



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

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AIR & RADIATION
DIVISION

September 21, 2022

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, Region 10 (Region 10) evaluated the Alaska Department of Environmental Conservation's (ADEC) 2022 Annual Monitoring Network Plan (ANP) dated June 28, 2022. By this letter, Region 10 documents its findings from the review and approves the State of Alaska's 2022 ANP.

We appreciate all the hard work ADEC staff have put into maintaining and improving Alaska's air quality monitoring network. One especially notable improvement is upgrading the data acquisition system, which includes upgrades to many facets of the quality assurance system that improve efficiency and transparency of monitoring activities. We appreciate ADEC's work on establishing a network of sensor pods to extend the spatial coverage of the air quality monitoring network. We also want to highlight the work ADEC staff are doing to upgrade monitoring equipment and sites with funds from the American Rescue Plan.

We approve the following network modifications described in the 2022 ANP:

1. Addition of a PM₁₀ collocated FRM to the Juneau Floyd Dryden site (AQS-ID: 02-110-0004) in January of 2022. ADEC replaced PM_{2.5} and PM₁₀ FEM monitors with a T640X in June of 2021, triggering the requirement for a PM_{2.5} collocated FRM monitor per 40 C.F.R Part 58 Appendix A, § 3.2.3. ADEC established a collocated PM_{2.5} FRM in September of 2021. These two modifications were approved in the 2021 ANP response. Although a collocated PM₁₀ FRM monitor is not required for continuous PM₁₀ per 40 CFR Part 58 Appendix A, § 3.3.4, the collocated dataset will be useful in evaluating the T640X PM₁₀ measurements. Furthermore, documenting this modification to the monitoring network in the ANP fulfills the requirement per 40 C.F.R. § 58.14(b). ADEC and Region 10 will continue to assess the performance of the T640X PM_{2.5} and PM₁₀ measurements in comparison to the collocated FRMs.
2. Relocation of the collocated quality control PM_{2.5} FRM monitor for the BAM1020 FEM network from the Butte Harrison Court site (AQS-ID: 02-170-0008) to the Garden Anchorage Trinity Church site (AQS-ID: 02-020-0018). ADEC operates two BAM1020 FEMs as primary SLAMS monitors in their monitoring network. This triggers the requirement to collocate one PM_{2.5} FRM monitor for quality control per 40 C.F.R. Part 58 Appendix A, § 3.2.3. The relocated monitor meets this requirement. Documenting this modification to the monitoring network in the ANP fulfills the requirement per 40 C.F.R. § 58.14(b).
3. Relocation of the collocated quality control PM₁₀ FRM monitor from the Eagle River Parkgate site (AQS-ID: 02-020-1004) to the Garden Anchorage Trinity Church site (AQS-ID: 02-020-

0018). Although a collocated PM₁₀ FRM monitor is not required for continuous PM₁₀ per 40 CFR Part 58 Appendix A, § 3.3.4, the collocated dataset will be useful in evaluating the BAM1020 PM₁₀ measurements. Furthermore, documenting this modification to the monitoring network in the ANP fulfills the requirement per 40 C.F.R. § 58.14(b).

Thank you for including documentation of the following network modification approved since the 2021 ANP approval:

1. Approval of source-oriented lead (Pb) monitoring waiver for Red Dog Mine. ADEC received a 5-year waiver to conduct source-oriented Pb monitoring at Red Dog Mine in 2016 per 40 CFR Part 58 Appendix D, Section 4.5(c)(ii). ADEC submitted a request to renew this waiver in 2020. EPA requested additional analysis upon review of the waiver modeling analysis. ADEC provided the updated analysis and documentation on October 4, 2021, and an updated waiver request on November 4, 2021. EPA Region 10 approved the waiver request on December 7, 2021. Thank you for including documentation of this process, including the waiver approval, in the ANP. This waiver must be renewed every 5 years as part of the Alaska 5-year Air Monitoring Network Assessment, pursuant to 40 C.F.R. Part 58, Appendix D, Section 4.5(a)(iii).

