
50,000-<350,000	1	0

¹ According to 40 CFR part 58 Appendix D, Table D-2, these minimum monitoring requirements apply in the absence of a design value.

40 CFR Part 58.10 requires that states with Moderate and above 8-hour O₃ nonattainment areas and states in the Ozone Transport Region as defined in 40 CFR 51.900 shall develop and implement an Enhanced Monitoring Plan (EMP) detailing enhanced O₃ and O₃ precursor monitoring activities to be performed. The EMP shall be submitted to the EPA Regional Administrator no later than October 1, 2019 or two years following the effective date of a designation to a classification of Moderate or above O₃ nonattainment, whichever is later. Hawaii is in attainment with the 8-hour O₃ standard and thus is not required to submit an EMP.

Figure 2-3 shows the map locations of the SLAM and NCore O₃ stations. Both stations are located in the Honolulu MSA.

2.4 Pb Network

With a 2010 census population of 953,207 in the Honolulu MSA, the state was previously required to conduct non-source-oriented Pb monitoring at the Kapolei NCore site (Table 2-8). This NCore site began collecting Pb data on January 1, 2012. Appendix D to 40 CFR Part 58 also requires source-oriented Pb monitoring for sources emitting 0.50 or more tons per year (TPY) according to the most recent emissions inventory. There are no sources in the state emitting 0.5 or more TPY of Pb. No Pb monitoring is required in the Maui MSA.

Since the beginning, the station recorded concentrations of Pb well below the standard, at approximately one to two percent of the standard. Per a letter dated October 29, 2018, EPA approved the discontinuation of the Pb monitoring at the Kapolei NCore station. Pb monitoring was discontinued on December 31, 2018.

Table 2-8. Minimum Pb Monitoring Requirement at NCore

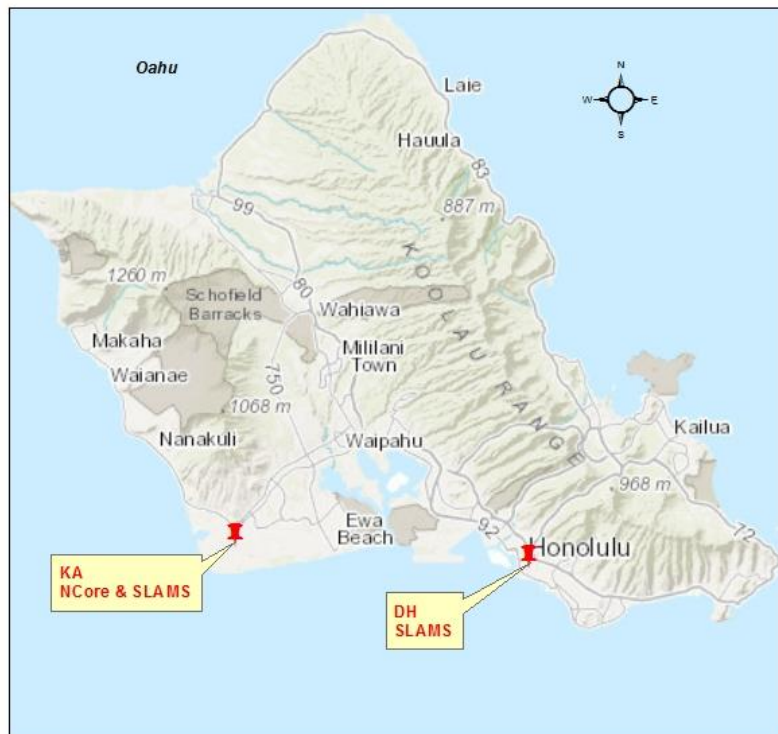
NCore	AQS ID	CBSA	2019 Census Population (estimated)	# Required Monitors	# Active Monitors	# Monitors Needed
KA	150030010	Honolulu	974,563	*0	*0	0

- Per EPA letter dated October 29, 2018, the Pb monitoring at Kapolei NCore was approved to be discontinued

2.5 CO Network

The state operates two SLAMS and one SLAMS/NCore CO monitors in the Honolulu MSA. Figure 2-4 shows the locations of the CO sites in the state. 40 CFR Part 58, Appendix D Section 4.2.2 requires one co-located CO monitor at near-road NO₂ sites in Core-based Statistical Areas (CBSA) with populations $\geq 1,000,000$. The Honolulu MSA had a 2019 census population estimated at 974,563 and therefore is not currently required to co-locate a CO monitor. No CO monitoring is required in the Maui MSA.

Figure 2-4. CO Network



2.6 NO₂ Network

Near-road NO₂ monitoring requirement for CBSAs with a population of greater than 500,000 but less than one million, which includes the Honolulu MSA, has been removed by EPA as of December 22, 2016. The population and Annual Average Daily Traffic (AADT) for the Honolulu CBSA will be monitored, and in the event, they hit the minimum threshold in the future, the near-road monitoring will be implemented.

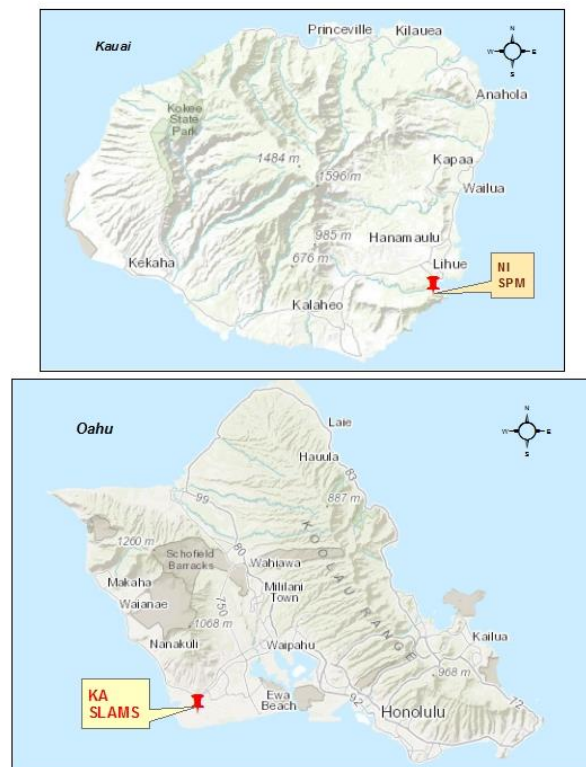
40 CFR Part 58, Appendix D Section 4.3.3 requires area-wide NO₂ monitoring in the location of highest expected concentration in a CBSA with a population $\geq 1,000,000$. The Honolulu MSA had a 2019 census population estimated at 974,563 and therefore is not currently required to have area-wide monitoring. DOH will continue to work with EPA to determine the appropriate timeline associated with this requirement. The state currently has one SLAMS NO₂ station in the MSA which measures typical concentration in areas of high population density but would also be the location of highest expected concentration, making it suitable as the area-wide monitoring location. There is one SPMS on the island of Kauai and no NO₂ monitoring is required in the Maui MSA.

Table 2-9. Minimum Near-Road NO₂ Monitoring Requirements for the MSA

CBSA	2019 Census Population (estimated)	Max AADT Counts (2018) ¹	# Required Monitors	# Monitors to be operational by 1/1/2017
Honolulu	974,563	249,000	0	0

¹ 2018 estimated average AADT provided by the State of Hawaii Department of Transportation

Figure 2-5. NO₂ Network



2.7 SO₂ Network

EPA has established the Population Weighted Emissions Index (PWEI) to determine required SO₂ monitoring. The PWEI is calculated by multiplying the population of each CBSA with the total amount of SO₂ in TPY emitted within the CBSA area and dividing the result by one million. According to this calculation, Hawaii is required to operate one SO₂ monitor in the Honolulu MSA and none in the Maui MSA (Table 2-10). The state currently operates two SLAMS SO₂ monitors in the Honolulu MSA, and one at the NCore station in Kapolei; it therefore meets the minimum number of required SO₂ stations. There are no requirements for a SO₂ monitor in the Maui MSA.

The state also has a station on the island of Kauai that monitors for cruise ship emissions. This is a SPM station which includes FEM monitoring for SO₂, follows all requirements of 40 CFR 58 Appendices A, D, and E, and as of April 2, 2013, has been operating for more than 24 months and is eligible for comparison with the NAAQS.

Although the Kilauea volcano stopped erupting in 2018 it remains in active status, SO₂ continues to be a concern on the island of Hawaii due to the potential for significant increase of volcanic emissions, should another eruption occur. There are currently six stations that meet siting requirements monitoring for SO₂ in volcanic emissions, two of which are SLAM stations (Hilo and Kona). Four of the six SO₂ monitoring stations (Mountain View, Pahala, Ocean View and the recently established Naalehu) are SPMS that use FEM monitors and follow all the requirements of 40 CFR 58 Appendices A, D, and E. Mountain View, Pahala, Ocean View have been operating for more than 24 months and therefore are subject to NAAQS comparison.

As a part of DOH's response to the air quality issues caused by the 2018 LERZ eruption at the Kilauea volcano, two temporary monitors were quickly deployed in Keaau and Pahoa. To replace the temporary stations, two SPMS/long-term sites to measure SO₂ were selected at different locations in the same areas. At this time AQMS has not completed installation of the long-term monitors at the selected long-term locations. The Pahoa temporary station was closed but the Keaau station is still operating at its temporary location.

See Section 2.12 for discussion on site modifications and Section 3.0 for detailed location information. Figure 2-6 shows the locations of the SLAMS and the three SPMS stations discussed.

The state is also required by 40 CFR Part 51, Subpart BB, Data Requirements Rule, to characterize maximum 1-hour ambient concentrations of SO₂ through either ambient air quality monitoring or air quality modeling analysis. The state has two air stations, Kahe and Waiau, to monitor four sources that has been identified as having SO₂ emissions data of 2,000 tons or more (see detailed site description for more information). The start date for these stations began in January 2017 and at the end of 2019, will have completed the required three years of data collection. After review of the three year of data collected, it was determined that Waiau met the DRR requirement to shut down.

40 CFR Part 58, 58.14 allows for approvals to be granted when requests to shut down monitors will not compromise data collection needed for implementation of the NAAQS,

the requirements in 40 CFR Part 58 Appendix D continue to be met, and that specific criteria for discontinuing monitors operated to satisfy that rule.

DOH's request to shut down the DRR monitor at Waiiau (AQS ID: 15-003-4100), was submitted to EPA on May 15, 2020 (see Appendix B of this plan) for approval upon the satisfaction of the specific criteria in 40 CFR Part 51, Subpart BB, 51.1203, Section (c)(3). In the request, DOH represented the monitors were operated solely for the purpose of satisfying the 2015 SO₂ DRR (80 FR 51052) for the listed DRR source, and addressed the following:

HECO Waiiau Generating Station Valid 3-year Design Value of 16 PPB

In order for EPA to process the request, DOH submitted data to AQS for the specified, qualifying monitor for CY 2017-2019, and certified the data on April 24, 2020 so that a design value may be calculated (per 40 CFR Part 50, Appendix T) that meets the requirements under 40 CFR 51.1203(c)(3). If data collected from the monitor during either its first or second 3-year period of operation produces a valid design value no greater than 50% of the NAAQS (which is 37.5 ppb), the monitor is eligible for shut down so long as it is not: located in an area designated as nonattainment of the 2010 SO₂ NAAQS; being used to satisfy other ambient SO₂ minimum monitoring requirements listed in 40 CFR Part 58, Appendix D, section 4.4; or otherwise required as part of a SIP, permit, attainment plan or maintenance plan.

When the approval from EPA is granted, the DOH intends to shut down the Waiiau monitor in 2020.

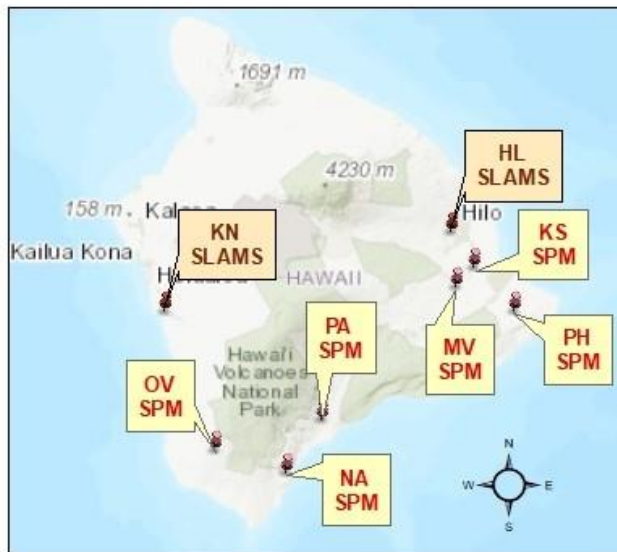
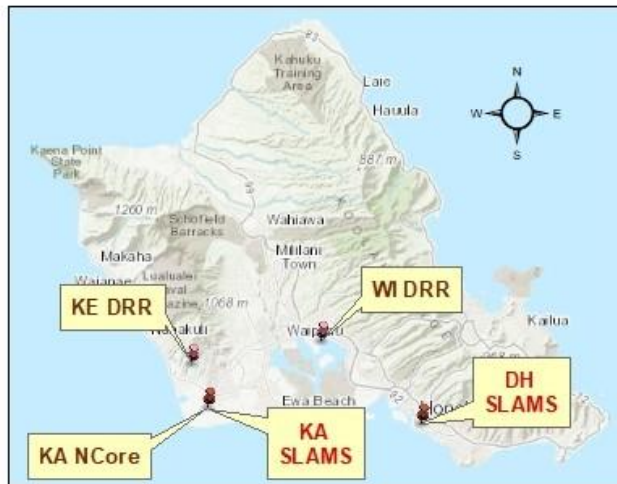
Table 2-10. Minimum SO₂ Monitoring Requirements

CBSA	County	2019 Census Population (estimated)	Total SO ₂ (tons/year) 2014 NEI	PWEI ¹	DRR ² Sources Using Monitoring	# Required Monitors	# Active Monitors	# Monitors Needed
Honolulu	City & County of Honolulu	974,563	14,778	14,484	4	1	2 SLAMS 1 SLAMS/ NCore	0
Maui	Maui	167,417	2,747	459	0	0	0	0

¹ According to 40 CFR 58 Appendix D, if the PWEI for a CBSA is ≥ 5,000 but < 100,000, a minimum of one SO₂ monitor is required.

² Data Requirements Rule for the 2010 1-Hour SO₂ Primary NAAQS.

Figure 2-6. SO₂ Network



2.8 NCore

The Kapolei NCore station is located in the residential, commercial, and industrial community on the southwest side of Oahu. Kapolei is the “second city” next to Honolulu with county, state and federal agencies having established offices in the area. The NCore parameters are: NO/NO_y, trace-level SO₂, trace-level CO, O₃, PM_{10-2.5}, PM_{2.5} speciation and the meteorological parameters wind speed, wind direction, temperature and relative humidity.

By correspondence dated October 30, 2009, EPA approved Kapolei as the NCore station and it became fully operational on January 1, 2011.

40 CFR Part 58, Appendix D Section 5 (a) requires the state to collect and report Photochemical Assessment Monitoring Station (PAMS) measurements at each NCore site located in a CBSA with a population ≥1,000,000. The Honolulu MSA had a 2018 census population estimated at 980,080 and therefore is not currently required to operate a PAMS. DOH will continue to work with EPA to determine the appropriate timeline associated with this requirement.

2.9 H₂S Network

The state has a one-hour H₂S standard of 25 parts per billion (ppb) established primarily to determine the effects of geothermal energy exploration and production on the island of Hawaii. Puna Geothermal Ventures (PGV) is a 41 megawatt geothermal power plant located in the lower east rift zone of the Kilauea volcano.

The DOH previously had an air station in the community of Leilani Estates (Puna E station), downwind of the plant, to monitor ambient levels of H₂S due to geothermal exploration and operations. Unfortunately, that station, along with all three of PGV’s stations, were destroyed by lava due to the LERZ eruption. In September 2019, DOH established a temporary station at the Leilani Community Association Center to measure H₂S; the station will be relocated to a permanent location on the same property. H₂S sampling began on September 17, 2019.

