REGION 10
SEATTLE, WA 98101

February 27, 2025

Ms. Barbara Trost
Division of Air Quality
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

Dear Ms. Trost:

The U.S. Environmental Protection Agency (EPA) evaluated the Alaska Department of Environmental Conservation's (ADEC) 2024 Annual Monitoring Network Plan (ANP) dated June 27, 2024, and the Amendment to the 2024 ANP dated November 19, 2024 (November Amendment, see Enclosure 1). By this letter, EPA documents its findings from the review and approves the State of Alaska's 2024 ANP.

We appreciate all the hard work ADEC staff have put into maintaining and improving Alaska's air quality monitoring network despite facing fiscal restraints. Specifically, we appreciate the careful evaluation and ultimate adoption of fine particulate matter ($PM_{2.5}$) continuous Federal Equivalent Method (FEM) instruments at the Fairbanks A-Street and NCore sites in addition to the $PM_{2.5}$ Federal Reference Method (FRM) instruments. We also appreciate the addition of non-regulatory sulfur dioxide monitoring at the North Pole Hurst Road site to better understand particulate matter precursor chemistry. The successful relocation of the Butte PM monitoring site after years of preparation is also commendable. We also want to highlight ADEC's continued work on establishing a network of sensor pods in rural communities to extend the spatial coverage of the air quality monitoring network.

ADEC is also making excellent use of the infusion of one-time funds to improve air quality monitoring networks via the American Rescue Plan (ARP). Thank you for including status updates on the ARP-funded work in the ANP, notably replacing Chemical Speciation Network samplers at the NCore site, procuring and installing new shelters for the relocated Butte Plant Material Center site and the Juneau Floyd Dryden site, and procuring a primary flow standard for in-house mass flow controller calibrations.

Thank you for including information on ADEC's current waivers for certain monitoring requirements in the ANP Appendix C. These include ozone monitoring in the Anchorage area, lead source-oriented monitoring for Red Dog Mine, and the distance from the roadway at the A-Street site. We remind ADEC that these waivers will need to be revisited every five years and appreciate that ADEC has initiated planning for the renewal of the source-oriented lead monitoring waiver, which will be due concurrently with the 5-year network assessment and ANP on July 1, 2025.

We approve the following network modifications described in the 2024 ANP and November Amendment:

1. Redesignation of the continuous $PM_{2.5}$ monitor at the NCore Site (AQS ID: 02-090-0034) from non-FEM to FEM on January 1, 2025. DEC plans to replace the Sharp Cut Cyclone (SCC) with a Very Sharp Cut Cyclone (VSCC), which complies with the requirements for the monitor to be run as an FEM. The $PM_{2.5}$ FRM at the site will remain the primary monitor.
   EPA R10 approved a similar request for ADEC's A-Street site in the 2023 network response letter. We appreciate the inclusion of this request in the ANP as changes to FEM monitors at SLAMS sites have implications on meeting the minimum monitoring requirements for collocation (40 C.F.R. Part 58 Appendix A, Section 3.2.3), and documentation of these changes is required by 40 C.F.R. § 58.14(b).

2. Changes in coarse PM ($PM_{10-2.5}$) sampling equipment at the Fairbanks NCore Site. With the addition of the $PM_{2.5}$ FEM monitor at this site, coarse PM can be calculated by comparing the PM_{10} and $PM_{2.5}$ measurements from the two respective BAM1020 instruments. This meets the requirement for NCore coarse PM methods set out in 40 CFR Part 58 Appendix C 3.1. We approve the discontinuation and removal of the PM_{10} FRM Partisol 2025i sampler from operation at this site.

We provisionally approve the following network modification:

1. Discontinuation of the carbon monoxide (CO) monitor at the Anchorage, Garden site (AQS-ID: 02-020-0018), contingent upon approval of a State Implementation Plan (SIP) modification wherein the monitor is not required. This is allowable under 40 C.F.R. § 58.14(c)(1): the monitor has shown attainment during the previous five years, and it has a probability of less than 10% of exceeding 80% of the CO NAAQS over the next three years[1]. Monitoring is required under the second ten year limited maintenance plan (LMP) for the Anchorage CO maintenance area, which EPA approved on March 3, 2014 (79 FR 11707). We understand that ADEC plans to submit a SIP revision to remove any monitoring requirements and contingency measures from the LMP. Once this SIP revision has been approved, the CO monitor may be discontinued.

We do not approve the following network modification requested in the 2024 ANP:

1. Reduction of the NCore $PM_{2.5}$ FRM monitor sampling frequency from 1-in-1 to 1-in-3 on January 1, 2025. ADEC amended this request in the November 19, 2024 letter (see Enclosure 1). ADEC originally requested this change in 2023, but agreed to defer on the change until January 1, 2025 to avoid any data issues affecting the 2024 $PM_{2.5}$ NAAQS designations (see Enclosure 2). ADEC plans to continue operating the FRM monitor at the NCore site on a 1-in-1 sampling frequency for further evaluation of the correlation between the FRM and FEM.