Thank you for including details on the following network modifications completed in Alaska in the period between ANP reports (July 2021 – July 2022) that do not require EPA approval:

1. Transition to an updated data acquisition system (DAS).
2. Addition of SO₂ FEM SPM at the North Pole Hurst Rd site (AQS-ID: 02-090-0035). SO₂ measurements will help interpret the contribution of sulfate to PM_{2.5} formation in this area. Establishing an SPM does not require EPA approval per 40 C.F.R. § 58.11(c).
3. Discontinuing the Bethel PM₁₀ and PM_{2.5} SPM site (AQS-ID: 02-050-0001). Changes to SPM stations do not require EPA approval per 40 C.F.R. § 58.11(c). We appreciate the inclusion of site discontinuation details in the ANP, as well as the plan to install a sensor pod in this location in 2023.

Thank you for including details on the following network modifications planned for the next 18 months which may require approval in a future ANP:

1. Relocation of the Butte Harrison Court monitoring site (AQS-ID: 02-170-0008). Monitoring at this site includes PM_{2.5} (SLAMS) and PM₁₀ (SPM). ADEC established parallel monitoring at two candidate locations in December 2021: the Butte Elementary School Site and the Alaska Plant Materials Center Site. Comparing a year of parallel monitoring data will improve confidence in establishing a replacement site that characterizes expected maximum PM_{2.5} concentration. Please notify us of any updates related to establishing a replacement site for the Butte monitoring site.
2. Replacing the Chemical Speciation Network (CSN) samplers at the NCore site (AQS-ID: 02-090-0034). This upgrade was funded via the American Rescue Plan.
3. Expanding the low-cost sensor pod network from 17 to 29 sites. Purchase of many of these additional sensor pods was funded via the American Rescue Plan. We appreciate the proactive work ADEC is doing to expand air monitoring coverage in the state. Please keep us updated on the status of air quality monitoring in this sensor network.
4. Replacing monitoring shelters at the Butte (AQS-ID: 02-170-0008) and Juneau (AQS-ID: 02-110-0004) SLAMS sites. These upgrades were funded via the American Rescue Plan.
5. Upgrading HVAC system at the A-Street PM_{2.5} SLAMS site (AQS-ID: 02-090-0040). This upgrade was funded via the American Rescue Plan.

6. Procurement of a primary flow standard to enable calibration of mass flow controllers on-site. This upgrade, funded via the American Rescue Plan, will save ADEC the time and expense of shipping mass flow controllers to an external lab for calibration.

The only part of Alaska's ambient air monitoring network that does not currently meet the minimum monitoring requirements set out in 40 CFR Part 58 is PM₁₀ monitoring in the Anchorage MSA. The MSA currently has two PM₁₀ SLAMS sites (Garden and Parkgate) and one PM₁₀ SPM site (Butte Harrison Court). The 2021 minimum PM₁₀ monitoring requirement is for 3-4 SLAMS sites based on the MSA population and the maximum PM₁₀ concentrations (see 40 C.F.R. Part 58 Appendix D Table D-4). ADEC plans to address this by redesignating the Butte PM₁₀ site as SLAMS upon site relocation in 2023. Other than this issue, we did not find any parts of Alaska's ambient air monitoring network that did not meet the requirements of 40 C.F.R. Part 58.

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. We have also enclosed checklists for use in future ANP submissions to show compliance with the requirements of 40 C.F.R. Part 58 appendices A, B, and C.

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.

Region 10 approves the State of Alaska's 2022 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, Manager
Air Planning, State/Tribal Coordination Branch

Enclosures:

Appendix I: Annual Monitoring Network Plan Checklist

Appendix II: Checklists for 40 CFR Appendices A, B, and C.