2.10 Site Closure

Waiau (150034100) DRR site, Oahu, Hawaii Parameter: SO₂

As previously discussed in detail in Section 2.7, the Waiau station began collecting data on January 1, 2017, and since the end of 2019, has completed the required 3 years of data collection. Pending EPA data review and approval, this site will be closed by December 2020.

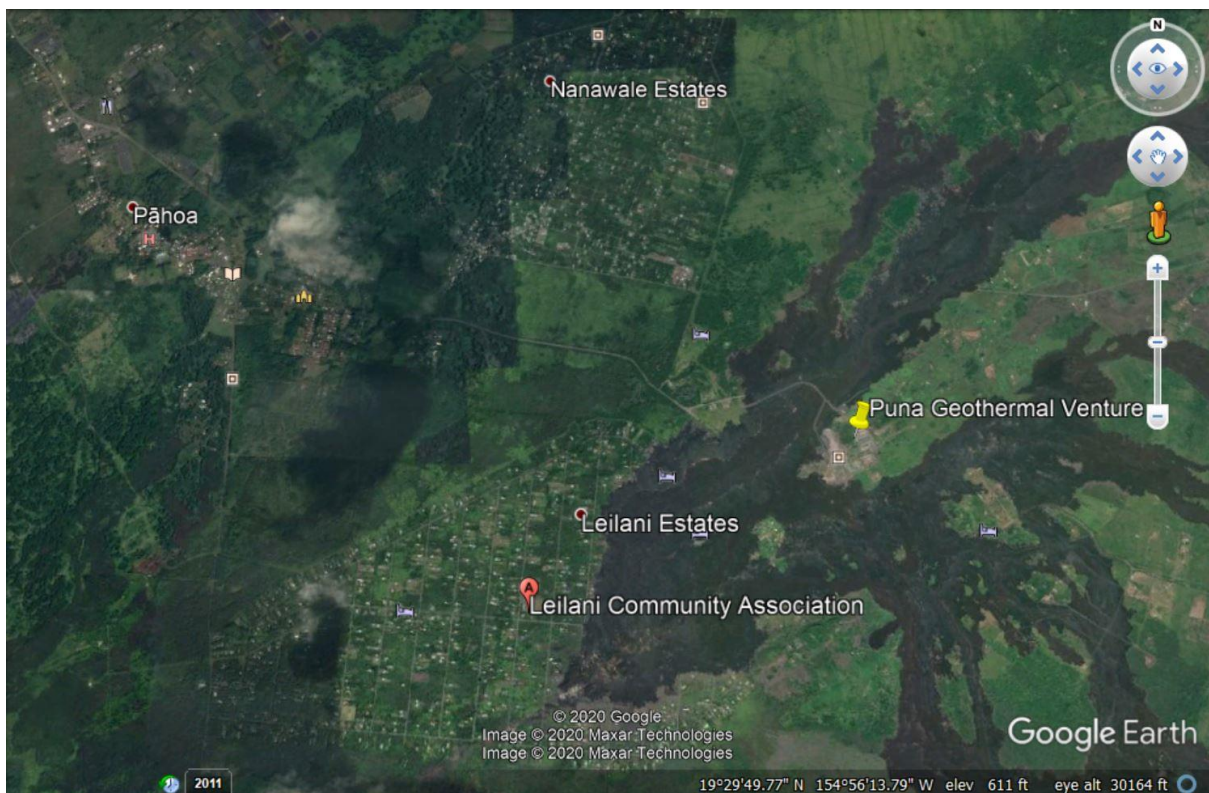
The other DRR site at Kahe was included in the 2019 network plan as a site that could close, pending data review. A review of the data collected during its first three years of operation showed that the site did not meet DRR requirements for closure and will continue to operate.

2.11 Site Additions

LE35 - Leilani Community Association Center (no AQS ID) SPMS
13-3441 Moku Street, Pāhoa, Hawaii 96778
Parameter: H₂S (non-criteria)

As stated previously in Section 2.9, the Puna E station was destroyed by the LERZ eruption. This new station was established in September 2019 to replace the Puna E station. Figure 2-7 shows the location of the station in relation to PGV. It will need to relocate from its temporary location on this property to another area of the property once preparations are completed.

Figure 2-7 New Leilani Community Association Center SPMS Site Location



2.12 Site Modifications

2.12.1 SLAMS/NCore (150030010)
Kapolei, Oahu, Hawaii
Parameters: Various

As stated in the 2019 network plan, the current site, which belongs to the City and County of Honolulu Board of Water Supply (BWS), are undergoing future site renovations and construction to be transformed into a baseyard. The station still needs to be relocated to the previously approved area on the same property

approximately 50 feet to the south of the current location. Per Region 9, no formal relocation request is needed since this site is being moved a short distance.

**2.12.2 Mountain View (150012023) SPMS and
Niumalu (150070007) SPMS
Various Locations, State of Hawaii
Parameters: PM_{2.5}**

The BAM 1020 samplers at these two stations were replaced with BAM 1022 samplers on May 29, 2019 and August 29, 2019, respectively.

**2.12.3 Hilo (150011006) SPMS
Pearl City (150032004)
Parameters: PM_{2.5} co-located FRM**

The FRM sampler was relocated from Hilo to Pearl City on April 1, 2020 for budgetary reasons as well as to improve program efficiency. The last sample collected at Hilo was on March 16, 2020. Although only required to run the sampler a minimum of 1 in 12 days, AQMS is planning to run the sampler 1 in 6 days to improve data completion percentages.

Although long-term locations have been selected for these following new sites, currently the monitors are set up at temporary locations. Some of these locations do not meet siting guidelines, which is one of the reasons they will be re-located. Detailed site descriptions are included for five of the six temporary stations. Pahoia was taken offline due to construction activities.

**2.12.4 Honaunau (150013032) SPMS,
Department of Water Supply (DWS) Keeki Well C, Honaunau, Hawaii
and
Kailua-Kona (AQS 150013034) SPMS,
DWS Puapuaa Reservoir #1, Walua Road, Kailua-Kona, Hawaii
Parameters: PM_{2.5}**

Upon the completion of final site preparations, the samplers that are in their temporary locations at their respective sites, will be relocated to the prepared area of the properties.

**2.12.5 Keaau (Temporary - AQS 150013027; Long-term – AQS TBD)
Kamehameha Schools Hawaii, 16-714 Volcano Road, Keaau, Hawaii
Parameters: PM_{2.5} and SO₂**

This station was selected to be sited in an open area near the Switch Gear Building on the school campus. AQMS had set up a temporary monitoring station elsewhere on campus in response to the LERZ emergency, approximately 650 meters to the northwest of where the long-term station is to be placed. It has been monitoring for PM_{2.5} and SO₂ as a non-regulatory temporary station since June 14, 2018. AQMS will need to relocate the monitoring equipment to the final selected long-term site once it is prepped and the procurement and set up of the monitoring shelter is completed.

**2.12.6 Naalehu (PM_{2.5} AQS 150013028; SO₂ AQS 150013033)
Naalehu Elementary School, 95-5545 Mamalahoa Highway, Keaau, HI
Parameters: PM_{2.5} and SO₂**

This station was selected to be located at the United States Geographical Survey Seismograph Building on the school campus. The SO₂ monitor has been monitoring for SO₂ since September 9, 2018 as a non-regulatory temporary station. AQMS had also set up a PM_{2.5} monitor at the Naalehu Volunteer Fire Station during the 2018 LERZ eruption as a non-regulatory temporary station; monitoring began June 19, 2018 and is still ongoing at this temporary location. AQMS will need to relocate the PM_{2.5} and SO₂ monitors to the final selected long-term site once it is prepped and the procurement and set up of the monitoring shelter is completed.

**2.12.7 Pahoa (AQS TBD)
Pahoa High School, 15-3038 Pahoa Village Road, Pahoa, Hawaii
Parameters: PM_{2.5}, SO₂, and H₂S**

This station was selected to be sited in an open area behind the school gymnasium. AQMS had set up a temporary station elsewhere on campus during the 2018 LERZ eruption. It monitored for PM_{2.5}, SO₂ and H₂S as a non-regulatory temporary station from May 17, 2018 until December 20, 2018. AQMS will locate the monitors to the selected long-term site once the area is prepped and secured, and procurement and set up of the monitoring shelter is completed. Currently, there is no monitoring due to construction activities.

**2.12.8 Waikoloa (Temporary AQS 150013030; Long-term – AQS TBD)
DWS Lalamilo (Parker 610), TMK 3-6-8-002-019, Waikoloa, Hawaii
Parameters: PM_{2.5}**

This station on the northwest side of Hawaii island was selected to be sited within a fenced area that contains a water tank and pump house; this is the same exact site that DOH had operated a station (15012021) from 2012-14. AQMS had set up a non-regulatory temporary station at the Waikoloa Elementary School during the 2018 LERZ eruption; it has been monitoring for PM_{2.5} at the school since June 29, 2018 as a non-regulatory temporary station.

This permanent site was selected by CAB in August 2018 and a final request was made to AQMS in October 2018 to relocate the sampler as the new site is already prepped and secured for a PM_{2.5} sampler to be immediately deployed. The temporary monitor has not been relocated to its long-term location.

There are no plans to modify any of the other current sites in the next 18 months.

2.13 Summary of Network and Changes

Table 2-11 summarizes the state's 2020 network monitors and planned changes. Since it has been determined that no criteria monitors are currently required in the Maui MSA, only monitors required for the Honolulu MSA are addressed in the table. Sections 2.10

to 2.12 detail station closures, additions and equipment or network modifications, and is summarized in Table 2-12.

As indicated in table 2-11, the monitors used for all criteria pollutants are FRM or FEM and follow the requirements of 40 CFR 58 and Appendices A, C, D, E and G. Hawaii's air monitoring network meets or exceeds the minimum required monitoring for each parameter.

Table 2-11. Number of Monitors by Pollutant or Program

N/A = Not applicable

Pollutant/ Program	SLAMS Only	SPMS	SLAMS/NCore	No. of Co- located	Total in MSA ^{1,2}	Total in State ²	Total Required in MSA ¹	Meets EPA Required Minimum?	Planned Additions	Planned Closures
CO (FRM)	2	0	1	N/A	3	3	N/A	N/A	0	0
NO ₂ (FRM)	1	1	---	N/A	1	2	N/A	N/A	0	0
SO ₂ (FEM)	6	6	1	N/A	3	11	1	YES	3	0
O ₃ (FEM)	1	0	1	N/A	2	2	1	YES	0	0
NO/NO _y	N/A	N/A	1 (NCore)	N/A	1	1	1	YES	0	0
PM ₁₀ (FEM)	2	0	1	N/A	3	3	1-2	YES	0	0
PM _{2.5} (all are FEM)	4	12	1	2 FRM 1 FEM	4	17 ³	1	YES	1	0
PM _{2.5} Speciation	0	0	1 (NCore/ Supplemental Speciation)	N/A	1	1	1 (NCore)	YES	0	0
PM _{10-2.5}	N/A	N/A	1 (NCore)	N/A	1	1	1 (NCore)	YES	0	0
H ₂ S	N/A	1 ⁴	N/A	N/A	0	1	N/A	N/A	1 ⁴	0

¹ As promulgated in 40 CFR 58 Appendix D, the minimum monitoring requirements apply to Metropolitan Statistical Areas (MSA). Currently, only the Honolulu MSA has requirements for minimum criteria pollutant monitoring.

² Total refers to the number of primary monitors only and does not count co-located monitors.

³ One of the seventeen is using Method 170 and sixteen are using Method 209.

⁴ The H₂S monitor at Leilani Community Association Center began collecting data on September 17, 2019.

Table 2-12. Summary of Network Changes

Site	AQS ID	Site Type	Affected Parameters	Reason for Closure/Addition/Modification
City and County of Honolulu				
Waiau	150034100	DRR/ SLAMs	SO ₂	Station to be closed: This station began collecting data on January 1, 2017, to address the data requirements rule and since the end of 2019, has completed the required 3 years of data collection. A request for closure was submitted on May 15, 2020 and pending EPA data review and approval, this site will be closed sometime in 2020.
Kapolei/ NCore	150030010	SLAMS/ NCore	All	Site Modification: The current site, which belongs to BWS, is undergoing site renovations and construction to be transformed into a baseyard. The station still needs to be relocated to an area on the same property approximately 50 feet to the south of the current location. Per Region 9, no formal relocation request is needed since this site is being moved a short distance.

Pearl City	150032004	SPMS	PM _{2.5}	Site Modification: The FRM co-located sampler at Hilo was relocated to the Pearl City station on April 1, 2020 to meet department budgetary needs and to improve program efficiency. The last sample collected at Hilo was on March 16, 2020.
Site	AQS ID	Site Type	Affected Parameters	Reason for Closure/Addition/Modification
Hawaii County				
Leilani Community Association Center	N/A	SPMS	H ₂ S, SO ₂	Site addition: This station began sampling for H ₂ S on September 17, 2019 to replace Puna E, which was destroyed by the 2018 LERZ eruption and covered by lava. The sampler still needs to be relocated from its temporary location at the Leilani Community Association Center to another area of the property once the preparations are completed. The station is also monitoring for SO ₂ , but current location doesn't meet siting criteria.
Honaunau and Kailua-Kona	TBD	SPMS	PM _{2.5}	Stations to be modified: These long-term site selections were finalized in 2018 and AQMS had been directed to complete set up of these SPMS stations in accordance with DWS direction and using DWS power until DOH could set up its own poles. However, continuous site improvement delays have kept the samplers from being moved to their intended long-term location on each respective property.
Waikoloa	TBD	SPMS	PM _{2.5}	Station to be modified: This long-term site selection was finalized in 2018 and AQMS had been directed to complete set up of this SPMS station in accordance with DWS direction and using DWS power until DOH could set up its own poles. However, AQMS never moved it from its temporary location at Waikoloa E.S.
Keaau, Naalehu & Pahoa	TBD	SPMS	SO ₂ , PM _{2.5}	Stations to be modified: Temporary monitors are currently operating in these communities as non-regulatory stations. AQMS is to set up all three stations at their final long-term locations once the areas are prepped and secured, and AQMS completes procurement and set up of the monitoring shelters.
Hilo	150011006	SPMS	PM _{2.5}	Site Modification: The FRM co-located sampler at Hilo was relocated to the Pearl City station to meet department budgetary needs and to improve program efficiency.
Mountain View	150012023	SPMS	PM _{2.5}	Site Modification: The BAM 1020 PM _{2.5} sampler at this station was replaced with a BAM 1022 PM _{2.5} samplers on May 29, 2019.
Site	AQS ID	Site Type	Affected Parameters	Reason for Closure/Addition/Modification
Niumalu	150070007	SPMS	PM _{2.5}	Site Modification: The BAM 1020 PM _{2.5} sampler at this station was replaced with a BAM 1022 PM _{2.5} sampler on August 29, 2019.

The operation of each monitor meets the requirements of appendices A, B, C, D, and E of 40 CFR Part 58, where applicable.

3.0 Detailed Site Descriptions

Following are descriptions and photos of each station in the state’s current ambient air monitoring network, including temporary and proposed SPMS long-term stations. The descriptions include area location, traffic, probe siting, monitor information and adherence to quality assurance.

DOH Air Quality Monitoring Section of the State Laboratories Division (AQMS) is the collecting and reporting agency for all stations and monitors operating in the state.