Thank you for including details on the following network modifications completed in Alaska in the period between ANP reports (July 2023 – July 2024) that were previously approved:

1. Changes in $PM_{2.5}$ and PM_{10} monitoring at the Juneau Floyd Dryden site (AQS ID: 02-110-0004). Thank you for documenting the January 1, 2024 designation of the Teledyne T640X as the primary PM_{10} monitor and the FRM as the primary $PM_{2.5}$ monitor at the site. The T640X monitor will continue to measure $PM_{2.5}$ for AQI data, public information, and to inform burn ban decisions. These changes were approved in the 2023 ANP response letter. Thank you for also documenting the swap from a Thermo Scientific Partisol 2000i FRM to a Thermo Scientific 2025i FRM on February 18, 2024, which was approved outside of the ANP response via a letter dated December 19, 2023. R10's approval letter was linked in ADEC's 2024 ANP and is attached to this response letter (Enclosure 2).

[1] Tested using method described here: https://www3.epa.gov/ttnamti1/files/ambient/pm25/datamang/network-assessment-guidance.pdf

2. Relocation of the Butte Harrison Court monitoring site (AQS ID: 02-170-0008) to the Plant Materials Center (PMC, AQS ID: 02-170-0010). This site relocation was approved in the 2023 ANP response letter. Thank you for documenting that the PMC site became operational on October 26th, 2023, and the Harrison Court site was discontinued on December 30, 2023. The ANP includes documentation that the site meets criteria set out in 40 C.F.R. Part 58 Appendix E in ANP Tables 3-3, 3-5, and 3-7.

3. Redesignation of the continuous $PM_{2.5}$ monitor at A-Street (AQS ID: 02-090-0040) from non-FEM to FEM: Thank you for documenting that the sharp-cut cyclone (SCC) was replaced with a very sharp cut cyclone (VSCC) on January 2, 2024. This change means the monitor is being operated as an FEM. This change was approved in the 2023 ANP response letter.

4. Changes in coarse PM ($PM_{10-2.5}$) sampling equipment at the Fairbanks NCore Site. Thank you for documenting that you discontinued and removed the two Thermo Scientific Partisol 2000i instruments on December 22, 2023, and replaced them with one Thermo Scientific Partisol 2025i. The replacement instrument will measure PM_{10}, and the $PM_{10-2.5}$ fraction determined by comparison against the site's existing $PM_{2.5}$ FRM. This change was approved outside of the ANP response via a letter dated December 19, 2023 (Enclosure 2).

Thank you for including details on the following network modifications planned for the next 18 months, none of which would require Region 10 approval:

1. Replacing the A-Street site particulate matter sampling shelter during the third quarter of 2024. We understand from subsequent communication with ADEC that the shelter was successfully replaced by the date of this letter, and that there was minimal data loss.

2. Upgrading the sulfur dioxide (SO_2) instrument at the North Pole Hurst Road site. On March 10, 2022, ADEC added a Thermo Scientific 43i (Method Code: 560) SO_2 monitor to the North Pole Hurst Rd site. ADEC plans to replace this instrument with a Teledyne T100U SO_2 trace level analyzer (Method Code 100) during the third quarter of 2024.

3. Expansion of the Low-Cost Sensor Network: ADEC has purchased 55 QuantAQ sensor pods. These sensor pods are capable of measuring baseline air quality data, including particulate matter, sulfur dioxide, nitric oxide, nitrogen dioxide, and carbon monoxide. As of the ANP submittal, ADEC had deployed 27 sensors in rural communities across the state, with a goal of deploying in roughly 40 communities. The remaining sensors will be used for QA purposes. While these sensor pods are not approved as FEM and cannot be used for regulatory purposes, they provide important information on air quality outside of population centers. ADEC does not report the low-cost sensor data to AQS or AirNow but makes the measurements available on their own sensor network website.

The enclosed Annual Monitoring Network Plan Checklist is the checklist EPA used to review your plan for overall items that are required to be included in the ANP along with our assessment of whether the plan submitted by your agency addresses those requirements.

All comments conveyed via this letter and the enclosed checklist should be addressed in next year's annual monitoring network plan via corrections or addition of information to the plan. Please note that we cannot approve portions of the annual network plan for which the information in the plan is insufficient to judge whether the requirement has been met, or for which the information, as described,

does not meet the requirements as specified in 40 C.F.R. § 58.10 and the associated appendices. EPA Region 10 also cannot approve portions of the plan for which the EPA Administrator has not delegated approval authority to the regional offices.