Appendix I: Region 10 ANNUAL AIR MONITORING NETWORK PLAN CHECKLIST

Year: **2022**

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: SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations.

40 CFR 58.10(a)(1) further directs that, “The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable.” On this basis, review of the ANPs is based on the requirements listed in 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.

Key:

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 58¹	Was the information submitted?² If yes, section or page #s.	Does the information provided³ meet the requirement?⁴	Notes
GENERAL PLAN REQUIREMENTS					
1.	Submit plan by July 1 st	58.10 (a)(1)	Y	Y	Submitted to RA Sixkiller on June 28 th 2022
2.	30-day public comment / inspection period	58.10 (a)(1); 58.10 (c)	Y	Y	The submission material includes a scan of posting; one comment received.
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	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, p 6 (executive summary); Section 4: Network modifications completed in 2022; Section 5: Planned Modifications for 2023	Y	Recent modifications that do not require approval: 1. Transition to new data acquisition system (DAS): Agilaire. Acceptance testing conducted April 2022. New features: e-logbooks, asset tracking, automated data validation procedures. 2. Addition of SO2 FEM SPM at the North Pole Hurst Rd site on 3/10/2022 3. Shut down of Bethel PM SPM. Thank you for including details on this in the ANP, including the plan to deploy a sensor pod in this community, and for updating AQS with the sample period end date. Planned modifications that do not require approval:

¹ Unless otherwise noted.

² Response options: NA (Not Applicable), Yes, No, or Incomplete.

³ Assuming the information is correct.

⁴ Response options: NA (Not Applicable) – [reason], Yes, No, Insufficient to Judge, or Incorrect

					<ul style="list-style-type: none"> 1. Replacing CSN samplers at NCore 2. Upgrading HVAC at the A-St PM2.5 SLAMS site 3. Replacement sampling shelters for the Butte and Juneau SLAMS sites 4. Purchase of primary flow standard for MFC calibrations 5. Expanding low-cost sensor network from 17 sites to 29 sites.
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, p 6 (executive summary); Section 4: Network modifications completed in 2022; Section 5: Planned Modifications for 2023	Y	<ul style="list-style-type: none"> 1. Addition of PM10 collocated FRM to the Floyd Dryden Juneau site. 2. Relocation of PM2.5 BAM1020:FRM collocated monitor from Butte Harrison Ct to Anchorage Garden Trinity Church site. 3. Relocation of PM10 BAM1020:FRM collocated monitor from Eagle River Parkgate to Anchorage Garden Trinity Church site.
6.	Does plan include documentation (e.g., attached approval letter) for system modifications that have been approved since last ANP approval?	N/A	Y; Section 3.5.3; Appendix C	Y	Red Dog mine monitoring waiver approved between ANPs
7.	Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal	58.10 (b)(5)	Y, p 6 (executive summary)	Y	Planning to relocate Butte site. DEC is in the process of conducting parallel monitoring at two candidate locations.
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. ⁵	58.11 (a)(2)	Y, Section 3.3: Siting Criteria	Y	Thank you for adding this statement to the ANP.
9.	SPMs operating FRM/FEM/ ARM monitors for over 24 months are listed as comparable to the NAAQS or the agency provided documentation that	58.20 (c)	Y, Table E-1	Y	Laurel: PM10 SPM because it is a micro-scale site, as per maintenance plan for MOA road dust issues.