Table 3-1. State of Hawaii Ambient Air Monitoring Network

ID	AQS No.	Site Name	Basic Monitoring Objective(s) ¹	Parameters
DH	150031001	Honolulu	1,2	PM _{2.5} , PM ₁₀ , SO ₂
KA SLAMS/ NCore	150030010	Kapolei	1,2,3	PM _{2.5} , PM _{2.5} co-located, PM ₁₀ , (PM _{10-2.5}), trace SO ₂ , SO ₂ , NO ₂ , NO/NO _y , trace CO, CO, O ₃ , PM _{2.5} speciation, WS, WD, RH, Ambient Temperature
PC	150032004	Pearl City	1,2	PM _{2.5} , PM _{2.5} co-located, PM ₁₀
SI	150031004	Sand Island	1,2	PM _{2.5} , O ₃
KH	150090006	Kihei	1,2,3	PM _{2.5}
KL	150090025	Kahului	1, 2	PM _{2.5}
NI	150070007	Niimalu	1,2,3	PM _{2.5} , SO ₂ , NO ₂
HL (SLAMS)	150011006	Hilo	1,2,3	SO ₂
HL (SPMS)	150011006	Hilo	1,2,3	PM _{2.5}
KN SLAMS)	150011012	Kona	1,2,3	SO ₂
KN (SPMS)	150011012	Kona	1,2,3	PM _{2.5} , PM _{2.5} co-located FEM
MV	150012023	Mt. View	1,2,3	PM _{2.5} , SO ₂
OV	150012020	Ocean View	1,2,3	PM _{2.5} , SO ₂
PA	150012016	Pahala	1,2,3	PM _{2.5} , SO ₂
LE	N/A	Leilani CAC	1,3	H ₂ S, SO ₂
HN	150013032	Honaunau	1,2,3	PM _{2.5}
KK	150013034	Kailua-Kona	1,2,3	PM _{2.5}
KS-T	150013027	Keaau (Temporary)	1,2,3	PM _{2.5} , SO ₂
KS-LT	TBD	Keaau (Long-term)	1,2,3	PM _{2.5} , SO ₂
NA-TP	150013028	Naalehu (Temporary PM _{2.5})	1,2,3	PM _{2.5}
NA-TS	150013033	Naalehu (Temporary SO ₂)	1,2,3	SO ₂
WL-T	150013030	Waikoloa (Temporary)	1,2,3	PM _{2.5}
WL-LT	TBD	Waikoloa (Long-term)	1,2,3	PM _{2.5}
KE	150034001	Kahe	1,2,3	SO ₂
WI	150034100	Waiau	1,2,3	SO ₂

¹ Basic Monitoring Objectives:

- 1) Public information
- 2) NAAQS compliance
- 3) Support research

(DH) HONOLULU			
AQS: 150031001	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 1250 Punchbowl St., Honolulu, HI 96813			
Latitude: 21.30758	Longitude: -157.85542		Elevation: 20 m MSL
Location Description: This station is located on the roof of the state Department of Health building in downtown Honolulu. The surrounding streets are busy thoroughfares serving the downtown area. The area includes a major hospital (Queen's Medical Center), the state capitol, other state, county, commercial and business buildings as well as residential condominiums. This station has been operating since 1972.			



DH TRAFFIC DESCRIPTION			
Type of Roadway	Punchbowl	S. Beretania	Vineyard
Freeway			
Major Street or Highway	X	X	X
Distance from air intake (m)	30	122	610
Direction from air inlet	E	S	N
Composition of roadway	asphalt	asphalt	Asphalt
Number of traffic lanes	5	6	6
Average daily traffic	19,800 ¹	20,100 ¹	34,800 ¹
Average vehicle speed (est. mph)	20	25	25
Traffic one way or two	2	1	2
Street parking?	No	No	No

¹ Source: State of Hawaii Department of Transportation (2016 count)

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(DH) Honolulu continued

DH MONITOR INFORMATION (N/A = Not Applicable)				
	PM₁₀	PM_{2.5}	SO₂	CO
POC/FRM or FEM	1/FEM	3/FEM	6/FEM	1/FRM
Type of Monitor	SLAMS	SLAMS	SLAMS	SLAMS
AQS parameter code	81102	88101	42401	42101
Manufacturer	Met One	Met One	TECO	API
Model No.	BAM1020	BAM 1022	43IQ	T300
AQS method code	122	209	060	093
Monitoring start date	7/1/2009	4/9/2018	9/27/2019	10/15/2019
Monitoring frequency	Continuous	Continuous	Continuous	Continuous
Probe material	N/A	N/A	Glass	Glass
Residence time (sec)	N/A	N/A	14.9	8.77
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	N/A
Location of probe	building roof	building roof	building roof	building roof
Building dimensions (H) (m)	12	12	12	12
Horizontal distance from supporting structure (m)	9	11	9	9
Vertical distance above supporting structure (m)	1.8	2.1	1.2	1.2
Height of probe above ground (m)	13.8	14.1	13.2	13.2
Distance (m) & direction from drip line of tree(s)	24 E	24 E	27 E	27 E
Horizontal distance from edge of nearest traffic lane (m)	27	27	30	30
Horizontal distance from nearest parking lot (m)	24	24	24	24
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	9 ESE, 2.7	12 ESE, 2.7	9 ESE, 2.7	9 ESE 2.7
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from furnace or incineration flues	234 S/SW	234 S/SW	238 S/SW	238 S/SW
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	P	P	P	P
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Middle
Applicable NAAQS averaging time(s)	24-hr	24-hr, annual	1-hr, 3-hr, annual	1-hr, 8-hr
Sampling season	12 months	12 months	12 months	12 months
Site type ¹	2	2	2	1
Purpose of Monitor ²	1, 2	1, 2	1, 2	1, 2
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	Yes	N/A	N/A
DATA QUALITY				
Last PEP	N/A	10/24/19	N/A	N/A
Last NPAP (2017 NPAP done for O ₃ only in SI site)	N/A	N/A	6/27/18	6/27/18
Date of last annual independent performance audit (AQMS)	N/A	N/A	5/23/19	5/23/19
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	N/A
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (PM)	2/13/19 ¹	2/13/19 ¹	N/A	N/A
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	Quarterly
Frequency of 1-pt. QC check (gases)	N/A	N/A	Weekly	Weekly
Frequency of multi-point gas calibration	N/A	N/A	60 days	60 days
Annual data certification submitted	TBD ²	TBD ²	TBD ²	TBD ²
Changes in the next 18 months?	None	None	None	None

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KA) KAPOLEI SLAMS and N CORE			
AQS: 150030010	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 2052 Lauwiliwili St., Kapolei, HI 96707			
Latitude: 21.32374	Longitude: -158.08861	Elevation: 17.9 m MSL	
Location Description: Located in the Kapolei Business Park in the city of Kapolei, the area is a mix of business, commercial, and government activities surrounded by an ever-expanding residential community. The site is also approximately 1.25 km northeast (upwind) of the state's largest industrial park on the southwest coast of Oahu. The station has been operating as a SLAMS station since 2002. On October 30, 2009, EPA approved the Kapolei station as the state's NCore site and in addition to the SLAMS parameters, the station began collecting the required NCore parameters on January 1, 2011. The station shelters will be replaced with new ones and relocated due to construction of a new baseyard at the current site.			



KA TRAFFIC DESCRIPTION		
Type of Roadway	Kalaeloa Blvd.	Lauwiliwili St.
Freeway		
Major Street or Highway	X	
Local Street or Road		X
Distance from air intake (m)	379	167
Direction from air inlet	NW	W
Composition of roadway	Asphalt	Asphalt
Number of traffic lanes	4	2
Average daily traffic	36,607 ¹	² Estimated: <5,000
Average vehicle speed (est. mph)	35	30
Traffic one way or two	2	2
Street parking?	No	Yes
¹ Source: State of Hawaii Department of Transportation (2016 count)		
² Estimate only, no data available, local road		

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	PM₁₀	PM_{2.5} Primary	PM_{2.5} Co-loc	PM_{10-2.5}
POC/FRM or FEM	3/FEM	1/FEM	2/FRM	uses PM _{2.5} /PM ₁₀
Type of Monitor	SLAMS/NCore	SLAMS/NCore	SLAMS/NCore	NCore
AQS parameter code	81102	88101	88101	86101
Manufacturer	Met One	Met One	BGI	
Model No.	BAM1020	BAM 1020	PQ200/VSCC	
AQS method code	122	170	142	
Monitoring start date	1/1/2011	1/1/2011	1/1/2011	
Monitoring frequency	Continuous	Continuous	1/3 days	
Probe material	N/A	N/A	N/A	
Residence time (sec)	N/A	N/A	N/A	
Manual PM instrument flow rate (liters per minute)	N/A	N/A	16.7	
Distance between co-located monitors	N/A	4 m	4 m	
Analytical laboratory	N/A	N/A	Intermountain	
Location of probe	shelter roof	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	
Vertical distance above supporting structure (m)	1	1.7	1.7 (>2)	
Height of probe above ground (m)	5	5.7	5.7	
Distance (m) & direction from drip line of tree(s)	17 N	17 N	13 N	
Horizontal distance from edge of nearest traffic lane (m)	167	165	169	
Horizontal distance from nearest parking lot (m)	87	83	87	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	170 E, 9	170 E, 9	170 E, 9	
Distance (m) & direction from furnace or incineration flues	None	N/A	None	
Unrestricted airflow	360°	360°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	V	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Applicable NAAQS averaging time(s)	24-hr	24-hr, annual	24-hr, annual	N/A
Sampling season	12 months	12 months	12 months	12 months
Site type ¹	2	2	QC	2
Purpose of Monitor ²	1, 2	1, 2	QC	4
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	Yes	Yes	N/A
DATA QUALITY				
Last PEP	N/A	10/22/19	N/A	
Last NPAP	N/A	N/A	N/A	
Date of last annual independent performance audit (AQMS)	N/A	N/A	N/A	
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	Monthly	
Dates of last 2 semi-annual flow rate audits (PM)	3/6/19 ¹	3/21/19 ¹	3/21/19 ¹	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	N/A	N/A	
Frequency of multi-point gas calibration	N/A	N/A	N/A	
Annual data certification submitted	TBD ²	TBD ²	TBD ²	
Changes in the next 18 months?	Site move	Site move	Site move; ESEQ FRM replacement	Site move

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	CO	SO₂	NO₂	O₃
POC/FRM or FEM	1/FRM	1/FEM	1/FRM	1/FRM
Type of Monitor	SLAMS	SLAMS	SLAMS	SLAMS/NCore
AQS parameter code	42101	42401	42602	44201
Manufacturer	TAPI	TECO	TAPI	TECO
Model No.	T300	43i	T500U	49i
AQS method code	093	060	212	047
Monitoring start date	7/29/2016	7/14/2015	10/5/2006	1/9/2014
Monitoring frequency	Continuous	Continuous	Continuous	Continuous
Probe material	Glass	Glass	Glass	Glass
Residence time (sec)	12.5	18.0	13.2	18.1
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	N/A
Location of probe	shelter roof	shelter roof	shelter roof	shelter roof
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	N/A
Vertical distance above supporting structure (m)	1.1	1.1	1.1	1
Height of probe above ground (m)	5.1	5.1	5.1	5
Distance (m) & direction from drip line of tree(s)	19 N	19 N	19 N	12 N
Horizontal distance from edge of nearest traffic lane (m)	167	167	167	162
Horizontal distance from nearest parking lot (m)	87	87	87	82
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	170 E, 9	170 E, 9	170 E, 9	165 E, 9
Distance (m) & direction from furnace or incineration flues	None	None	None	None
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	V	V	V	V
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Applicable NAAQS averaging time(s)	1-hr; 8-hr	1-hr; 3-hr; annual	1-hr, annual	8-hr
Sampling season	12 months	12 months	12 months	12 months
Site type ¹	2	2	2	2
Purpose of Monitor ²	1, 2	1, 2	1, 2	1,2
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	N/A	N/A	N/A
DATA QUALITY				
Last PEP	N/A	N/A	N/A	N/A
Last NPAP	10/22/19	10/22/19	10/22/19	10/22/19
Date of last annual independent performance audit (AQMS)	2/6/19	2/6/19	2/6/19	5/30/19
Frequency of flow rate verification (automated PM)	N/A	N/A	N/A	N/A
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (PM)	N/A	N/A	N/A	N/A
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	Quarterly
Frequency of 1-pt. QC check (gases)	Weekly	Weekly	Weekly	Weekly
Frequency of multi-point gas calibration	60 days	60 days	60 days	60 days
Annual data certification submitted	TBD ¹	TBD ¹	TBD ¹	TBD ¹
Changes in the next 18 months?	Site move	Site move	Site move	Site move

¹ AQMS has yet to complete data certification for 2019; date to be determined.

(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	Trace CO	Trace SO₂	NO/NO_y	PM_{2.5} Spec.
POC/FRM or FEM	2/FRM	2/FEM	1/FRM	N/A
Type of Monitor	SLAMS/NCore	SLAMS/NCore	NCore	NCore/Supp. Speciation
AQS parameter code	42101	42401	42601/42600	Various
Manufacturer	API	API	API	Met-One/URG
Model No.	M300EU	M100EU	T200U	SASS/300N
AQS method code	093	600	099	810/136
Monitoring start date	9/30/2014	1/1/2011	1/14/2016	7/24/2019
Monitoring frequency	Continuous	Continuous	Continuous	1/3 days
Probe material	Glass	Glass	Glass	N/A
Residence time (sec)	14.7	16.1	13.2	N/A
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	EPA contract
Location of probe	shelter roof	shelter roof	shelter roof	shelter roof
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	N/A
Vertical distance above supporting structure (m)	1	1	1	1.7/1.6
Height of probe above ground (m)	5	5	5	5.7/5.6
Distance (m) & direction from drip line of tree(s)	12 N	12 N	12 N	13N/11N
Horizontal distance from edge of nearest traffic lane (m)	162	162	162	165
Horizontal distance from nearest parking lot (m)	82	82	82	85
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	165 E, 9	165 E, 9	165 E, 9	168 E, 9
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	V	V	V	V
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Applicable NAAQS averaging time(s)	1-hr; 8-hr	1-hr; 3-hr; annual	N/A	N/A
Sampling season	12 months	12 months	12 months	12 months
Site type ¹	2	2	2	2
Purpose of Monitor ²	1,2,4	1,2,4	4	4
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	N/A	N/A	N/A
DATA QUALITY				
Last PEP	N/A	N/A	N/A	N/A
Last NPAP	12/5/12	12/5/12	12/5/12	N/A
Date of last annual independent performance audit (AQMS)	5/30/19	5/30/19	5/30/19	N/A
Frequency of flow rate verification (automated PM)	N/A	N/A	N/A	N/A
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	N/A	Monthly
Dates of last 2 semi-annual flow rate audits (manual PM _{2.5})	N/A	N/A	N/A	3/6/19 ¹
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	Quarterly
Frequency of 1-pt. QC check (gases)	Weekly	Weekly	Weekly	N/A
Frequency of multi-point gas calibration	60 days	60 days	60 days	N/A
Annual data certification submitted	TBD ²	TBD ²	TBD ²	TBD ²
Changes in the next 18 months?	Site move	Site move	Site move	Site move

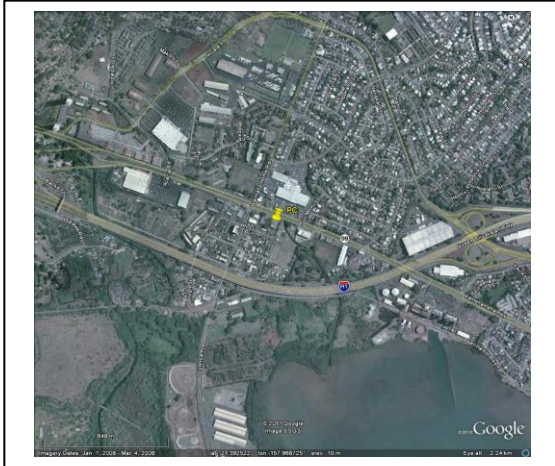
¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KA) Kapolei SLAMS and NCore continued