EPA approves the State of Alaska's 2024 ANP. We appreciate the timeliness of the ANP submission and all the work ADEC does to protect the quality of Alaska's air, especially your proactive work to establish low-cost sensor hub sites. We look forward to our continued collaboration. If you have any questions about our approval of the ANP, please contact me at (206) 553-0985 or Sarah Waldo at (206) 553-1504.

Sincerely,

DEBRA SUZUKI

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Debra Suzuki, Manager
Air Planning and State/Tribal Coordination Branch

Enclosures:

1. November 19, 2024 Amendment to the 2024 Alaska ANP
2. December 19, 2023 letter approving monitoring network modifications
3. Region 10 Annual Air Monitoring Network Plan Checklist

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

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November 19, 2024

Casey Sixkiller
Regional Administrator
US EPA Region 10
1200 6th Avenue, Suite 155, M/S 15-H13
Seattle, WA 98101-3140

Subject: Amendment to the 2024 Alaska Annual Air Monitoring Network Plan

Dear Mr. Sixkiller:

After submittal of the State of Alaska's Department of Environmental Conservation (DEC) 2024 Annual Network Plan (ANP), we have reviewed the submission and identified changes that were not included in the final version. We have noted the proposed modifications below for your review and that additional changes would become effective beginning January 1st, 2025. The proposed revisions are noted below for your review.

1. Fairbanks NCore $PM_{2.5}$ (Sampling Schedules per 40 CFR 58.12)

DEC will continue operation of the Partisol 2025i FRM $PM_{2.5}$ sampler on a 1 in 1 Schedule

The 2024 ANP identifies a change in the NCore Federal Reference Method (FRM) sample frequency from 1 in 1 to a reduced sample schedule of 1 in 3 to correspond with conversion of the site's non-Federal Equivalent Method (non-FEM) Met One BAM 1020 $PM_{2.5}$ sampler to an FEM sampler by addition of a Very Sharp Cut Cyclone (VSCC). After internal dialogue and conversations with Region 10 EPA staff, DEC is amending that request to continue $PM_{2.5}$ FRM sampling on a 1 in 1 schedule. This schedule will be maintained until such time as a more consistent correlation between the FRM and FEM samplers can be established.

Per 40 CFR 58.12 D (2) "Manual $PM_{2.5}$ samplers at NCore stations and required regional background and regional transport sites must operate on **at least** a 1-in-3 day sampling frequency." Operating on a 1 in 1 schedule exceeds the minimum requirement.

2. Fairbanks NCore $PM_{10-2.5}$ {Required in 40 CFR Part 58 Appx D 3(b)}:

DEC proposes removal of the PM_{10} Partisol 2025i FRM sampler.

This station currently uses two Thermo Scientific 2025i (FRM) samplers configured as PM_{10} and $PM_{2.5}$ of like manufacturer and design to meet the NCore $PM_{10-2.5}$ requirement (40 CFR Part 50 Appendix O Section 7.0). The $PM_{2.5}$ operates on a 1 in 1 schedule, and the PM_{10} on a 1 in 3 schedule. DEC proposed in the June 2024 ANP

submittal to convert the existing site non-FEM Met One 1020 Beta Attenuation Monitor (BAM) $PM_{2.5}$ monitor to an FEM instrument through addition of a very sharp cut cyclone (VSCC) beginning January 1st, 2025. This instrument will be compared to the existing PM_{10} FEM BAM 1020 instrument to meet the NCore requirements for calculation of the $PM_{10-2.5}$ fraction. As such, with the NCore monitoring requirement met by this FEM BAM pair, DEC now proposes to remove the PM_{10} FRM Partisol sampler from operation. DEC will continue to operate a Thermo Scientific Partisol 2025i as the primary $PM_{2.5}$ sampler on a 1 in 1 schedule.

Per 40 CFR Part 58, Appx C 3.1 "Methods employed in NCore multipollutant sites used to measure SO_2, CO, NO_2, O_3, $PM_{2.5}$, or $PM_{10-2.5}$ must be reference **or equivalent methods**…." The Met One BAM 1020 is designated as an FEM and will be operated according to 40 CFR Part 50 App L.

If you or your staff have any questions about these proposed changes, please contact TJ Brado (907-451-2114) or Barbara Trost (907-269-6249).