⁵ Alternatives to the requirements of appendix A may be approved for an SPM site as part of the approval of the annual monitoring plan, or separately.

	requirements from Appendices A, C, or E were not met. ⁶				Butte: set up in 1998 as an SPM. We should follow up on this after the re-siting.
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		ADEC does not share monitoring responsibilities

GENERAL PARTICULATE MONITORING REQUIREMENTS (PM₁₀, PM_{2.5}, Pb-TSP, Pb-PM₁₀)

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, p 14	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		The only change in the PM2.5 monitoring network relates to the Butte site, which is not violating.
14.	Identification of any PM _{2.5} FEMs and/or ARMs 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 <u>NAAQS</u> -comparable monitor at the required sample frequency.]	58.10 (b)(13) 58.11 (e)	N/A	N/A	ADEC did not identify any PM2.5 FEMs not eligible for comparison to the NAAQS due to poor comparability with the FRM. However, R10 will work with ADEC to monitor the performance of the T640X FEM in Juneau.
15.	Minimum # of monitoring sites for PM _{2.5} [Note 1: should be supported by MSA ID, MSA population, DV, # monitoring sites,	App. D 4.7.1(a) and Table D-5	Yes, Section 3.1: Minimum monitoring	Y	ADEC's PM2.5 monitoring network exceeds the minimum monitoring requirements.

⁶ This requirement only applies to monitors that are eligible for comparison to the NAAQS per 40 CFR §§58.11(e) and 58.30.

	and # required monitoring sites] [Note 2: Only monitors considered to be required SLAMs are eligible to be counted towards meeting minimum monitoring requirements.]		requirements; Table 3-2, Table A-1.		
16.	Requirements for continuous PM _{2.5} monitoring (number of monitors and collocation)	App. D 4.7.2	Y; Table 3-15, Table D-1	Y	
17.	FRM/FEM/ ARM PM _{2.5} QA collocation	App. A 3.2.3	Y, Table 3-15	Y	Thank you for adding the collocated FRM to the Juneau site.
18.	PM _{2.5} Chemical Speciation requirements for official STN sites	App. D 4.7.4	Y, Table D-1	Y	CSN is collocated with NCore
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	Y	
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	All primary FRM are 1:1 (NCore, A-Street, and North Pole)

PM₁₀ -SPECIFIC MONITORING REQUIREMENTS

25.	Minimum # of monitoring sites for PM ₁₀ [Note: Only monitors considered to be required SLAMs are eligible to be counted towards meeting minimum monitoring requirements.]	App. D, 4.6 (a) and Table D-4	Y: Tables 3-2; 3-7; 3-11; Table D-2	Unclear	Anchorage's 2021 min mon requirement is 3-4 for PM10. Laurel, Garden, Parkgate/Eagle River, and Butte all measure PM10 in the
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					<p>Anchorage MSA, but Laurel and Butte are SPMs.</p> <p>ADEC plans to redesignate the Butte PM10 monitor as a SLAMS when the site is relocated.</p> <p>Table D-2 states there are 4 PM10 sites in the Anchorage MSA, but says one is collocated and 1 is an SPM. Unclear what is meant. Please update this table in next year's ANP.</p>
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	We should revisit this; as continuous PM10 does not require QA collocation, ADEC may be able to discontinue collocated PM10 if they wish.
27.	Sampling schedule for PM ₁₀	58.10 (b)(4); 58.12(e); App. D 4.6	Y; tables 3-7, 3-8, 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, Section 3.5.3, Waiver C-3	Y	Thank you for including the Red Dog Mine waiver information
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, App C, C-3	Y	
31.	Any Pb monitor for which a waiver has been requested or granted by EPA Regional Administrator for use of Pb-PM ₁₀ in lieu of Pb-TSP	58.10 (b)(11)	N/A		AK does not have any Pb monitoring requirements
32.	Designation of any Pb monitors as either source-oriented or non-source-oriented	58.10 (b)(9)	N/A		AK does not have any Pb monitoring requirements

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		AK does not have any Pb monitoring requirements
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O₃ -SPECIFIC MONITORING REQUIREMENTS					
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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, 3-6	Y	O ₃ monitoring waiver for Anchorage: waiver expires at the end of 2023; no action is needed now but we're thinking ahead to the 2023 ANP where a waiver renewal request should be resubmitted. The EPA planning team does not foresee an issue with renewing the waiver with similar claw-back language. O ₃ monitoring at the Denali NP site supports this.
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	
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		