KA MONITOR INFORMATION (N/A = Not Applicable)				
	RH	WS	WD	AT
POC/FRM or FEM	POC 1	POC 1	POC 1	POC 1
Type of Monitor	NCore	NCore	NCore	NCore
AQS parameter code	62201	61103	61104	62101
Manufacturer	RM Young	RM Young	RM Young	RM Young
Model No.	05103VP	05103VP	05103VP	05103VP
AQS method code	014	020	020	020
Monitoring start date	1/1/2011	1/1/2011	1/1/2011	1/1/2011
Monitoring frequency	Continuous	Continuous	Continuous	Continuous
Probe material	N/A	N/A	N/A	N/A
Residence time (sec)	N/A	N/A	N/A	N/A
Distance between co-located monitors	N/A	N/A	N/A	N/A
Analytical laboratory	N/A	N/A	N/A	N/A
Location of probe	10m tower	10m tower	10m tower	10m tower
Shelter dimensions (H x W x D) (m)	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5	4 x 2.4 x 5
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	N/A
Vertical distance above supporting structure (m)	N/A	N/A	N/A	N/A
Height of probe above ground (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from drip line of tree(s)	N/A	N/A	N/A	N/A
Horizontal distance from edge of nearest traffic lane (m)	N/A	N/A	N/A	N/A
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	N/A	N/A
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Located in paved (P) or vegetative (V) ground?	V	V	V	V
SITE REPRESENTATIVENESS				
Spatial scale	N/A	N/A	N/A	N/A
Applicable NAAQS averaging time(s)	N/A	N/A	N/A	N/A
Sampling season	12 months	12 months	12 months	12 months
Site type ¹	N/A	N/A	N/A	N/A
Purpose of Monitor ²	N/A	N/A	N/A	N/A
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	N/A	N/A	N/A
DATA QUALITY				
Last PEP	N/A	N/A	N/A	N/A
Last NPAP	N/A	N/A	N/A	N/A
Date of last annual independent performance audit (AQMS)	11/27/18	11/27/18	11/27/18	11/27/18
Frequency of flow rate verification (automated PM)	N/A	N/A	N/A	N/A
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (manual PM _{2.5})	N/A	N/A	N/A	N/A
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	N/A
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	N/A
Precision & accuracy submitted to AQS	N/A	N/A	N/A	N/A
Frequency of 1-pt. QC check (gases)	N/A	N/A	N/A	N/A
Frequency of multi-point gas calibration	N/A	N/A	N/A	N/A
Annual data certification submitted	TBD ¹	TBD ¹	TBD ¹	TBD ¹
Changes in the next 18 months?	Site move	Site move	Site move	Site move

¹ AQMS has yet to complete data certification for 2019; date to be determined.

(PC) PEARL CITY			
AQS: 150032004	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 860 4 th St., Pearl City, HI 96782			
Latitude: 21.39283		Longitude: -157.96913	Elevation: 23.1 m MSL
Location Description: This site is located on the roof of the Department of Health's Leeward Health Center in a commercial and highly populated residential area. The station is west of Hawaiian Electric Company's Waiau Generating Station and is approximately 3 miles NW of the Pearl Harbor Naval Complex. This station has been operating since 1994.			



PC TRAFFIC DESCRIPTION			
Type of Roadway	4 th St.	Lehua Ave.	Kam. Hwy.
Freeway			
Major Street or Highway		X	X
Local Street or Road	X		
Distance from air intake (m)	50	138	58
Direction from air inlet	S	W	N
Composition of roadway	asphalt	asphalt	asphalt
Number of traffic lanes	2	4	6
Average daily traffic	² Estimated: <2,000	8,900 ¹	59,100 ¹
Average vehicle speed (est. mph)	20	30	35
Traffic one way or two	2	2	2
Street parking?	Yes	No	No
¹ Source: State of Hawaii Department of Transportation (2016 count) ² Estimate only, no data available, small side street used by a few local businesses and residences			

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(PC) Pearl City continued

PC MONITOR INFORMATION (N/A = Not Applicable)				
	PM₁₀	PM_{2.5} Primary	PM_{2.5} Co-loc	
POC/FRM or FEM	3/FEM	4/FEM	2/FRM	
Type of Monitor	SLAMS	SLAMS	SPMS	
AQS parameter code	81102	88101	88101	
Manufacturer	Met One	Met One	BGI	
Model No.	BAM1020	BAM 1022	PQ200	
AQS method code	122	209	142	
Monitoring start date	9/29/2007	2/13/2019	4/1/2020	
Monitoring frequency	Continuous	Continuous	1/6 days	
Probe material	N/A	N/A	N/A	
Residence time (sec)	N/A	N/A	N/A	
Distance between co-located monitors	N/A	1.8	1.8	
Analytical laboratory	N/A	N/A	IML	
Location of probe	building roof	building roof	building roof	
Building dimensions (H) (m)	12	12	12	
Horizontal distance from supporting structure (m)	14	14	9.8	
Vertical distance above supporting structure (m)	2.5	2.2	2	
Height of probe above ground (m)	14.5	14.1	14	
Distance (m) & direction from drip line of tree(s)	20 E	20 E	20 E	
Horizontal distance from edge of nearest traffic lane (m)	58	58	50	
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	10.1 S, 3.2	10.1 S, 3.2	10.1 S, 3.2	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	N/A	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	
Unrestricted airflow	360°	360°	360°	
Located in paved (P) or vegetative (V) ground?	P	P	P	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr	24-hr, annual	24-hr, annual	
Sampling season	12 months	12 months	12 months	
Site type ¹	1	1	3	
Purpose of Monitor ²	1, 2	1, 2	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	Yes	Yes	
DATA QUALITY				
Last PEP	N/A	6/26/18	N/A	
Last NPAP	N/A	N/A	N/A	
Date of last annual independent performance audit (AQMS)	N/A	N/A	N/A	
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	Monthly	
Dates of last 2 semi-annual flow rate audits (PM)	not provided ¹	not provided ¹	not provided ¹	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	N/A	N/A	
Frequency of multi-point gas calibration	N/A	N/A	N/A	
Annual data certification submitted	TBD ²	TBD ²	TBD ²	
Changes in the next 18 months?	None	None	None	

¹ AQMS did not provide any audit dates for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(SI) SAND ISLAND			
AQS: 150031004	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 1039 Sand Island Parkway, Honolulu, HI 96819			
Latitude: 21.30384	Longitude: -157.87117		Elevation: 5.3 m MSL
Location Description: Station is located in the University of Hawaii's Anuenue Fisheries near the entrance to the Sand Island Recreational Area. Sand Island is downwind of downtown Honolulu, across from Honolulu Harbor. This station has been operating since 1980.			



SI TRAFFIC DESCRIPTION	
Type of Roadway	Sand Island Parkway
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	37
Direction from air inlet	W
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	14,000 ¹
Average vehicle speed (est. mph)	30
Traffic one way or two	2
Street parking?	No
¹ Source: State of Hawaii Department of Transportation (2016 count)	

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(SI) Sand Island continued

SI MONITOR INFORMATION (N/A = Not Applicable)			
	PM_{2.5}	O₃	
POC/FRM or FEM	2/FEM	2/FRM	
Type of Monitor	SLAMS	SLAMS	
AQS parameter code	88101	44201	
Manufacturer	Met One	TECO	
Model No.	BAM1022	49C	
AQS method code	209	047	
Monitoring start date	2/13/2019	1/1/1980	
Monitoring frequency	Continuous	Continuous	
Probe material	N/A	Glass	
Residence time (sec)	N/A	14.9	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	3x2x5	3x2x5	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	1.1	2.1	
Height of probe above ground (m)	4.1	5.1	
Distance (m) & direction from drip line of tree(s)	15 E	15 E	
Horizontal distance from edge of nearest traffic lane (m)	37	37	
Horizontal distance from nearest parking lot (m)	40	40	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	14 N, 5.5	14 N, 5.5	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	
Unrestricted airflow	360°	360°	
Located in paved (P) or vegetative (V) ground?	gravel	gravel	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	8-hr	
Sampling season	12 months	12 months	
Site type ¹	5	1	
Purpose of Monitor ²	1, 2	1, 2, 3	
Suitable for comparison against the annual PM _{2.5} NAAQS?	Y	N/A	
DATA QUALITY			
Last PEP	6/22/18	N/A	
Last NPAP	N/A	6/14/17	
Date of last annual independent performance audit (AQMS)	N/A	6/29/19	
Frequency of flow rate verification (automated PM)	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	2/12/19 ¹	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	60 days	
Annual data certification submitted	TBD ²	TBD ²	
Changes in the next 18 months?	None	None	

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KH) KIHEI			
AQS: 150090006	Type: SLAMS	County: Maui	MSA: Maui
Address: TMK 2-3-9-4:28 Hale Piilani Park, Kihei, HI 96753			
Latitude: 20.780997	Longitude: -156.44637	Elevation: 46.5 m MSL	
Location Description: This station is located in the Hale Piilani subdivision's park in upper Kihei and surrounded primarily by agricultural land. The station was established to monitor the effects of agricultural burning. This station has been operating since 1999 monitoring for particulates.			



KH TRAFFIC DESCRIPTION		
Type of Roadway	Kaiolohia	Kaiwahine
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	114	118
Direction from air inlet	NW	S
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	¹ Estimated <3,000	¹ Estimated <3,000
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	Yes	Yes
¹ Estimated only, no data available, roads are for local residential access		

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KH) Kihei continued

KH MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{2.5}			
POC/FRM or FEM	2/FEM			
Type of Monitor	SLAMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	2/11/2019			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	shelter roof			
Shelter dimensions (H x W x D) (m)	4 x 2 x 5			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	1			
Height of probe above ground (m)	5			
Distance (m) & direction from drip line of tree(s)	15.2 NNW			
Horizontal distance from edge of nearest traffic lane (m)	154.5			
Horizontal distance from nearest parking lot (m)	105.2			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	15.2 NNW, 7.6			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	Y			
DATA QUALITY				
Last PEP	10/23/19			
Last NPAP	N/A			
Date of last annual independent performance audit (AQMS)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	11/12/19 ¹			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	TBD ²			
Changes in the next 18 months?	None			

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KL) KAHULUI			
AQS: 150090025	Type: SPMS	County: Maui	MSA: Maui
Address: TMK 2-3-8-007-153 Maulani Parkway, Kahului, HI 96732			
Latitude: 20.869444	Longitude: -156.492417	Elevation: 55.5 m MSL	
Location Description: This station is located off of Maulani Parkway in Kahului and surrounded primarily by residential land. The station was established to measure typical concentrations of air pollutants in areas of high population density. This station began monitoring for PM _{2.5} on January 13, 2015.			



KL TRAFFIC DESCRIPTION	
Type of Roadway	Maulani Parkway
Freeway	
Major Street or Highway	
Local Street or Road	X
Distance from air intake (m)	80
Direction from air inlet	S
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	<1500 ¹
Average vehicle speed (est. mph)	30
Traffic one way or two	2
Street parking?	No
¹ Estimate only, no data available, local road	

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KL) Kahului continued

KL MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{2.5}			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM 1022			
AQS method code	209			
Monitoring start date	2/11/2019			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	N/A			
Height of probe above ground (m)	2.7			
Distance (m) & direction from drip line of tree(s)	15.2 NE			
Horizontal distance from edge of nearest traffic lane (m)	70			
Horizontal distance from nearest parking lot (m)	N/A			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height above probe (m)	15.2 NE, 6.1			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	P			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type ¹	2, 3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	Yes			
DATA QUALITY				
Last PEP	10/23/19			
Last NPAP	N/A			
Date of last annual independent performance audit (AQMS)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	11/12/19 ¹			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	TBD ²			
Changes in the next 18 months?	None			

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(NI) NIUMALU			
AQS: 150070007	Type: SPMS	County: Kauai	MSA: Not in a MSA
Address: 2342 Hulemalu Rd., Lihue, HI 96766			
Latitude: 21.9495	Longitude: -159.365		Elevation: 11 m MSL
Location Description: Located on a private residential property approximately 1 mile downwind of Nawiliwili Harbor, this station was established to monitor the impact of cruise ship emissions on nearby communities. With the new lower ECA fuel sulfur requirements for cruise ships, this station provides information on the effects of lowered fuel sulfur on ambient SO ₂ . This station began operating in April 2011.			



NI TRAFFIC DESCRIPTION		
Type of Roadway	Hulemalu Rd.	Niumalu Rd.
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	44.4	309.7
Direction from air inlet	NW	NE
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	1
Average daily traffic	100 ¹	30 ¹
Average vehicle speed (est. mph)	15	20
Traffic one way or two	2	2
Street parking?	No	No
¹ Estimated only, no data available, roads are for local residential access		

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

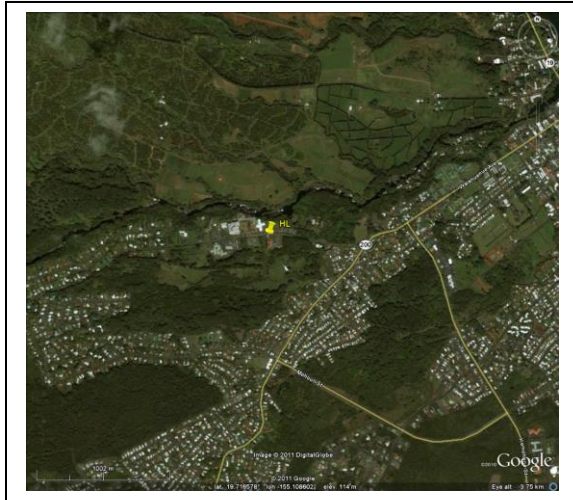
- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(NI) Niimalu continued

NI MONITOR INFORMATION (N/A = Not Applicable)				
	SO₂	NO₂	PM_{2.5}	
POC/FRM or FEM	1/FEM	2/FRM	1/FEM	
Type of Monitor	SPMS	SPMS	SPMS	
AQS parameter code	42401	42602	88101	
Manufacturer	TECO	API	Met One	
Model No.	43iQ	T500U 182	BAM 1022	
AQS method code	060	212	209	
Monitoring start date	8/29/2019	4/1/2011	8/29/2019	
Monitoring frequency	Continuous	Continuous	Continuous	
Probe material	Glass	Glass	N/A	
Residence time (sec)	13.2	8.2	N/A	
Distance between co-located monitors	N/A	N/A	N/A	
Analytical laboratory	N/A	N/A	N/A	
Location of probe	shelter roof	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	3x5x2.4	3x5x2.4	3x5x2.4	
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	
Vertical distance above supporting structure (m)	1	1	1	
Height of probe above ground (m)	4	4	4	
Distance (m) & direction from drip line of tree(s)	17.8 ESE	17.8 ESE	17.8 ESE	
Horizontal distance from edge of nearest traffic lane (m)	44.4	44.4	44.4	
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	14.6 W, 7.2	14.6 W, 7.2	14.6 W, 7.2	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	
Unrestricted airflow	360°	360°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	V	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	1-hr, 3-hr, annual	1-hr, annual	24-hr, annual	
Sampling season	12 months	12 months	12 months	
Site type ¹	3	3	3	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	N/A	Y	
DATA QUALITY				
Last PEP	N/A	N/A	10/19/16	
Last NPAP	6/19/18	6/19/18	N/A	
Date of last annual independent performance audit (AQMS)	7/18/19	7/18/19	N/A	
Frequency of flow rate verification (automated PM)	N/A	N/A	Monthly	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	N/A	N/A	9/10/19 ¹	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	Weekly	Weekly	N/A	
Frequency of multi-point gas calibration	60 days	60 days	N/A	
Annual data certification submitted	TBD ²	TBD ²	TBD ²	
Changes in the next 18 months?	None	None	None	

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(HL) HILO			
AQS: 150011006	Type: SLAMS (SO ₂); SPMS (PM _{2.5})	County: Hawaii	MSA: Not in a MSA
Address: 1099 Waianuenue Ave., Hilo, HI 96720			
Latitude: 19.71756		Longitude: -155.11053	Elevation: 136.8 m MSL
Location Description: Located on the grounds of the Adult Rehabilitation Center of Hilo, near the Hilo Medical Center, this site was originally established to monitor volcanic emissions during non-prevalent wind conditions. This station has been operating since 1997. The shelter is scheduled to be replaced; the date is to be determined.			