Sincerely,

Jason Olds, Director
Division of Air Quality

cc: Krishna Viswanathan, EPA Region 10
Debra Suzuki, EPA Region 10
Sarah Waldo, EPA Region 10
Joey Richardson, EPA Region 10
Barbara Trost, ADEC/AMQA Program Manager
TJ Brado, ADEC/AMQA Program Manager
Rochele Rodman, ADEC/AMQA Program Manager
Lydia Johnson, ADEC/AMQA Program Manager

REGION 10
SEATTLE, WA 98101

19 December 2023

Mr. T.J. Brado
Environmental Program Manager
Air Monitoring and Quality Assurance
Alaska Department of Environmental Conservation

Dear Mr. Brado:

In your letter dated November 22, 2023, the Alaska Department of Environmental Conservation (ADEC) requested approval for several modifications to their ambient air monitoring network:

1. Changing the monitors used for $PM_{10-2.5}$ sampling at the Fairbanks NCore site (AQS-ID: 02-090-0034). ADEC proposes to remove the current paired FRM monitors measuring $PM_{2.5}$ and PM_{10} to determine the mass concentration of coarse particulate matter ($PM_{10-2.5}$) and replace the PM_{10} sampler with an FRM that matches the manufacturer of the primary $PM_{2.5}$ FRM at the site. This meets the $PM_{10-2.5}$ method requirements set out in 40 C.F.R. Part 50 Appendix O.
2. Reducing the sampling frequency of the primary $PM_{2.5}$ sampler at the Fairbanks NCore site.
3. Replacing the primary $PM_{2.5}$ sampler at the Juneau SLAMS site (AQS-ID: 02-110-0004). ADEC proposes to replace the current $PM_{2.5}$ FRM sampler with a different model FRM. This meets the requirements set out in 40 C.F.R. §58.11.

By this letter, Region 10 approves the requests to replace monitors at the NCore and Juneau sites but defers on the request to reduce the sampling frequency at the NCore site. Following discussions with Region 10, ADEC decided to delay the request to reduce the sampling frequency at the Fairbanks NCore site until January 1, 2025. This decision was documented via an email message dated December 7, 2023 (see Attachment I).

We appreciate ADEC providing formal request and documentation for these changes to their SLAMS network, as required per 40 C.F.R. §§ 58.10(a)(2) and 58.14(b). If you have any questions regarding this correspondence, please contact me at (206) 553-0985 or Sarah Waldo at (206) 553-1504.

Sincerely,

DEBRA SUZUKI

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Debra Suzuki, Manager
Air Planning and State/Tribal Coordination Branch

Enclosure: NCore sample frequency e-mail

Waldo, Sarah (she/her/hers)

From: Brado, TJ J (DEC) <tj.brado@alaska.gov>
Sent: Thursday, December 7, 2023 4:29 PM
To: Waldo, Sarah (she/her/hers)
Cc: barbara.trost@alaska.gov
Subject: NCore sample frequency discussion....

Hello Sarah,

Per our discussion earlier, I reached out to Barbara, and we had a discussion regarding the sample frequency change at NCore as previously requested in our network modifications letter.

After our discussion, we decided that we would be amenable to continuing 1 in 1 sampling at NCore for calendar year 2024 and re-approach a change to the sample frequency for 2025.

As such, what would be the best way to amend that in the letter? Would you like us to send a revised version of that letter with the request removed or send a new letter rescinding that request?

Thanks!

T.J. Brado
Field Monitoring Manager
Air Monitoring & Quality Assurance
Environmental Conservation
Email: tj.brado@alaska.gov
Phone: 907-451-2114
610 University Ave, Fairbanks, AK 99709
Click HERE for near real time data!

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Enclosure 3: Region 10 ANNUAL AIR MONITORING NETWORK PLAN CHECKLIST

Year: **2024**
Agency: **Alaska Department of Environmental Conservation (ADEC)**

40 CFR § 58.10(a)(1) requires that each Annual Network Plan (ANP) include information regarding the following types of monitors: State and Local Air Monitoring Stations (SLAMS) including Federal Reference Method (FRM), Federal Equivalent Method (FEM), and Approved Regional Method (ARM) monitors that are part of SLAMS, NCore stations, Chemical Speciation Network (CSN), Photochemical Assessment Monitoring Stations (PAMS), and Special Purpose Monitor (SPM) stations.

40 CFR § 58.10(a)(1) further directs that, The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of this part, where applicable. On this basis, review of the ANPs is based on the requirements listed in 40 CFR § 58.10 along with those in Appendices A, C, D, and E.

EPA Region 10 will not take action to approve or disapprove any item for which Part 58 grants approval authority to the Administrator rather than the Regional Administrators, but we will do a check to see if the required information is included and correct. The items requiring approval by the Administrator are: PAMS, NCore, and Speciation (STN/CSN).

Please note that this checklist summarizes many of the requirements of 40 CFR Part 58, but does not substitute for those requirements, nor do its contents provide a binding determination of compliance with those requirements. The checklist is subject to revision in the future and we welcome comments on its contents and structure.