NO₂ -SPECIFIC MONITORING REQUIREMENTS					
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38.	Minimum monitoring requirements for area-wide NO ₂ monitor in location of	App D 4.3.3	N/A		This requirement does not apply to Alaska, as the state does not have any CBSAs with populations >1,000,000
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	expected highest NO ₂ concentrations representing neighborhood or larger scale				
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		AK does not have any CBSAs with populations >2.5M
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		

SO₂ -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 A-5	Incomplete	AK does not have any CBSAs with a Pop weighted EI >5,000. Table A-5, Sub-Table 1 should be updated with current census population values and 2017 NEI SO₂ values.
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NCORE -SPECIFIC MONITORING REQUIREMENTS					
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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. NO _y waiver, if applicable.	App. D 3(b)	Y; Table 3-8	Y	
51.	A plan for making Photochemical Assessment Monitoring Stations (PAMS) measurements, if applicable. The plan shall provide for the required PAMS measurements to begin by June 1, 2021.	58.10 (a)(10); 58.13 (h)	N/A		AK is not required to have a PAMS site since the State does not have any CSBAs with Pop greater than or equal to 1,000,000.

SITE OR MONITOR - SPECIFIC REQUIREMENTS (OFTEN INCLUDED IN DETAILED SITE INFORMATION TABLES)					
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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	Y, Tables 3-7, 3-8, 3-9	Y	

		collocation) are met			
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	ADEC uses the terms "Monitoring Purpose" and "Monitoring Objective" differently than the CFR. ADEC may find it more straightforward to keep using the terms in a way that is consistent with their previous reports, but I will continue to note the difference from the CFR here.
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 3-10, 3-11, 3-12, 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; Tables 3-7, 3-8, 3-9, 3-11	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	The A-St site is neighborhood scale but <15 m from the nearest road. ADEC should consider requesting a waiver for the site.
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	N	The NO _y probe height does not meet siting criteria. ADEC should consider requesting a waiver for the site.
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 and vertical height of the obstruction above the probe should be provided)	App E 4(b)	Y, Tables E-1, E-2, E3	Y	
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	Butte does not meet groundcover or spacing from trees, but it is in the process of getting relocated
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

- The ADEC ANP terms this “Monitoring Purpose”
- **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
 - The ADEC ANP terms this “AQS Monitoring Objective”
- **Spatial Scale**
- **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
 - ADEC ANP refers to SLAMS/SPM/NCore status as “monitor designation”
 - The ADEC ANP does not explicitly specify which monitors are FRM/FEM beyond providing the method cod

Appendix II: Annual Network Plan Checklists for 40 CFR 58 Appendices A, B, and C

PART 58 APPENDIX A				
QUALITY ASSURANCE REQUIREMENTS FOR MONITORS USED IN EVALUATIONS OF NATIONAL AMBIENT AIR QUALITY STANDARDS				
STATE _____ AGENCY _____ AQS AGENCY CODE _____				
EVALUATION DATE _____ EVALUATOR _____				
APPLICABLE SECTION	REQUIREMENT	CRITERIA MET?		
		YES	NO	N/A
2.1	All PQAOs must develop a quality system that is described and approved in quality management plans (QMP) and QAPPs. Are approved QMPs/QAPPs in place?			
2.2	Each PQAo has an independent quality assurance management function.			
2.3	Measurement uncertainty of all criteria pollutant monitoring data are acceptable per the data quality objectives.			
2.6	Gaseous and flow rate audit standards used are traceable to NIST or another acceptable standard.			
3.1	All measurement quality check requirements for gaseous monitors of SO ₂ , NO ₂ , O ₃ , and CO were conducted per the methods and schedule set out in subsections 3.1.1 – 3.1.3			
3.2, 3.3, 3.4	PM _{2.5} , PM ₁₀ , and Pb flow rate verifications, flow rate audits, and collocated sampling were conducted per the methods and schedule set out in subsections to 3.2, 3.3, and 3.4			
3.2.3	PM monitor collocation: collocated monitors >= 15% of total monitors of each method designation and designation of a primary monitor if there is more than one monitor for a pollutant at a site			
3.2.3.4(c) and 3.3.4.2 (c)	All collocated QA monitors have the correct separation distance. For low volume PM instruments (flow rate < 200 liters/minute) > 1 m. For high volume PM instruments (flow rate > 200 liters/minute) > 2m.			
Comments:				