HL TRAFFIC	
DESCRIPTION	
Type of Roadway	Waianuenue Ave.
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	20
Direction from air inlet	N
Composition of roadway	Asphalt
Number of traffic lanes	2
Average daily traffic	8,400 ¹
Average vehicle speed (est. mph)	35
Traffic one way or two	2
Street parking?	No
¹ Source: State of Hawaii Department of Transportation (2016 count)	

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(HL) Hilo continued

HL MONITOR INFORMATION (N/A = Not Applicable)			
	PM_{2.5}	SO₂	
POC/FRM or FEM	1/FEM	1/FEM	
Type of Monitor	SPMS	SLAMS	
AQS parameter code	88101	42401	
Manufacturer	Met-One	TECO	
Model No.	BAM 1022	43i	
AQS method code	209	060	
Monitoring start date	1/1/2018	1/1/2007	
Monitoring frequency	Continuous	Continuous	
Probe material	N/A	Glass	
Residence time (sec)	N/A	15.5	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	3x4.9x2.4	3x4.9x2.4	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	2.1	1.2	
Height of probe above ground (m)	5.5	4.8	
Distance (m) & direction from drip line of tree(s)	15 N	15 N	
Horizontal distance from edge of nearest traffic lane (m)	20	20	
Horizontal distance from nearest parking lot (m)	25	25	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	
Distance (m) & direction from furnace or incineration flues	29 NNW (10m stack height)	29 NNW (10m stack height)	
Unrestricted airflow	360°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr, annual	
Sampling season	12 months	12 months	
Site type ¹	3	3	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	Y	N/A	
DATA QUALITY			
Last PEP	6/9/19	N/A	
Last NPAP	N/A	6/10/19	
Date of last annual independent performance audit (AQMS)	N/A	4/4/19	
Frequency of flow rate verification (automated PM)	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	11/14/19 ¹	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	60 days	
Annual data certification submitted	TBD ²	TBD ²	
Changes in the next 18 months?	Replace shelter	Replace shelter	

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KN) KONA			
AQS: 150011012	Type: SLAMS (SO ₂) SPMS (PM _{2.5})	County: Hawaii	MSA: Not in a MSA
Address: 81-1043 Konawaena School Rd., Kona, HI 96750			
Latitude: 19.50978		Longitude: -155.91342	Elevation: 517.2 m MSL
Location Description: This station is located on the upper campus of Konawaena High School. It was established to measure impacts from volcanic emissions. The station has been operating at this site since 2005. The shelter is scheduled to be replaced; the date is to be determined.			



KN TRAFFIC DESCRIPTION		
Type of Roadway	Konawaena School Rd.	Mamalahoia Hwy.
Freeway		
Major Street or Highway		X
Local Street or Road	X	
Distance from air intake (m)	17	702
Direction from air inlet	N	W
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	1	2
Average daily traffic	500 ²	16,300 ¹
Average vehicle speed (est. mph)	10	55
Traffic one way or two	2	2
Street parking?	No	No
¹ Source: State of Hawaii Department of Transportation (2016 count) ² Estimated only, no data available. This is a road used for school access only and station is at the top of the road where there would be less ingress/egress.		

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

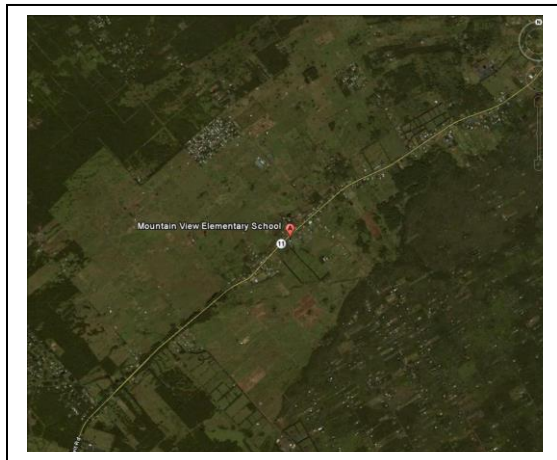
- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KN) Kona continued

KN MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{2.5} Primary	PM_{2.5} Co-Lo	SO₂	
POC/FRM or FEM	1/FEM	2/FEM	1/FEM	
Type of Monitor	SPMS	SPMS	SLAMS	
AQS parameter code	88101	88101	42401	
Manufacturer	Met-One	Met-One	TECO	
Model No.	BAM 1022	BAM 1022	43iQ	
AQS method code	209	209	060	
Monitoring start date	3/5/2019	3/5/2019	9/13/2005	
Monitoring frequency	Continuous	Continuous	Continuous	
Probe material	N/A	N/A	Glass	
Residence time (sec)	N/A	N/A	16.7	
Distance between co-located monitors (m)	2.5	2.5	N/A	
Analytical laboratory	N/A	N/A	N/A	
Location of probe	stand-alone shelter on ground	stand-alone shelter on ground	shelter roof	
Shelter dimensions (H x W x D) (m)	N/A	N/A	3x2.4x5	
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	
Vertical distance above supporting structure (m)	N/A	N/A	1.1	
Height of probe above ground (m)	2.1	2.1	4.1	
Distance (m) & direction from drip line of tree(s)	15.2 W	15.2 W	38 NE	
Horizontal distance from edge of nearest traffic lane (m)	30	30	30	
Horizontal distance from nearest parking lot (m)	N/A	N/A	N/A	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	3.4 S, 3	3.4 S, 3	21 SSW, 9	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	N/A	
Unrestricted airflow	270°	270°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	V	
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	24-hr, annual	1-hr, 3-hr; annual	
Sampling season	12 months	12 months	12 months	
Site type ¹	3	QC	3	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	Y	Y	N/A	
DATA QUALITY				
Last PEP	6/4/19	N/A	N/A	
Last NPAP	N/A	N/A	6/4/19	
Date of last annual independent performance audit (AQMS)	N/A	N/A	4/8/19	
Frequency of flow rate verification (automated PM)	Monthly	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	11/8/19 ¹	11/8/19 ¹	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	N/A	60 days	
Annual data certification submitted	TBD ²	TBD ²	TBD ²	
Changes in the next 18 months?	None	None	Replace shelter	

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(MV) MOUNTAIN VIEW			
AQS: 150012023	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 18-1235 Volcano Rd., Mt. View, HI 96771			
Latitude: 19.57002	Longitude: -155.08046		Elevation: 436.5 m MSL
Location Description: This station is located on the grounds of the Mountain View Elementary School. The original Mountain View station, which began in December 2007, was moved at the ending of 2010 approximately 1.8 miles southwest to this current location. Due to the proximity of this community to the Kilauea volcano, it was established to monitor volcanic emissions during non-trade wind days. The shelter is scheduled to be replaced; the date is to be determined.			



MV TRAFFIC DESCRIPTION	
Type of Roadway	Volcano Rd.
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	30.5
Direction from air inlet	N
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	13,400 ¹
Average vehicle speed (est. mph)	40
Traffic one way or two	2
Street parking?	No
¹ Source: State of Hawaii Department of Transportation (2016 count)	

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(MV) Mt. View continued

MV MONITOR INFORMATION (N/A = Not Applicable)			
	PM_{2.5}	SO₂	
POC/FRM or FEM	1/FEM	1/FEM	
Type of Monitor	SPMS	SPMS	
AQS parameter code	88101	42401	
Manufacturer	Met-One	TECO	
Model No.	BAM 1022	43i	
AQS method code	209	060	
Monitoring start date	5/29/2019	12/8/2010	
Monitoring frequency	Continuous	Continuous	
Probe material	N/A	Glass	
Residence time (sec)	N/A	17.8	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	3x2.4x5	3x2.4x5	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	2.1	1	
Height of probe above ground (m)	2.1	4	
Distance (m) & direction from drip line of tree(s)	18 W	18 W	
Horizontal distance from edge of nearest traffic lane (m)	30.5	30.5	
Horizontal distance from nearest parking lot (m)	46.5	46.5	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A	N/A	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	
Unrestricted airflow	360°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual	
Sampling season	12 months	12 months	
Site type ¹	3	3	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	Y	N/A	
DATA QUALITY			
Last PEP	6/6/19	N/A	
Last NPAP	N/A	6/6/19	
Date of last annual independent performance audit (AQMS)	N/A	4/2/19	
Frequency of flow rate verification (automated PM)	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	11/21/19 ¹	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	60 days	
Annual data certification submitted	TBD ²	TBD ²	
Changes in the next 18 months?	None	Replace shelter	

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(OV) OCEAN VIEW			
AQS: 150012020	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 92-6091 Orchid Mauka Circle, Ocean View, HI 96737			
Latitude: 19.11756		Longitude: -155.77814	Elevation: 862.6 m MSL
Location Description: This station established in 2010 is located on the grounds of the Ocean View Fire Station. During normal trade-winds, volcanic emissions are carried into this residential/agricultural community. This shelter is scheduled to be replaced; the date is to be determined.			



OV TRAFFIC DESCRIPTION	
Type of Roadway	Orchid Mauka Circ.
Freeway	
Major Street or Highway	
Local Street or Road	X
Distance from air intake (m)	13.6
Direction from air inlet	ENE
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	< 3,000 ¹
Average vehicle speed (est. mph)	25
Traffic one way or two	2
Street parking?	No
¹ Estimated only, local residential street, no data available	

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(OV) Ocean View continued

OV MONITOR INFORMATION (N/A = Not Applicable)			
	PM_{2.5}	SO₂	
POC/FRM or FEM	1/FEM	1/FEM	
Type of Monitor	SPMS	SPMS	
AQS parameter code	88101	42401	
Manufacturer	Met-One	TECO	
Model No.	BAM 1022	43iQ	
AQS method code	209	060	
Monitoring start date	5/1/2019	4/1/2010	
Monitoring frequency	Continuous	Continuous	
Probe material	N/A	Glass	
Residence time (sec)	N/A	15.3	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	Stand-alone PM shelter on station stairs platform	shelter roof	
Shelter dimensions (H x W x D) (m)	N/A	3x2.4x5	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	2.1	1.1	
Height of probe above ground (m)	3.1	4.1	
Distance (m) & direction from drip line of tree(s)	3	N/A	
Horizontal distance from edge of nearest traffic lane (m)	13.6	13.6	
Horizontal distance from nearest parking lot (m)	6.4	6.4	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	0.6 W/ 3.4 (station shelter)	N/A	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	
Unrestricted airflow	270°	360°	
Located in paved (P) or vegetative (V) ground?	gravel	gravel	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual	
Sampling season	12 months	12 months	
Site type ¹	3, 6	3, 6	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	Y	N/A	
DATA QUALITY			
Last PEP	6/4/19	N/A	
Last NPAP	N/A	6/21/16	
Date of last annual independent performance audit (AQMS)	N/A	3/27/19	
Frequency of flow rate verification (automated PM)	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	11/5/19 ¹	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	60 days	
Annual data certification submitted	TBD ²	TBD ²	
Changes in the next 18 months?	none	Replace shelter	

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(PA) PAHALA			
AQS: 150012016	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 96-3150 Pikake St., Pahala, HI 96777			
Latitude: 19.2039	Longitude: -155.48018		Elevation: 320 m MSL
Location Description: This station is located on the grounds of the Ka'u High/Pahala Elementary School. During normal trade-winds, volcanic emissions are carried into this rural community. The station began operating in 2007. The shelter is scheduled to be replaced; the date is to be determined.			



PA TRAFFIC DESCRIPTION		
Type of Roadway	Puahala	Pumeli
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	226	61
Direction from air inlet	E	N
Composition of roadway	Asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	< 3,000 ¹	< 3,000 ¹
Average vehicle speed (est. mph)	25 mph	25 mph
Traffic one way or two	2	2
Street parking?	No	No
¹ Estimated only, no data available. Local roads for a community with a 2010 population of about 1,400		

For "Site Representativeness" in the following table:

- ¹Site Types: 1) located to determine the highest concentrations;
 2) located to measure typical concentrations in areas of high population density;
 3) located to determine the impact of significant sources or source categories on air quality;
 4) located to determine general background concentration levels;
 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

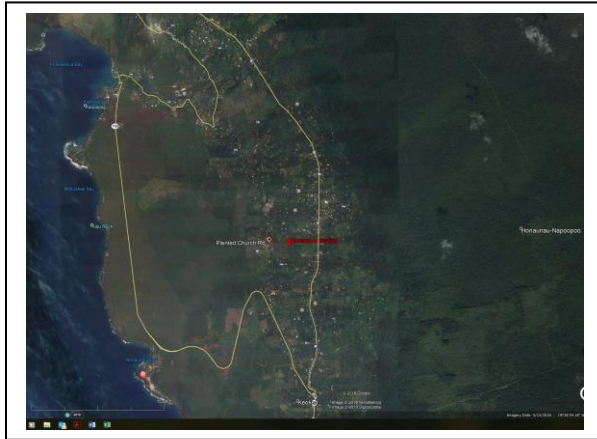
- ² Purposes: 1) Provide air pollution data to the general public in a timely manner;
 2) Support compliance with ambient air quality standards;
 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 4) Support for air pollution research

(PA) Pahala continued

PA MONITOR INFORMATION (N/A = Not Applicable)			
	PM_{2.5}	SO₂	
POC/FRM or FEM	1/FEM	1/FEM	
Type of Monitor	SPMS	SPMS	
AQS parameter code	88101	42401	
Manufacturer	Met-One	TECO	
Model No.	BAM 1022	43iQ	
AQS method code	209	060	
Monitoring start date	2/26/2019	8/10/2007	
Monitoring frequency	Continuous	Continuous	
Probe material	N/A	Glass	
Residence time (sec)	N/A	17.9	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	stand-alone shelter on ground	shelter roof	
Shelter dimensions (H x W x D) (m)	N/A	2.4x2.4x6	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	2.1	1.2	
Height of probe above ground (m)	2.1	3.6	
Distance (m) & direction from drip line of tree(s)	11 N	11 N	
Horizontal distance from edge of nearest traffic lane (m)	48	48	
Horizontal distance from nearest parking lot (m)	73	73	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	2 W/ 2.7 (building)	N/A	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	
Unrestricted airflow	270°	360°	
Located in paved (P) or vegetative (V) ground?	V	V	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual	
Sampling season	12 months	12 months	
Site type ¹	3	3	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	Y	N/A	
DATA QUALITY			
Last PEP	6/6/19	N/A	
Last NPAP	N/A	6/22/16	
Date of last annual independent performance audit (AQMS)	N/A	3/27/19	
Frequency of flow rate verification (automated PM)	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	11/6/19 ¹	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	60 days	
Annual data certification submitted	TBD ²	TBD ²	
Changes in the next 18 months?	Replace shelter	Replace shelter	

¹ AQMS did not provide a 2nd audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(HN) HONAUNAU			
AQS: 150013032	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Department of Water Supply Keei Well C, Painted Church Road, Honaunau, HI 96726			
Latitude: 19.44276389	Longitude: -155.88583333		Elevation: 274.3 m MSL
Location Description: This station is located in a residential subdivision within a fenced area that contains a Hawaii County Department of Water Supply water tank and pump house. The station was established to monitor the effects of volcanic emissions and has been operating since August 16, 2018 monitoring for PM _{2.5} .			



HN TRAFFIC DESCRIPTION		
Type of Roadway	Painted Church Road	Mamalahoa Highway
Freeway		
Major Street or Highway		X
Local Street or Road	X	
Distance from air intake (m)	364	603
Direction from air inlet	NW	S
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	² Estimated <2,000	6,700 ¹
Average vehicle speed (est. mph)	20	45
Traffic one way or two	2	2
Street parking?	No	No
¹ Source: State of Hawaii Department of Transportation (2016 count)		
² Estimated only, no data available, roads are for local residential access		

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

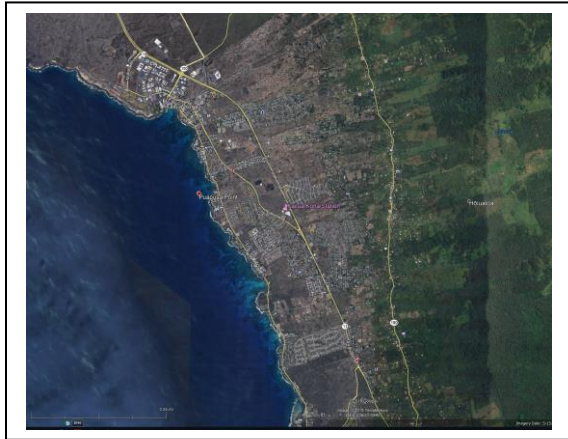
- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(HN) Honaunau continued

HN MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{2.5}			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	8/16/2018			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	1.8x1.1x0.6			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	N/A			
Height of probe above ground (m)	2.2			
Distance (m) & direction from drip line of tree(s)	16.8 NE			
Horizontal distance from edge of nearest traffic lane (m)	63			
Horizontal distance from nearest parking lot (m)	N/A (residential/rural)			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	3 N, 3			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	270°			
Located in paved (P) or vegetative (V) ground?	gravel			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (AQMS)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	Not provided ¹			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	TBD ²			
Changes in the next 18 months?	Secure electrical			

¹ AQMS did not provide any audit dates for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KK) KAILUA-KONA			
AQS: 150013028	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Department of Water Supply Puapua'a Reservoir, Kailua-Kona, HI 96740			
Latitude: 19.61815833	Longitude: -155.9711111		Elevation: 92.4 m MSL
Location Description: This station is located in the middle Kailua-Kona town within a fenced area that contains a County of Hawaii water reservoir and pump house. The station was established to monitor the effects of volcanic emissions and has been operating since November 21, 2018 monitoring for PM _{2.5} .			



KK TRAFFIC DESCRIPTION			
Type of Roadway	Kuakini Highway	Walua Road	Queen Kaahumanu Hwy
Freeway			
Major Street or Highway	X		X
Local Street or Road		X (no through traffic)	
Distance from air intake (m)	125	42	145
Direction from air inlet	NW	S	E
Composition of roadway	asphalt	asphalt	Asphalt
Number of traffic lanes	2	2	2
Average daily traffic	8,200 ¹	² Estimated <50	22,900 ¹
Average vehicle speed (est. mph)	45	25	45
Traffic one way or two	2	2	2
Street parking?	No	No	No
¹ Source: State of Hawaii Department of Transportation (2016 count)			
² Estimated only, no data available, road is for local business access			

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KK) Kailua-Kona continued

KK MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{2.5}			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	11/15/2018			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	2.2			
Height of probe above ground (m)	2.2			
Distance (m) & direction from drip line of tree(s)	19.8 SE			
Horizontal distance from edge of nearest traffic lane (m)	42			
Horizontal distance from nearest parking lot (m)	25			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	3 NE/3			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	180°			
Located in paved (P) or vegetative (V) ground?	gravel			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (AQMS)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	Not provided ¹			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	TBD ²			
Changes in the next 18 months?	Secure electrical			

¹ AQMS did not provide any audit dates for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KS-T) KEAAU – Temporary			
AQS: 150013027	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Kamehameha Schools Hawaii Campus, 16-714 Volcano Road, Keaau, HI 96749			
Latitude: 19.60533889	Longitude: -155.05138889	Elevation: 179.8 m MSL	
Location Description: This temporary station is located in the town of Keaau on the Kamehameha Schools Hawaii campus. The station began monitoring for PM _{2.5} and SO ₂ on June 14, 2018. The monitors at this temporary station are to be relocated to the long-term location approximately 827 meters to the SSE (see detailed site description for Keaau – Long-term).			



KS TRAFFIC DESCRIPTION	
Type of Roadway	Volcano Road/Mamalahoa Highway
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	720
Direction from air inlet	W
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	13,400 ¹
Average vehicle speed (est. mph)	45
Traffic one way or two	2
Street parking?	No
¹ Source: State of Hawaii Department of Transportation (2016 count)	

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

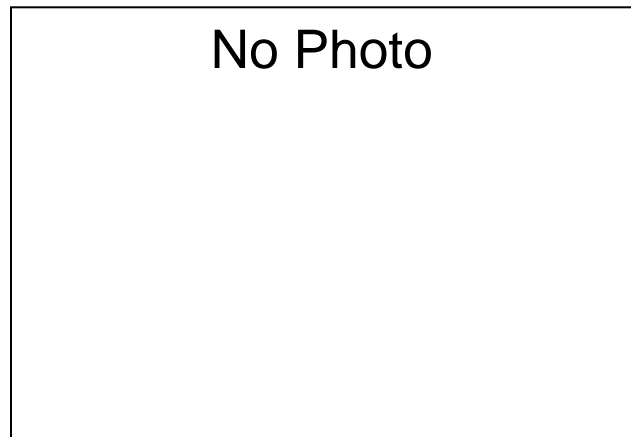
- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KS-T) Keaau – Temporary continued

KS-T MONITOR INFORMATION (N/A = Not Applicable)			
	PM_{2.5}	SO₂	
POC/FRM or FEM	1/FEM	1/FEM	
Type of Monitor	SPMS	SPMS	
AQS parameter code	88101	42401	
Manufacturer	Met One	TECO	
Model No.	BAM1022	43iQ	
AQS method code	209	060	
Monitoring start date	6/14/2018	6/14/2018	
Monitoring frequency	Continuous	Continuous	
Probe material	N/A	Glass	
Residence time (sec)	N/A	10.2	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	stand-alone shelter on ground	shelter roof	
Shelter dimensions (H x W x D) (m)	N/A	2.4 x 2.0 x 3.7	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	No info available	No info available	
Height of probe above ground (m)	No info available	No info available	
Distance (m) & direction from drip line of tree(s)	No info available	No info available	
Horizontal distance from edge of nearest traffic lane (m)	720	720	
Horizontal distance from nearest parking lot (m)	No info available	No info available	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	No info available	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	No info available	No info available	
Distance (m) & direction from furnace or incineration flues	No info available	No info available	
Unrestricted airflow	No info available	No info available	
Located in paved (P) or vegetative (V) ground?	P/V	P/V	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual	
Sampling season	12 months	12 months	
Site type ¹	3	3	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	N	N/A	
DATA QUALITY			
Last PEP	Not Done	N/A	
Last NPAP	N/A	Not Done	
Date of last annual independent performance audit (AQMS)	N/A	Not Done	
Frequency of flow rate verification (automated PM)	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	Not provided ¹	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	60 days	
Annual data certification submitted	TBD ²	TBD ²	
Changes in the next 18 months?	Move to long-term site	Move to long-term site	

¹ AQMS did not provide any audit dates for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(KS-LT) KEAAU – Long-term			
AQS: TBD	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Kamehameha Schools Hawaii Campus, 16-714 Volcano Road, Keaau, HI 96749			
Latitude: 19.60533889		Longitude: -155.05138889	Elevation: 179.8 m MSL
Location Description: This station is to be located in the town of Keaau, at the Switch Gear Building of the Kamehameha Schools Hawaii campus, and will monitor the effects of volcanic emissions in the communities between the Hilo and Mountain View stations. The monitors for this station are currently located at the Keaau – Temporary station, approximately 827 meters to the NNW and will need to relocate here.			



KS TRAFFIC DESCRIPTION	
Type of Roadway	Volcano Road/Mamalaho Highway
Freeway	
Major Street or Highway	X
Local Street or Road	
Distance from air intake (m)	28
Direction from air inlet	NW
Composition of roadway	asphalt
Number of traffic lanes	2
Average daily traffic	13,400 ¹
Average vehicle speed (est. mph)	45
Traffic one way or two	2
Street parking?	No
¹ Source: State of Hawaii Department of Transportation (2016 count)	

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KS-LT) Keaau – Long-term continued

KS-LT MONITOR INFORMATION (N/A = Not Applicable)			
	PM_{2.5}	SO₂	
POC/FRM or FEM	1/FEM	1/FEM	
Type of Monitor	SPMS	SPMS	
AQS parameter code	88101	42401	
Manufacturer	Met One	TECO	
Model No.	BAM1022	43i	
AQS method code	209	060	
Monitoring start date	TBD	TBD	
Monitoring frequency	Continuous	Continuous	
Probe material	N/A	Glass	
Residence time (sec)	N/A	No info available	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	stand-alone shelter on ground	shelter roof	
Shelter dimensions (H x W x D) (m)	N/A	2.4 x 2.0 x 3.7	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	TBD	TBD	
Height of probe above ground (m)	TBD	TBD	
Distance (m) & direction from drip line of tree(s)	TBD	TBD	
Horizontal distance from edge of nearest traffic lane (m)	TBD	TBD	
Horizontal distance from nearest parking lot (m)	TBD	TBD	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	TBD	TBD	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	TBD	TBD	
Distance (m) & direction from furnace or incineration flues	TBD	TBD	
Unrestricted airflow	TBD	TBD	
Located in paved (P) or vegetative (V) ground?	TBD	TBD	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	24-hr, annual	1-hr, 3-hr; annual	
Sampling season	12 months	12 months	
Site type ¹	3	3	
Purpose of Monitor ²	1, 2, 4	1, 2, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	N	N/A	
DATA QUALITY			
Last PEP	Not Done	N/A	
Last NPAP	N/A	N/A	
Date of last annual independent performance audit (AQMS)	N/A	N/A	
Frequency of flow rate verification (automated PM)	Monthly	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)		N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	N/A	Weekly	
Frequency of multi-point gas calibration	N/A	60 days	
Annual data certification submitted	N/A	N/A	
Changes in the next 18 months?	Site installation	Site installation	

(NA-TP) NAALEHU – Temporary PM_{2.5}			
AQS: 150013033	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Naalehu Volunteer Fire Station, Kalaiki Road., Naalehu, HI 96772			
Latitude: 19.061379	Longitude: -155.586748	Elevation: 207.9 m MSL	
Location Description: This station is located at the Naalehu Volunteer Fire Station. During normal trade-winds, volcanic emissions are carried into this rural community. This station has been operating since June 19, 2018 monitoring for PM _{2.5} and will need to relocate to the final selected long-term site. Relocation is to be completed at a date to be determined.			



NA TRAFFIC DESCRIPTION		
Type of Roadway	Kalaiki Road	Mamalahoa Hwy.
Freeway		
Major Street or Highway		X
Local Street or Road	X	
Distance from air intake (m)	48	90
Direction from air inlet	E	S
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	< 500 ¹	3,700 ²
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	Yes	No
¹ Estimated only, local traffic only. ² Source: State of Hawaii Department of Transportation (2016 count).		

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(NA-TP) Naalehu – Temporary PM_{2.5} continued

NA-TP MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{2.5}			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	6/19/2018			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	2.1			
Height of probe above ground (m)	2.1			
Distance (m) & direction from drip line of tree(s)	16.8 SW			
Horizontal distance from edge of nearest traffic lane (m)	48			
Horizontal distance from nearest parking lot (m)	51			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	180°			
Located in paved (P) or vegetative (V) ground?	P/V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (AQMS)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	Not provided ¹			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	TBD ²			
Changes in the next 18 months?	Relocation			

¹ AQMS did not provide any audit dates for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(NA-TS) NAALEHU – SO₂			
AQS: 150013033	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Naalehu Elementary School, 95-5547 Mamalahoa Hwy., Naalehu, HI 96772			
Latitude: 19.060656	Longitude: -155.579167		Elevation: 196.3 m MSL
Location Description: This station is located inside the USGS Seismograph building on the campus of Naalehu Elementary School. This station has been operating since September 6, 2018 monitoring for SO ₂ and will no longer be relocated to another area of the school as stated in the 2019 network plan.			



NA TRAFFIC DESCRIPTION		
Type of Roadway	Mamalahoa Highway	Ohai Road
Freeway		
Major Street or Highway	X	
Local Street or Road		X
Distance from air intake (m)	114	79
Direction from air inlet	N	W
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	3,700 ¹	< 100 ²
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	No	No
¹ Source: State of Hawaii Department of Transportation (2016 count)		

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

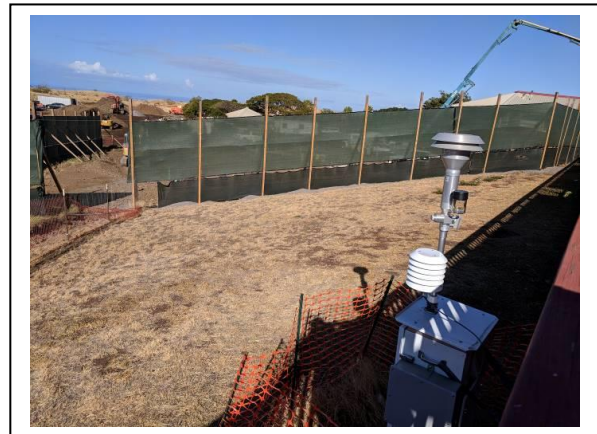
- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(NA) Naalehu – SO₂ continued

NA-TS MONITOR INFORMATION		(N/A = Not Applicable)		
	SO₂			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	42401			
Manufacturer	TECO			
Model No.	43iQ			
AQS method code	060			
Monitoring start date	9/6/2018			
Monitoring frequency	Continuous			
Probe material	Glass			
Residence time (sec)	9.7			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	shelter roof			
Shelter dimensions (H x W x D) (m)				
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	1			
Height of probe above ground (m)	3			
Distance (m) & direction from drip line of tree(s)	No info available			
Horizontal distance from edge of nearest traffic lane (m)	114			
Horizontal distance from nearest parking lot (m)	114			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	1-hr, 3-hr; annual			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	Not Done			
Date of last annual independent performance audit (AQMS)	Not provided ¹			
Frequency of flow rate verification (automated PM)	N/A			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	N/A			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	Weekly			
Frequency of multi-point gas calibration	60 days			
Annual data certification submitted	TBD ²			
Changes in the next 18 months?	Site improvement			

¹ AQMS did not provide an audit date for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(WL-T) WAIKOLOA – Temporary			
AQS: 150013030	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: 68-1730 Hooko Street, Waikoloa, HI 96738			
Latitude: 19.945325		Longitude: -155.79138889	Elevation: 259.1 m MSL
Location Description: This temporary station is located at the Waikoloa Elementary School. This station began monitoring for PM _{2.5} on June 29, 2018. The monitor at this temporary station is to be relocated to the long-term location ~2.28 miles to the NNW (see detailed site description for Waikoloa – Long-term).			



WL TRAFFIC DESCRIPTION		
Type of Roadway	Paniolo Avenue	Hooko Street
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	153	4,580
Direction from air inlet	ESE	N
Composition of roadway	asphalt	Asphalt
Number of traffic lanes	2	2
Average daily traffic	<3,000 ¹	<1,000 ¹
Average vehicle speed (est. mph)	25	25
Traffic one way or two	2	2
Street parking?	No	No

¹ Estimated only, no data available, roads are for local residential access

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

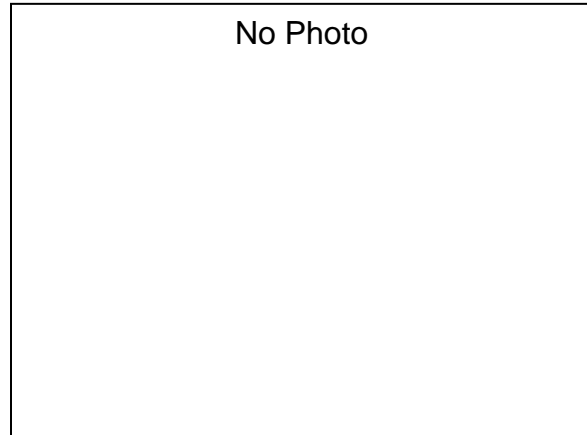
- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(WL-T) Waikoloa – Temporary continued

WL-T MONITOR INFORMATION		(N/A = Not Applicable)		
	PM_{2.5}			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	6/29/18			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	N/A			
Height of probe above ground (m)	~ 2.1			
Distance (m) & direction from drip line of tree(s)	No info available			
Horizontal distance from edge of nearest traffic lane (m)	154			
Horizontal distance from nearest parking lot (m)	150			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	No info available			
Distance (m) & direction from furnace or incineration flues	N/A			
Unrestricted airflow	270°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N			
DATA QUALITY				
Last PEP	Not Done			
Last NPAP	N/A			
Date of last annual independent performance audit (AQMS)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	Not provided ¹			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	TBD ²			
Changes in the next 18 months?	Relocate			

¹ AQMS did not provide any audit dates for 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

(WL-LT) WAIKOLOA – Long-Term			
AQS: TBD	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: TMK 3-6-8-002-019, Waikoloa, HI 96738			
Latitude: 19.977467	Longitude: -155.798067		Elevation: 180.1 m MSL
Location Description: This station is to be located within a fenced area that contains a County of Hawaii water tank and pump house, approximately 3 km northeast of Waikoloa. The monitor for this station is currently located at the temporary station at Waikoloa E.S. and will need to relocate here at a date to be determined. This station will monitor for PM _{2.5} .			



WL TRAFFIC DESCRIPTION		
Type of Roadway	Queen Kaahumanu Hwy.	Waikoloa Road
Freeway		
Major Street or Highway	X	
Local Street or Road		X
Distance from air intake (m)	2,143	4,580
Direction from air inlet	W	N
Composition of roadway	asphalt	asphalt
Number of traffic lanes	2	2
Average daily traffic	11,900 ¹	8,200 ¹
Average vehicle speed (est. mph)	55	55
Traffic one way or two	2	2
Street parking?	No	No
¹ Source: State of Hawaii Department of Transportation (2016 count)		

For “Site Representativeness” in the following table:

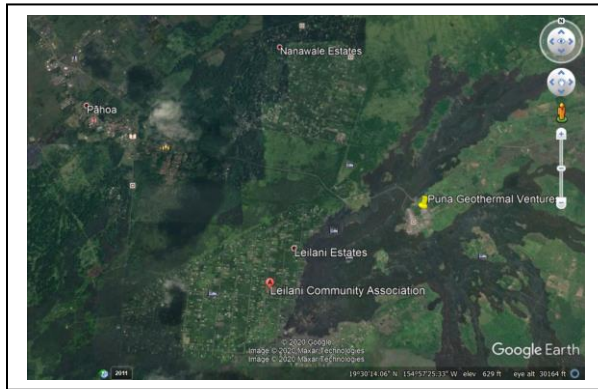
- ¹Site Types: 1) located to determine the highest concentrations;
 2) located to measure typical concentrations in areas of high population density;
 3) located to determine the impact of significant sources or source categories on air quality;
 4) located to determine general background concentration levels;
 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes: 1) Provide air pollution data to the general public in a timely manner;
 2) Support compliance with ambient air quality standards;
 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 4) Support for air pollution research

(WL-LT) Waikoloa – Long-term continued

WL-LT MONITOR INFORMATION (N/A = Not Applicable)				
	PM_{2.5}			
POC/FRM or FEM	1/FEM			
Type of Monitor	SPMS			
AQS parameter code	88101			
Manufacturer	Met One			
Model No.	BAM1022			
AQS method code	209			
Monitoring start date	TBD			
Monitoring frequency	Continuous			
Probe material	N/A			
Residence time (sec)	N/A			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	stand-alone shelter on ground			
Shelter dimensions (H x W x D) (m)	N/A			
Horizontal distance from supporting structure (m)	N/A			
Vertical distance above supporting structure (m)	TBD			
Height of probe above ground (m)	TBD			
Distance (m) & direction from drip line of tree(s)	TBD			
Horizontal distance from edge of nearest traffic lane (m)	TBD			
Horizontal distance from nearest parking lot (m)	N/A			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	TBD			
Distance (m) & direction from furnace or incineration flues	TBD			
Unrestricted airflow	TBD			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	24-hr, annual			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	1, 2, 4			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	N/A			
Date of last annual independent performance audit (AQMS)	N/A			
Frequency of flow rate verification (automated PM)	Monthly			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)				
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	Quarterly			
Frequency of 1-pt. QC check (gases)	N/A			
Frequency of multi-point gas calibration	N/A			
Annual data certification submitted	N/A			
Changes in the next 18 months?	None			

(LE) LEILANI COMMUNITY ASSOCIATION CENTER			
AQS: None	Type: SPMS	County: Hawaii	MSA: Not in a MSA
Address: Leilani Community Association Center, 13-3441 Moku Street, Pahoia, Hawaii 96778			
Latitude: 19.46555556	Longitude: - 154.91583333	Elevation: 229 m MSL	
Location Description: This station is located in a residential subdivision within a fenced area that contains the Leilani Community Association Center. The station was established to monitor emissions from the nearby geothermal energy facility and has been monitoring for H ₂ S since September 17, 2019.			



LC TRAFFIC DESCRIPTION		
Type of Roadway	Leilani Avenue	Moku Street
Freeway		
Major Street or Highway		
Local Street or Road	X	X
Distance from air intake (m)	>300	82.7
Direction from air inlet	S	W
Composition of roadway	asphalt	asphalt
Number of traffic lanes	2	2
Average daily traffic	² Estimated <2,000	² Estimated <200
Average vehicle speed (est. mph)	25	20
Traffic one way or two	2	2
Street parking?	No	No
¹ Source: State of Hawaii Department of Transportation (2016 count)		
² Estimated only, no data available, roads are for local residential access		

For "Site Representativeness" in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(LE) Leilani Community Association Center continued

HN MONITOR INFORMATION (N/A = Not Applicable)			
	H₂S	SO₂	
POC/FRM or FEM	N/A	1/FEM	
Type of Monitor	SPMS	SPMS	
AQS parameter code	N/A	42401	
Manufacturer	TECO	TECO	
Model No.	450I	43IQ	
AQS method code	N/A	060	
Monitoring start date	9/17/2019	9/12/2019	
Monitoring frequency	Continuous	Continuous	
Probe material	Teflon	Stainless Steel	
Residence time (sec)	11.89	14.15	
Distance between co-located monitors	N/A	N/A	
Analytical laboratory	N/A	N/A	
Location of probe	shelter roof	shelter roof	
Shelter dimensions (H x W x D) (m)	3x2.3x7	3x2.3x7	
Horizontal distance from supporting structure (m)	N/A	N/A	
Vertical distance above supporting structure (m)	1.1	1.1	
Height of probe above ground (m)	4	4	
Distance (m) & direction from drip line of tree(s)	1 NE	1 NE	
Horizontal distance from edge of nearest traffic lane (m)	82.7	82.7	
Horizontal distance from nearest parking lot (m)	29.5	29.5	
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A	N/A	
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	1.1 S, 5.9	1.1 S, 5.9	
Distance (m) & direction from furnace or incineration flues	N/A	N/A	
Unrestricted airflow	180°	180°	
Located in paved (P) or vegetative (V) ground?	gravel	gravel	
SITE REPRESENTATIVENESS			
Spatial scale	Neighborhood	Neighborhood	
Applicable NAAQS averaging time(s)	1-hour state standard 25 ppb	1-hour	
Sampling season	12 months	12 months	
Site type ¹	3	3	
Purpose of Monitor ²	1, 4	1, 4	
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A	N/A	
DATA QUALITY			
Last PEP	N/A	N/A	
Last NPAP	N/A	None yet	
Date of last annual independent performance audit (AQMS)	New ¹	New ¹	
Frequency of flow rate verification (automated PM)	N/A	N/A	
Frequency of flow rate verification (manual PM _{2.5})	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (PM)	N/A	N/A	
Frequency of 1-point flow rate verification (Pb)	N/A	N/A	
Dates of last 2 semi-annual flow rate audits (Pb)	N/A	N/A	
Precision & accuracy submitted to AQS	Quarterly	Quarterly	
Frequency of 1-pt. QC check (gases)	Weekly	Weekly	
Frequency of multi-point gas calibration	6 months	6 months	
Annual data certification submitted	TBD ²	TBD ²	
Changes in the next 18 months?	Site improvement and relocation	Site improvement and relocation	

¹ Sampling began in September 2019. ² AQMS has yet to complete data certification for 2019; date to be determined.

KAHE (Data Requirements Rule)			
AQS: 150034001	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: Palehua Road, Makakilo, Oahu			
Latitude: 21.3678	Longitude: -158.1053		Elevation: 388 m MSL
Location Description: This station is located on the hillside south of Palehua Road and overlooks the Pacific Ocean. The area around the station is undeveloped and is currently used for cattle grazing. The station is approximately 2.7 kilometers northeast of the Kahe Generating Station. The city of Makakilo is located to the east and southeast. The areas immediately to the west through north are undeveloped.			



TRAFFIC DESCRIPTION			
Type of Roadway	Palehua Road	Farrington Highway	
Freeway			
Major Street or Highway	X	X	
Distance from air intake (m)	12.8	2,750	
Direction from air inlet	N	SW	
Composition of roadway	asphalt	asphalt	
Number of traffic lanes	1	4	
Average daily traffic	20 (estimate)	52,300 ¹	
Average vehicle speed (est. mph)	15	40	
Traffic one way or two	2	2	
Street parking?	No	No	
¹ Source: State of Hawaii Department of Transportation 2015 count			

For “Site Representativeness” in the following table:

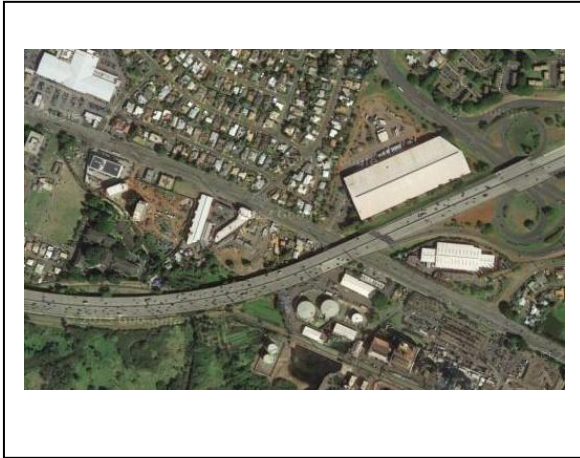
- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(KE) Kahe continued

KAHE MONITOR INFORMATION		(N/A = Not Applicable)		
	SO₂			
POC/FRM or FEM	1/FEM			
Type of Monitor	SLAMS			
AQS parameter code	42401			
Manufacturer	Thermo Scientific			
Model No.	43i-TLE			
AQS method code	060			
Monitoring start date	12/16/2016			
Monitoring frequency	Continuous			
Probe material	Borosilicate glass			
Residence time (sec)	18.1			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	Shelter roof			
Building dimensions (H) (m)	3.3			
Horizontal distance from supporting structure (m)	0			
Vertical distance above supporting structure (m)	1.0			
Height of probe above ground (m)	4.3			
Distance (m) & direction from drip line of tree(s)	N/A			
Horizontal distance from edge of nearest traffic lane (m)	12.8			
Horizontal distance from nearest parking lot (m)	N/A			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	N/A			
Distance (m) & direction from furnace or incineration flues	2,740 SW			
Unrestricted airflow	360°			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	Neighborhood			
Applicable NAAQS averaging time(s)	1-hr			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	2, 3			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	NA			
Date of last annual independent performance audit	12/6/17			
Frequency of flow rate verification (automated PM)	N/A			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	N/A			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	N/A			
Frequency of 1-pt. QC check (gases)	Biweekly			
Frequency of multi-point gas calibration	Quarterly			
Annual data certification submitted	4/24/20			
Changes in the next 18 months?	None			

WAI AU (Data Requirements Rule)			
AQS: 150034100	Type: SLAMS	County: Honolulu	MSA: Honolulu
Address: 689 Kamehameha Highway, Pearl City, Oahu			
Latitude: 21.3909	Longitude: -157.9653		Elevation: 7 m MSL
Location Description: This station is located in an urban area and is approximately 400 meters northwest of the Waiau Power Generating Station in, Pearl City, Oahu. The station is surrounded by a residential area to the north, the H-1 Freeway from the east to southwest and the business district to the west.			



TRAFFIC DESCRIPTION			
Type of Roadway	H-1	Kamehameha Highway	
Freeway	X		
Major Street or Highway		X	
Distance from air intake (m)	59	114	
Direction from air inlet	SSE	NE	
Composition of roadway	Concrete	Asphalt	
Number of traffic lanes	6	4	
Average daily traffic	231,589 ¹		
Average vehicle speed (est. mph)	55	35	
Traffic one way or two	2	2	
Street parking?	No	No	
¹ Source: State of Hawaii Department of Transportation 2015 count			

For “Site Representativeness” in the following table:

- ¹Site Types:
- 1) located to determine the highest concentrations;
 - 2) located to measure typical concentrations in areas of high population density;
 - 3) located to determine the impact of significant sources or source categories on air quality;
 - 4) located to determine general background concentration levels;
 - 5) located to determine extent of regional pollutant transport among populated areas and in support of secondary standards;
 - 6) located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts

- ² Purposes:
- 1) Provide air pollution data to the general public in a timely manner;
 - 2) Support compliance with ambient air quality standards;
 - 3) Support emissions strategy development and track trends in air pollution abatement control measures;
 - 4) Support for air pollution research

(WI) Waiau continued

WAIU MONITOR INFORMATION		(N/A = Not Applicable)		
	SO₂			
POC/FRM or FEM	1/FEM			
Type of Monitor	SLAMS			
AQS parameter code	42401			
Manufacturer	Thermo Scientific			
Model No.	43i-TLE			
AQS method code	060			
Monitoring start date	12/12/16			
Monitoring frequency	Continuous			
Probe material	Borosilicate glass			
Residence time (sec)	18.5			
Distance between co-located monitors	N/A			
Analytical laboratory	N/A			
Location of probe	Shelter roof			
Building dimensions (H) (m)	3.3			
Horizontal distance from supporting structure (m)	0			
Vertical distance above supporting structure (m)	1.0			
Height of probe above ground (m)	4.3			
Distance (m) & direction from drip line of tree(s)	20 WSW, 36 SSW			
Horizontal distance from edge of nearest traffic lane (m)	59			
Horizontal distance from nearest parking lot (m)	30			
Distance (m) & direction from obstructions on roof, vertical height above probe (m)	N/A			
Distance (m) & direction from possible obstructions not on roof, vertical height (m)	23 NNW, 5			
Distance (m) & direction from furnace or incineration flues	415 SE			
Unrestricted airflow	360			
Located in paved (P) or vegetative (V) ground?	V			
SITE REPRESENTATIVENESS				
Spatial scale	neighborhood			
Applicable NAAQS averaging time(s)	1-hr			
Sampling season	12 months			
Site type ¹	3			
Purpose of Monitor ²	2, 3			
Suitable for comparison against the annual PM _{2.5} NAAQS?	N/A			
DATA QUALITY				
Last PEP	N/A			
Last NPAP	N/A			
Date of last annual independent performance audit	12/6/17			
Frequency of flow rate verification (automated PM)	N/A			
Frequency of flow rate verification (manual PM _{2.5})	N/A			
Dates of last 2 semi-annual flow rate audits (PM)	N/A			
Frequency of 1-point flow rate verification (Pb)	N/A			
Dates of last 2 semi-annual flow rate audits (Pb)	N/A			
Precision & accuracy submitted to AQS	N/A			
Frequency of 1-pt. QC check (gases)	Biweekly			
Frequency of multi-point gas calibration	Quarterly			
Annual data certification submitted	4/24/20			
Changes in the next 18 months?	None			

Appendix A

Public Notice Documentation

Due to the social distancing protocols put in place in response to the current COVID-19 pandemic, the 2020 Air Monitoring Network Plan was made available for public viewing online only on the Clean Air Branch web site.

Public notification of the availability of the Plan for public inspection was published in the major newspapers on all counties. The public comment period was for 30 days from June 3 to July 2, 2020.

The public notice was published in the following newspapers for the following counties:

- Kauai County: The Garden Island
- City and County of Honolulu: The Star Advertiser
- Maui County: The Maui News
- Hawaii County: West Hawaii Today and Hawaii Tribune Herald (East Hawaii)

Documentations of the public notice are attached.

No comments to the plan were received.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE (Docket No. 20-CA-PA-04)

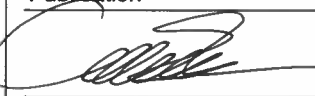
}
}
}
}
}
}

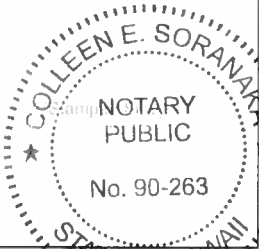
STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: JUN - 3 2020 # Pages: 1

Notary Name: COLLEEN E. SORANAKA First Judicial Circuit

Doc. Description: Affidavit of
Publication

 JUN - 3 2020
Notary Signature Date



PUBLIC NOTICE
(Docket No. 20-CA-PA-04)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2020 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at <http://health.hawaii.gov/cab>. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by July 2, 2020. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(SA1281740 6/3/20)

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 1 times on:
06/03/2020

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:


West Hawaii Today 0 times on:

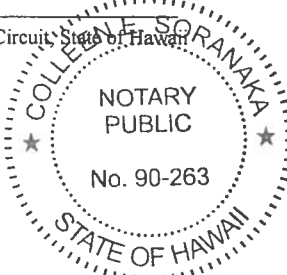
Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.


Lisa Sakakida

Subscribed to and sworn before me this 3rd day of June A.D. 2020


Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024



Ad # 0001281740

ICSP NO.: _____

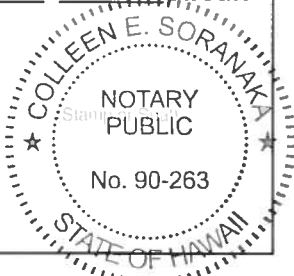
AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE (Docket No. 20-CA-PA-04)

}
}
}
}
}
}
}

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date:	JUN - 3 2020	# Pages:	1
Notary Name:	COLLEEN E. SORANAKA	First Judicial Circuit	
Doc. Description:	Affidavit of Publication		
Notary Signature		Date	JUN - 3 2020



PUBLIC NOTICE
(Docket No. 20-CA-PA-04)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2020 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at <http://health.hawaii.gov/cab>. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by July 2, 2020. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(TGI1281749 6/3/20)

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 1 times on:
06/03/2020

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 0 times on:

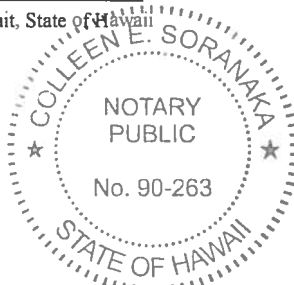
Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Lisa Sakakida

Subscribed to and sworn before me this 3d day of June A.D. 2020

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024



Ad # 0001281749

ICSP NO.: _____

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE (Docket No. 20-CA-PA-04)

}
}
}
}
}
}

STATE OF HAWAII }
} SS.
City and County of Honolulu }

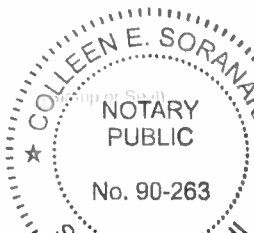
JUN - 3 2020

Doc. Date: _____ # Pages: 1

Notary Name: COLLEEN E. SORANAKA First Judicial Circuit

Doc. Description: Affidavit of
Publication

[Signature] JUN - 3 2020
Notary Signature Date



PUBLIC NOTICE
(Docket No. 20-CA-PA-04)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2020 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at <http://health.hawaii.gov/cab>. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by July 2, 2020. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(WHT1281746 6/3/20)

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 1 times on:
06/03/2020

Other Publications: 0 times on:

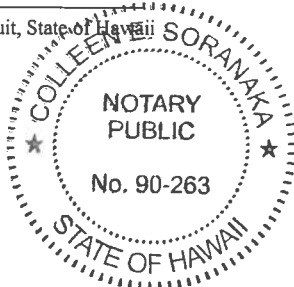
And that affiant is not a party to or in any way interested in the above entitled matter.

[Signature]
Lisa Sakakida

Subscribed to and sworn before me this 3rd day of June A.D. 2020

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024

Ad # 0001281746



ICSP NO.: _____

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE (Docket No. 20-CA-PA-04)

}
}
}
}
}
}
}


STATE OF HAWAII }
 } SS.
City and County of Honolulu }

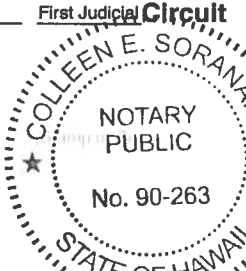
JUN - 3 2020

Doc. Date: _____ # Pages: 1

Notary Name: COLLEEN E. SORANAKA First Judicial Circuit

Doc. Description: Affidavit of
Publication

 JUN - 3 2020
Notary Signature Date



PUBLIC NOTICE
(Docket No. 20-CA-PA-04)

The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2020 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.

Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at <http://health.hawaii.gov/cab>. Interested persons may submit written comments addressed to the Department of Health at:

Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782

The comments must be postmarked or received by July 2, 2020. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200. (HTH1281742 6/3/20)

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 1 times on:
06/03/2020

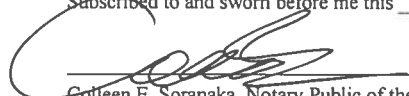
West Hawaii Today 0 times on:

Other Publications: 0 times on:

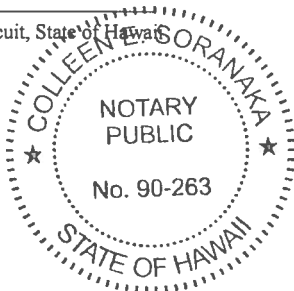
And that affiant is not a party to or in any way interested in the above entitled matter.


Lisa Sakakida

Subscribed to and sworn before me this 3rd day of June A.D. 2020


Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2024

Ad # 0001281742



ICSP NO.: _____

AFFIDAVIT OF PUBLICATION

STATE OF HAWAII, }
County of Maui. } ss.

Kara Durr _____ being duly sworn
deposes and says, that she is an Advertising Clerk _____ of
the Maui Publishing Co., Ltd., publishers of THE MAUI NEWS, a
newspaper published in Wailuku, County of Maui, State of Hawaii;
that the ordered publication as to _____

PUBLIC NOTICE

DOCKET #20-CA-PA-04

of which the annexed is a true and correct printed notice, was
published 1 time in THE MAUI NEWS, aforesaid, commencing
on the 3rd day of June, 2020, and ending
on the 3rd day of June, 2020, one day
inclusive), to-wit: on _____

June 3, 2020

and that affiant is not a party to or in any way interested in the above
entitled matter.

[Handwritten Signature]

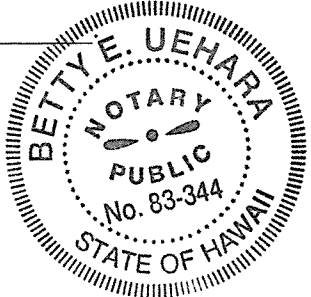
This 1 page _____ PUBLIC NOTICE _____, dated
June 3, _____ 2020,

was subscribed and sworn to before me this 3rd day of
June _____, 2020, in the Second Circuit of the State of Hawaii,

by _____ Kara Durr

[Handwritten Signature]
Notary Public, Second Judicial
Circuit, State of Hawaii
BETTY E. UEHARA

My Commission expires on 09-26-2023



PUBLIC NOTICE
(Docket No. 20-CA-PA-04)
The Department of Health, State of Hawaii, is notifying all interested persons of the report, "2020 Air Monitoring Network Plan." This report, based on 40 CFR 58.10, describes Hawaii's ambient air monitoring network.
Due to the social distancing protocols put in place in response to the current Covid-19 pandemic, the report is being made available for public review online only on the Clean Air Branch, Department of Health website at <http://health.hawaii.gov/cab>. Interested persons may submit written comments addressed to the Department of Health at:
Clean Air Branch, Department of Health
2827 Waimano Home Road, Room 130
Pearl City, HI 96782
The comments must be postmarked or received by July 2, 2020. For additional information, contact Ms. Lisa Young of the Clean Air Branch in Honolulu at (808) 586-4200.
(MN: June 3, 2020)

Appendix B

Documentation of Request of EPA Approval For The Discontinuation of SO₂ Monitoring at the Waiiau DRR Station

DAVID Y. IGE
GOVERNOR OF HAWAII



BRUCE S. ANDERSON, Ph.D.
DIRECTOR OF HEALTH

CERTIFIED MAIL -
RETURN RECEIPT REQUESTED
(#7018 0040 0000 8040 7689)

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File:
20-235M&A CAB

May 15, 2020

Ms. Elizabeth J. Adams
Air Division Director
U.S. EPA, Region 9 (AIR-1)
75 Hawthorne Street
San Francisco, California 94105

Attention: Randall Chang

Dear Ms. Adams:

SUBJECT: Data Requirements Rule Sulfur Dioxide (SO₂) Monitoring Shutdown Request

The Hawaii Department of Health, Clean Air Branch (HDOH), requests to shut down the SO₂ monitor located at Waiiau (AQS ID: 15-003-4100). This request is being submitted based on the data meeting the criteria in 40 CFR Part 51, Subpart BB, 51.1203, Section (c)(3). The monitor operated solely for the purpose of satisfying the 2015 SO₂ Data Requirements Rule (DRR) (40 CFR Part 51, Subpart BB) for Hawaiian Electric Company's Waiiau Generating Station.

HDOH has submitted data to AQS for the specified monitor for CY 2017-2019 and certified the data on April 30, 2018, April 23, 2019, and April 30, 2020. Based on the certified data, a design value was calculated (per 40 CFR Part 50, Appendix T) that meets the requirements under 40 CFR 51.1203(c)(3). The design value for the monitor during the first 3-year period of operation was 16 ppb, which is less than 50% of the NAAQS. The 3-year design value report (AQS AMP 480) is attached.

The monitor is not located in an area designated as nonattainment of the 2010 SO₂ NAAQS; being used to satisfy other ambient SO₂ minimum monitoring requirements listed in 40 CFR Part 58, Appendix D, Section 4.4; or required as part of a SIP, permit, attainment plan or maintenance plan. All information requested by Mr. Randall Chang to be reviewed electronically has been loaded onto the HDOH HAMP Sharepoint site.

If you have any questions, please contact Ms. Lisa Young of my staff at (808) 586-4200.

Sincerely,

A handwritten signature in black ink, appearing to read "Marianne Rossio".

MARIANNE ROSSIO, P.E.
Manager, Clean Air Branch

JY:rkb

Attachment

c: Gwen Yoshimura, Manager, Air Quality Analysis Office (AIR-7), Air Division, U.S. EPA, Region 9
Randall Chang, Air Quality Analysis Office (AIR-7), Air Division, U.S. EPA, Region 9
Stanton Oshiro, Project Manager, Hawaiian Electric Company, Inc., Environmental Division

User ID: XJMYOSHIMOTO

DESIGN VALUE REPORT

Report Request ID: 1840856

Report Code: AMP480

May. 7, 2020

GEOGRAPHIC SELECTIONS												
Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region	
	15	003	4100									

PROTOCOL SELECTIONS			
Parameter Classification	Parameter	Method	Duration
DESIGN VALUE	42401		

AGENCY SELECTIONS
Hawaii State Department Of Health

SELECTED OPTIONS	
Option Type	Option Value
SINGLE EVENT PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
MERGE PDF FILES	YES
AGENCY ROLE	PQAO
USER SITE METADATA	STREET ADDRESS
QUARTERLY DATA IN WORKFILE	NO
WORKFILE DELIMITER	,
USE LINKED SITES	YES

DATE CRITERIA	
Start Date	End Date
2017	2019

APPLICABLE STANDARDS
Standard Description
SO2 1-hour 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: May. 7, 2020

- Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
 2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
 3. Annual Values not meeting completeness criteria are marked with an asterisk (**).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 PRELIMINARY DESIGN VALUE REPORT

Report Date: May. 7, 2020

Pollutant: Sulfur dioxide(42401)
 Standard Units: Parts per billion(008)
 NAAQS Standard: SO2 1-hour 2010
 Statistic: Annual 99th Percentile

Design Value Year: 2017
 Level: 75
 State Name: Hawaii

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

<u>Site ID</u>	<u>STREET ADDRESS</u>	2017			2016			2015			3-Year	
		<u>Comp.</u> <u>Qtrrs</u>	<u>99th</u> <u>Percentile</u>	<u>Cert&</u> <u>Eval</u>	<u>Comp.</u> <u>Qtrrs</u>	<u>99th</u> <u>Percentile</u>	<u>Cert&</u> <u>Eval</u>	<u>Comp.</u> <u>Qtrrs</u>	<u>99th</u> <u>Percentile</u>	<u>Cert&</u> <u>Eval</u>	<u>Design</u> <u>Value</u>	<u>Valid</u> <u>Ind.</u>
15-003-4100	97-685 KAMEHAMEHA HWY	4	15	Y						15	N	

- Notes:**
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
 2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
 3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 PRELIMINARY DESIGN VALUE REPORT

Report Date: May. 7, 2020

Pollutant: Sulfur dioxide(42401)
 Standard Units: Parts per billion(008)
 NAAQS Standard: SO2 1-hour 2010
 Statistic: Annual 99th Percentile

Design Value Year: 2018

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

Level: 75

State Name: Hawaii

<u>Site ID</u>	<u>STREET ADDRESS</u>	2018			2017			2016			3-Year	
		<u>Comp.</u> <u>Qtrts</u>	<u>99th</u> <u>Percentile</u>	<u>Cert&</u> <u>Eval</u>	<u>Comp.</u> <u>Qtrts</u>	<u>99th</u> <u>Percentile</u>	<u>Cert&</u> <u>Eval</u>	<u>Comp.</u> <u>Qtrts</u>	<u>99th</u> <u>Percentile</u>	<u>Cert&</u> <u>Eval</u>	<u>Design</u> <u>Value</u>	<u>Valid</u> <u>Ind.</u>
15-003-4100	97-685 KAMEHAMEHA HWY	4	16	Y	4	15	Y				15	N

- Notes:**
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
 2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
 3. Annual Values not meeting completeness criteria are marked with an asterisk (**).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 PRELIMINARY DESIGN VALUE REPORT

Report Date: May. 7, 2020

Pollutant: Sulfur dioxide(42401)
 Standard Units: Parts per billion(008)
 NAAQS Standard: SO2 1-hour 2010
 Statistic: Annual 99th Percentile

Design Value Year: 2019
 REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
 Level: 75
 State Name: Hawaii

<u>Site ID</u>	<u>STREET ADDRESS</u>	2019			2018			2017			3-Year	
		<u>Comp. Qtrrs</u>	<u>99th Percentile</u>	<u>Cert& Eval</u>	<u>Comp. Qtrrs</u>	<u>99th Percentile</u>	<u>Cert& Eval</u>	<u>Comp. Qtrrs</u>	<u>99th Percentile</u>	<u>Cert& Eval</u>	<u>Design Value</u>	<u>Valid Ind.</u>
15-003-4100	97-685 KAMEHAMEHA HWY	4	16	Y	4	16	Y	4	15	Y	16	Y

- Notes:**
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
 2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
 3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: May. 7, 2020

CERTIFICATION EVALUATION AND CONCURRENCE FLAG MEANINGS

FLAG	MEANING
M	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
S	The certifying agency has submitted the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
U	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
X	Certification is not required by 40 CFR 50.15 and no conditions apply to be the basis for assigning another flag value
Y	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter, the attached summary reports, the amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).

- Notes:**
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
 2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
 3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').