Highlight Color:	**Meaning:**
White/no highlight	meets the requirement
Yellow	requirement is not met, or information is insufficient to make a determination. Action requested in next year's plan or outside the ANP process.
Turquoise	item requires attention to improve next year's plan

	ANP requirement	Citation within 40 CFR 58	Was the information submitted?[2] If yes, section or page #s.	Does the information provided[3] meet the requirement?[4]	Notes
GENERAL PLAN REQUIREMENTS					
1.	Submit plan by July 1st	58.10 (a)(1)	Y; cover letter/email	Y	
2.	30-day public comment / inspection period	58.10 (a)(1); 58.10 (c)	Y	Y	
3.	Statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E, where applicable	58.10 (a)(1)	Y; p. 11	Y	
4.	Modifications to SLAMS network – case when we are not approving system modifications	58.10 (a)(2); 58.10 (b)(5); 58.10 (e); 58.14	Y, pg. 9-10	Y	Modification that does not require approval: • Low-Cost Sensor Network: Approximately 40 sensor pods will be deployed in rural communities across AK to collect PM, ozone (O_3), nitric oxide (NO), nitrogen dioxide (NO_2), and carbon monoxide (CO). Not approving modification, as the state rescinded the request: • Reduce PM2.5 FRM monitoring sampling frequency at the Fairbanks NCore site from 1 in 1 to 1 in 3 day sample schedule starting on January 1, 2025.
5.	Modifications to SLAMS network – case when we are approving system modifications per 58.14	58.10 (a)(2); 58.10 (b)(5); 58.10 (e); 58.14	Y, pg. 8-10 (executive summary), pg. 42-	Y	1. NCore Site: ADEC proposes to convert the site $PM_{2.5}$ Met One BAM 1020 to an FEM by swapping the SCC for a VSCC on January 1, 2025.

			48 (Sections 4 & 5) 5: Planned Modifications for 2023		Contingent upon SIP revision, we provisionally approve discontinuation of Garden St CO monitoring in the Anchorage MSA.
6.	Does plan include documentation (e.g., attached approval letter) for system modifications that have been approved since last ANP approval?	N/A	Y; p. 8-9; p. 52 Alaska ANP Approval Letter 2023	Y	Hyperlinks are broken in the ANP (p. 8) and result in 404 errors, but thank you for including the 2023 ANP approval letter and waivers as attachments.
7.	Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal	58.10 (b)(5)	Y, pg. 9-10	Y	Garden Site: Proposal to discontinue CO monitoring by March 31, 2025 pending approval of SIP modification
8.	Statement that SPMs operating an FRM/FEM/ARM that meet Appendix E also meet either Appendix A or an approved alternative. Documentation for any Appendix A approved alternative should be included.	58.11 (a)(2)	Y, Section 3.3: p. 17	Y	
9.	SPMs operating FRM/FEM/ARM monitors for over 24 months are listed as comparable to the NAAQS or the agency provided documentation that requirements from Appendices A, C, or E were not met.	58.20 (c)	Y; statement in Section 3.3 (p. 17); Table E-1 (p. 69)	Y	Hurst Road SO2 SPM replaced (Method Code 560 to Method Code 100) in early 3rd quarter 2024. Siting criteria for proximity to roadway covered by a waiver signed on October 30, 2023 contained in the 2023 ANP Response Letter.
10.	For agencies that share monitoring responsibilities in an MSA/CSA: this agency meets full monitoring requirements or an agreement between the affected agencies and the EPA Regional Administrator is in place	App D 2(e)	N/A		

GENERAL PARTICULATE MONITORING REQUIREMENTS (PM_{10}, $PM_{2.5}$, Pb-TSP, Pb-PM_{10})					
11.	Designation of a primary monitor if there is more than one monitor for a pollutant at a site.	App. A 3.2.3	Y; Table 3-15	Y	
12.	Distance between QA collocated monitors. For low volume PM instruments (flow rate < 200 liters/minute) > 1 m. For high volume PM instruments (flow rate > 200 liters/minute) > 2m.	App. A 3.2.3.4 (c) and 3.3.4.2 (c)	Y, Section 3.2	Y	
$PM_{2.5}$ –SPECIFIC MONITORING REQUIREMENTS					
13.	Document how states and local agencies provide for the review of changes to a $PM_{2.5}$ monitoring network that impact the location of a violating $PM_{2.5}$ monitor.	58.10 (c)	N/A	N/A	No violating PM2.5 monitors have proposed changes
14.	Identification of any $PM_{2.5}$ FEMs not eligible to be compared to the NAAQS due to poor comparability to FRM(s) [Note 1: must include required data assessment.] [Note 2: Required SLAMS must monitor $PM_{2.5}$ with NAAQS-comparable monitor at the required sample frequency.]	58.10 (b)(13) 58.11 (e)	N/A	N/A	
15.	Minimum # of monitoring **sites** for $PM_{2.5}$ [Note 1: should be supported by MSA ID, MSA population, DV, # monitoring sites, and # required monitoring sites] [Note 2: Only monitors considered to be required SLAMs are eligible to be counted towards meeting minimum monitoring requirements.]	App. D 4.7.1(a) and Table D-5	Y; p. 14, and Table 3-2 (p. 15); Table A-1 (p. 45)	Y	

16.	Requirements for continuous $PM_{2.5}$ monitoring (number of monitors and collocation)	App. D 4.7.2	Y; Table 3-15 (p. 36), Table D-1 (p. 59-60)	Y	
17.	FRM/FEM/ARM $PM_{2.5}$ QA collocation	App. A 3.2.3	Y, Table 3-15	Y	
18.	$PM_{2.5}$ Chemical Speciation requirements for official STN sites	App. D 4.7.4	Y, Table D-1	Y	
19.	Identification of sites suitable and sites not suitable for comparison to the annual $PM_{2.5}$ NAAQS as described in Part 58.30	58.10 (b)(7)	Y, Table 3-5, Table D-1	Y	
20.	Required $PM_{2.5}$ sites represent area-wide air quality	App. D 4.7.1(b)	Y, Table 3-5	Y	
21.	For $PM_{2.5}$, within each MSA, at least one site at neighborhood or larger scale in an area of expected maximum concentration	App. D 4.7.1(b)(1)	Y, Table 3-5	Y	
22.	If additional SLAMS $PM_{2.5}$ is required, there is a site in an area of poor air quality	App. D 4.7.1(b)(3)	N/A	N/A	
23.	States must have at least one $PM_{2.5}$ regional background and one $PM_{2.5}$ regional transport site.	App. D 4.7.3	Y; Table 3-10 under Monitoring Objectives	N?	Which site is for regional transport? Missing from Comments section of Table D-1 (p. 59) too
24.	Sampling schedule for $PM_{2.5}$ - applies to year-round and seasonal sampling schedules (note: date of waiver approval must be included if the sampling season deviates from requirement)	58.10 (b)(4); 58.12(d); App. D 4.7	Y; Table 3-8	Y	
PM_{10} –SPECIFIC MONITORING REQUIREMENTS					
25.	Minimum # of monitoring sites for PM_{10} [Note: Only monitors considered to be required SLAMs are eligible to be	App. D, 4.6 (a) and Table D-4	Y; Tables 3-2; Tables 3-7 through 3-11; Table D-2	Y	4 SLAMS sites listed in Anchorage MSA meets requirement for 3-4 sites. However, Table D-3 states that 1 of the SLAMS is collocated and 1 of the

	counted towards meeting minimum monitoring requirements.]				SLAMS is SPM, and it is unclear what this means. Table 3-7 (p. 22) indicates that the continuous BAM 1020 FEM at Laurel is being operated as an SPM as of May 2015. This monitor can be redesignated to SLAMS. ADEC is meeting the minimum monitoring requirements for 3-4 SLAMS sites. However, please update Table D-3 to remove the Laurel site as counting towards the requirement on p. 14
26.	Manual PM_{10} method collocation (note: continuous PM_{10} does not have this requirement)	App. A 3.3.4	Y, Table 3-15	Y	
27.	Sampling schedule for PM_{10}	58.10 (b)(4); 58.12(e); App. D 4.6	Y; tables 3-7 thru 3-9	Y	
Pb –SPECIFIC MONITORING REQUIREMENTS					
28.	Minimum # of monitors for non-NCore Pb [Note: Only monitors considered to be required SLAMs are eligible to be counted towards meeting minimum monitoring requirements.]	App D 4.5	Y; Section 3.1.1, Waiver C-3	Y	
29.	Pb collocation: for non-NCore sites	App A 3.4.4 and 3.4.5	N/A	N/A	
30.	Any source-oriented Pb site for which a waiver has been granted by EPA Regional Administrator	58.10 (b)(10)	Y, Waiver C-3	Y	The Red Dog Mine waiver was approved by EPA in December 2021. Submittal of a renewal request will be due December 2026.
31.	Any Pb monitor for which a waiver has been requested or granted by EPA	58.10 (b)(11)	N/A		N/A.

	Regional Administrator for use of Pb-PM_{10} in lieu of Pb-TSP				
32.	Designation of any Pb monitors as either source-oriented or non-source-oriented	58.10 (b)(9)	N/A		N/A.
33.	Sampling schedule for Pb	58.10 (b)(4); 58.12(b); App A 3.4.4.2 (c) and 3.4.5.3 (c)	N/A		N/A
O_3 –SPECIFIC MONITORING REQUIREMENTS					
34.	Minimum # of monitoring sites for O_3 [Note 1: should be supported by MSA ID, MSA population, DV, # monitoring sites, and # required monitoring sites] [Note 2: Only monitors considered to be required SLAMs are eligible to be counted towards meeting minimum monitoring requirements.] [Note 3: monitors that do not meet traffic count/distance requirements to be neighborhood or urban scale (40 CFR Appendix E, Table E-1) cannot be counted towards meeting minimum monitoring requirements]	App D 4.1(a) and Table D-2	Y; Table 3-2 (p. 15); Section 3.5.1 (p. 37); App C; Waiver C-1 (p. 51); Table D-4 (p. 64-65)	Y	EPA approved 5-year waiver extension on 10/30/2023
35.	Identification of maximum concentration O_3 site(s)	App D 4.1 (b)	N/A		AK only monitors ozone at the NCore site.
36.	Sampling season for O_3 (Note: Waivers must be renewed annually. EPA expects agencies to submit re-evaluations of the relevant data each year with the ANP. EPA will then respond as part of the ANP response.)	58.10 (b)(4); App D 4.1(i)	Y, Table D-4	Y	EPA approved 5-year waiver extension on 10/30/2023

37.	An Enhanced Monitoring Plan for O_3, if applicable, no later than October 1, 2019 or two years following the effective date of a designation to a classification of Moderate or above O_3 nonattainment, whichever is later.	58.10 (a)(11); App D 5 (h)	N/A	N/A	
NO_2 –SPECIFIC MONITORING REQUIREMENTS					
38.	Minimum monitoring requirements for area-wide NO_2 monitor in location of expected highest NO_2 concentrations representing neighborhood or larger scale	App D 4.3.3	N/A (Table D-6)		AK is not required to monitor NO_2 because it has no CBSAs with populations > 1,000,000. AK monitors NO and NO_y at NCore.
39.	Minimum monitoring requirements for susceptible and vulnerable populations monitoring (aka RA40) NO_2	App D 4.3.4	N/A		
NEAR ROADWAY – SPECIFIC MONITORING REQUIREMENTS					
In CBSAs ≥ 2.5 million, the following near-roadway minimum monitoring requirements apply:					
40.	Two NO_2 monitors	App. D 4.3.2(a); 58.13(c)(3) and (4)	N/A		
41.	One CO monitor	App. D 4.2.1(a); 58.13(e)(2)	N/A		
42.	One $PM_{2.5}$ monitor	App. D 4.7.1(b)(2); 58.13(f)(2)	N/A		
In CBSAs ≥ 1 million and AADT ≥ 250K, the following near-roadway minimum monitoring requirements apply:					
43.	Two NO_2 monitors	App. D 4.3.2(a); 58.13(c)(3) and (4)	N/A		
44.	One CO monitor	App. D 4.2.1(a); 58.13(e)(2)	N/A		

45.	One $PM_{2.5}$ monitor	App. D 4.7.1(b)(2); 58.13(f)(2)	N/A		
*In CBSAs ≥ 1 million and ≤ 2.5 million **AND** AADT < 250K, the following near-roadway minimum monitoring requirements apply:*					
46.	One NO_2 monitor	App. D 4.3.2(a); 58.13(c)(3)	N/A		
47.	One CO monitor	App. D 4.2.1(a); 58.13(e)(2)	N/A		
48.	One $PM_{2.5}$ monitor	App. D 4.7.1(b)(2); 58.13(f)(2)	N/A		
SO_2 –SPECIFIC MONITORING REQUIREMENTS					
49.	Minimum monitoring requirements for SO_2 based on PWEI and/or RA required monitors under Appendix D 4.4.3 [Note: Only monitors considered to be required SLAMs are eligible to be counted towards meeting minimum monitoring requirements.]	App D 4.4	Y; Table D-5	Y	AK is not required to monitor SO_2 based on PWEI. AK monitors SO_2 at NCore (SLAMS) and at Hurst Road site (SPM, since 2021).
NCORE –SPECIFIC MONITORING REQUIREMENTS					
50.	NCore site and all required parameters operational: year-round O_3, SO_2, CO, NO_y, NO, $PM_{2.5}$ mass, $PM_{2.5}$ continuous, $PM_{2.5}$ speciation, $PM_{10-2.5}$ mass, resultant wind speed at 10m, resultant wind direction at 10m, ambient temperature, relative humidity. NOy waiver, if applicable.	App. D 3(b)	Y; Table 3-8	Y	
51.	A plan for making Photochemical Assessment Monitoring Stations	58.10 (a)(10); 58.13 (h)	N/A		AK is not required to have a PAMS site

	(PAMS) measurements, if applicable. The plan shall provide for the required PAMS measurements to begin by June 1, 2021.				
SITE OR MONITOR - SPECIFIC REQUIREMENTS (OFTEN INCLUDED IN DETAILED SITE INFORMATION TABLES)					
52.	AQS site identification number for each site	58.10 (b)(1)	Y; table 3-3	Y	
53.	Location of each site: street address and geographic coordinates	58.10 (b)(2)	Y; table 3-3	Y	
54.	MSA, CBSA, CSA or other area represented by the monitor	58.10 (b)(8)	Y, Table 3-2	Y	
55.	Parameter occurrence code (POC) for each monitor	Needed to determine if other requirements (e.g., min # and collocation) are met	Y, Tables 3-7, 3-8, 3-9, Table 3-11 (p. 30)	Y	
56.	Basic monitoring objective for each monitor	App D 1.1; 58.10 (b)(6)	Y, Table 3-10, 3-11, 3-12, 3-13	Y	
57.	Site type (designation) for each monitor (e.g. SLAMS, SPM)	App D 1.1.1	Y, Tables 3-7, 3-8, 3-9	Y	
58.	Monitor type for each monitor, and Network Affiliation(s) as appropriate	Needed to determine if other requirements (e.g., min # and collocation) are met	Y; Table 3-7 thru 3-13	Y	

59.	Scale of representativeness for each monitor as defined in Appendix D	58.10(b)(6); App D	Y; Tables 3-4 (CO), 3-5 (PM), 3-6 (NCore)	Y	
60.	Parameter code for each monitor	Needed to determine if other requirements (e.g., min # and collocation) are met	Y; Table 3-10, Table 3-11, Table 3-12, Table 3-13 (p. 29-35)	Y	
61.	Method code and description (e.g., manufacturer & model) for each monitor	58.10 (b)(3); App C 2.4.1.2	Y; Tables 3-7, 3-8, 3-9	Y	
62.	Sampling start date for each monitor	Needed to determine if other requirements (e.g., min # and collocation) are met	Y, Tables 3-7, 3-8, 3-9	Y	
SITE OR MONITOR - SPECIFIC REQUIREMENTS FOR NEW OR MODIFIED SITES (as of 2022)					
63.	Distance of monitor from nearest road	App E 6	Y, Tables 3-4, 3-5, 3-6	Y	
64.	Traffic count of nearest road	App E	Y, Table 3-5, 3-6	Y	
65.	Groundcover	App E 3(a)	N	N	Missing from Tables E-1, E-2, E-3
66.	Probe height	App E 2	Y, Tables E-1, E-2, E3	Y	
67.	Distance from supporting structure (vertical and horizontal, if applicable, should be provided)	App E 2	Y, Tables E-1, E-2, E3	Y	
68.	Distance from obstructions on roof (horizontal distance to the obstruction	App E 4(b)	Y, Tables E-1, E-2, E3	Y	

	and vertical height of the obstruction above the probe should be provided)				
69.	Distance from obstructions not on roof (horizontal distance to the obstruction and vertical height of the obstruction above the probe should be provided)	App E 4(a)	Y, Tables E-1, E-2, E3	Y	
70.	Distance from the drip line of closest tree(s)	App E 5	Y, Tables E-1, E-2, E3	Y	
71.	Distance to furnace or incinerator flue	App E 3(b)	Y, Tables E-1, E-2, E3	Y	
72.	Unrestricted airflow (expressed as degrees around probe/inlet or percentage of monitoring path)	App E, 4(a) and 4(b)	Y, Tables E-1, E-2, E3	Y	
73.	Probe material ($NO/NO_2/NO_y$, SO_2, O_3; For PAMS: VOCs, Carbonyls)	App E 9	Y, Tables E-1, E-2, E3	Y	
74.	Residence time ($NO/NO_2/NO_y$, SO_2, O_3; For PAMS: VOCs, Carbonyls)	App E 9	Y, Tables E-1, E-2, E3	Y	

CFR Definitions:

- **Monitoring Objective** can be one of three things: 1) Provide air pollution data to the general public in a timely manner; 2) Support compliance with ambient air quality standard and emission strategy development; or 3) Support air pollution research studies
- **Monitoring Site Types** are for the purpose of supporting the monitoring objectives, and there are six general types: 1) highest concentration; 2) typical concentrations in areas of high population density (aka population exposure); 3) source oriented; 4) background; 5) transport; 6) visibility/welfare
- **Spatial Scale:** Neighborhood, medium, micro, etc
- **Monitor designation:** can refer to both whether a monitor is FRM/FEM, and whether it is SLAMS or SPM. Further confusion: NCore, PAMS, and CSN are types of SLAMS