PART 58 APPENDIX B

QUALITY ASSURANCE REQUIREMENTS FOR PREVENTION OF SIGNIFICANT DETERIORATION (PSD) AIR MONITORING

STATE _____ AGENCY _____ AQS AGENCY CODE _____

EVALUATION DATE _____ EVALUATOR _____

APPLICABLE SECTION	REQUIREMENT	CRITERIA MET?		
		YES	NO	N/A
2.1	All Prevention of Significant Deterioration (PSD) PQAOs must develop a quality system that is described and approved in quality assurance project plans (QAPPs) that undergo approval.			
2.2	Each PSD PQAQO has an independent quality assurance management function.			
2.3	Measurement uncertainty of all criteria pollutant monitoring data are acceptable per the data quality objectives.			
2.6	Gaseous and flow rate audit standards used are traceable to NIST or another acceptable standard.			
3.1	All measurement quality check requirements for gaseous monitors of SO ₂ , NO ₂ , O ₃ , and CO were conducted per the methods and schedule set out in subsections 3.1.1 – 3.1.3 and Table B-1.			
3.2, 3.3, 3.4	PM _{2.5} , PM ₁₀ , and Pb flow rate verifications, flow rate audits, and collocated sampling were conducted per the methods and schedule set out in subsections to 3.2, 3.3, and 3.4 and Table B-1.			

Comments:

PART 58 APPENDIX C
AMBIENT AIR QUALITY MONITORING METHODOLOGY

STATE _____ AGENCY _____ AQS AGENCY CODE _____
 EVALUATION DATE _____ EVALUATOR _____

APPLICABLE SECTION	REQUIREMENT	CRITERIA MET?		
		YES	NO	N/A
2.1	Critical pollutant monitoring methods used for making NAAQS decisions at SLAMS sites must be reference or equivalent methods as defined in 40 CFR §50.1; OR have approve regional method (ARM) status.			
2.8	The FRM, FEM, or ARM monitors in the SLAMS network may not be modified in a manner that could significantly alter the performance characteristics of the method without prior approval by the Administrator.			
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 as defined in §50.1 of this chapter, or an ARM as defined in section 2.4 of this appendix, for any monitors intended for comparison with applicable NAAQS.			
3.2	If alternative SO ₂ , CO, NO ₂ , O ₃ , PM _{2.5} , or PM _{10-2.5} monitoring methodologies are proposed for monitors not intended for NAAQS comparison (e.g. rural background or transport sites), such techniques must be detailed in the network description required by §58.10 and subsequently approved by the Administrator.			
4.1	Methods used for O ₃ monitoring at PAMS must be automated reference or equivalent methods as defined in §50.1 of this chapter.			
4.2	Methods used for NO, NO ₂ and NO _X monitoring at PAMS should be automated reference or equivalent methods as defined for NO ₂ in 40 CFR §50.1. If alternative NO, NO ₂ or NO _X monitoring methodologies are proposed, such techniques must be detailed in the network description required by §58.10 and subsequently approved by the Administrator.			
4.3	Methods for meteorological measurements and speciated VOC monitoring are included in the guidance provided in references 2 and 3 of Appendix C. If alternative VOC monitoring methodology (including the use of new or innovative technologies), which is not included in the guidance, is proposed, it must be detailed in the network description required by §58.10 and subsequently approved by the Administrator.			

Comments:

