

# Appendices

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# Appendix 13. EPA Letter approving Ecology's 2020 Annual Network Report



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 Sixth Avenue, Suite 155  
Seattle, WA 98101-3123

AIR & RADIATION  
DIVISION

March 24, 2022

Ms. Jill Schulte  
Ambient Air Monitoring Coordinator  
Department of Ecology  
State of Washington  
P.O. Box 47600  
Olympia, Washington 98504-7600

Dear Ms. Schulte:

The U.S. Environmental Protection Agency, Region 10 evaluated the Washington Department of Ecology's 2020 Annual Monitoring Network Plan (ANP) received June 2021. This letter documents our findings and provides suggestions for continued improvement to Washington's monitoring network and ANP reports.

We appreciate the detail with which Ecology has documented the network modifications, as well as the hard work Ecology staff has put into maintaining the monitoring network with the additional challenges stemming from the COVID-19 pandemic. We also appreciate the documentation of the PM<sub>10</sub> monitoring waivers in Appendix B for the Yakima metropolitan statistical area (MSA) and the Kennewick-Richland MSA. Appendix B also includes documentation of the waiver request approval for the Seattle-Tacoma-Bellevue MSA in the 2019 ANP approval letter. We remind Ecology that these waivers will need to be reaffirmed every five years.

Thank you for including the Memorandum of Understanding (MOU) between Ecology and the Oregon Department of Environmental Quality (ODEQ) as Appendix E and including references to this MOU as appropriate in the ANP. This MOU formally establishes that the minimum monitoring requirements for the Portland-Vancouver-Hillsboro Metropolitan Statistical Area (MSA) are jointly met by the two agencies (see 40 CFR Part 58, Appendix D Section 2(e)). This MOU was approved by Region 10 in 2019 and is valid through 2024. EPA requests that Ecology and ODEQ review and reaffirm this MOU periodically and renew the request from Region 10 to waive full monitoring requirements by Ecology for this MSA every five years.

Thank you for including details on the following network modifications completed in Washington in the period between ANP reports (July 2020 – July 2021):

1. Relocating the primary and collocated PM<sub>2.5</sub> FRM samplers from the Tacoma-L. St site (AQS ID: 53-053-0029) to the Seattle-Duwamish site (AQS ID: 53-033-0057). Moving these samplers is acceptable because the Tacoma L-St SLAMS site retains an FEM monitor (BAM-1020, AQS method code: 170) for the PM<sub>2.5</sub> design value. Thus, moving the PM<sub>2.5</sub> FRM samplers did not constitute a SLAMS monitor station discontinuation (40 CFR § 58.14(c)). Collocation requirements under 40 CFR Part 58, Appendix A, Section 3.2.3 continue to be met by operating an FEM of the same method designation (170) at the Seattle-Duwamish site. This modification was approved in the 2020 ANP response letter.

2. Reducing the sampling frequency of the primary FRM located at the Seattle-Duwamish site to 1-in-6. This change meets the criteria of 40 CFR § 58.12(d)(ii). The collocated FEM sampler's daily values are used as creditable samples on the remaining 5 days and contribute to the combined site record. This modification was approved in the 2020 ANP response letter.
3. Relocation of the PM<sub>2.5</sub> and PM<sub>10</sub> Spokane-Augusta site (AQS ID 53-063-0021) with the E Broadway Ave site (AQS ID 53-063-0017). This relocation is allowable per 40 CFR § 58.14(c)(6) as it is a nearby location (~5 miles) with the same scale of representation. We appreciate the detailed comparison of the observed PM<sub>2.5</sub> concentrations at these two sites. This modification was approved in the 2020 ANP response letter.  
EPA understands that Ecology would prefer to treat the original and relocated sites as separate sites in AQS, that is, not to pursue a combined design value (meeting with Sarah Waldo and Jill Schulte, January 13, 2021). We agree with this decision. The E. Broadway Ave PM<sub>2.5</sub> SLAMS monitoring started on January 1, 2021, and Ecology anticipates the 2023 PM<sub>2.5</sub> design value data will be complete and valid.
4. Addition of a Photochemical Assessment Monitoring Station (PAMS) to the Seattle-Beacon Hill NCore site (AQS-ID: 53-033-0080). This site meets the requirements set out in 40 CFR Part 58 Appendix D, Section 5(a) for NCore sites located in CBSAs with populations greater than one million. Ecology met the deadline of June 1, 2021 for establishing monitoring for all PAMS parameters except hourly speciated VOCs, due to vendor delays. Ecology has confirmed that VOC sampling with the automated gas chromatograph started on September 27, 2021.
5. Temporary relocation of the Vancouver-Blairmont ozone (O<sub>3</sub>) monitoring site (AQS-ID: 53-011-0011). As the original location, temporary location, and future permanent location are all within 200 m of each other on the same property, we approve this modification per 40 CFR § 58.14(c)(6). Please keep us updated on the status of the final move to the permanent location, which the ANP stated is estimated for spring 2022.

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

1. Addition of a second near-road NO<sub>2</sub> site in the Portland-Vancouver-Hillsboro OR-WA MSA. A population increase to over 2.5 million people in the MSA triggers the requirement for this second site. We understand both Ecology and ODEQ are waiting on the official 2020 Census results to formally start the planning process. These results should be available in March 2022 (see <https://www.census.gov/programs-surveys/popest/about/schedule.html>). We appreciate Ecology working closely with ODEQ on selecting an appropriate site.

We approve the following planned network modifications laid out in the ANP:

1. Addition of the Cheyney-Turnbull PM<sub>10</sub> SLAMS monitoring site (AQS ID: 53-063-0001) by October 1, 2021. This site completes Washington's PM<sub>10</sub> monitoring waiver requirements for the Spokane-Spokane Valley MSA, as outlined in the 2019 ANP response. The considerations around adding this site were discussed in the 2020 ANP response. Ecology has confirmed that the PM<sub>10</sub> SLAMS monitoring started on October 1, 2021.
2. Redesignation of the Auburn site (AQS ID: 53-033-0047) PM<sub>2.5</sub> monitor from SLAMS to SPM. Renovation at the school where the monitor was previously sited constituted a logistical problem beyond the State's control. Suspension of the Auburn M-St site awaiting relocation was approved in the 2020 ANP response per 40 CFR § 58.14(c)(6). Puget Sound Clean Air Agency (PSCAA) identified a replacement site, but it did not meet the siting criteria of 40 CFR Part 58,

Appendix E due to nearby trees. In the 2021 ANP, Ecology requested discontinuing the PM<sub>2.5</sub> SLAMS monitor at the site and running a non-FEM nephelometer as an SPM.

A change in the designation of a monitoring site from SLAMS to SPM requires approval of the Regional Administrator per 40 CFR § 58.11(c). We approve this change in designation based on the evidence to support approving discontinuation of the Auburn SLAMS site. 40 CFR § 58.20(a), indicates an existing site may be redesignated from SLAMS to SPM if the Regional Administrator has approved the discontinuation of a monitor as a SLAMS site.

EPA may approve discontinuation of a site on a case-by-case basis under 40 CFR § 58.14(c) if discontinuance does not compromise data collection needed for implementation of a NAAQS and if the requirements of 40 CFR Part 58, Appendix D continue to be met. EPA believes that the 16 months of available monitoring data support discontinuation of the site on this basis. First, the site's 98<sup>th</sup> percentile PM<sub>2.5</sub> value and annual mean PM<sub>2.5</sub> value in 2019 were the lowest of the nine PM<sub>2.5</sub> SLAMS sites in the Seattle-Tacoma-Bellevue MSA, meaning removal of this site will not compromise necessary data collection. Additionally, the eight other PM<sub>2.5</sub> SLAMS sites fulfill the requirements in 40 CFR Part 58, Appendix D.

Ecology relied on 40 CFR § 58.14(c)(4) in its rationale for discontinuing the monitor (i.e., that the SLAMS monitor was not eligible for comparison to the relevant NAAQS because it did not meet siting criteria). We disagree with using this section in this case, as the site was selected by Ecology for relocation.

We identified the following monitoring network deficiencies:

1. Suspension of ozone (O<sub>3</sub>) SLAMS monitoring at Yelm-Northern Pacific (AQS-ID: 53-067-0005). As described in the ANP, construction near the site prevented operation during the 2021 O<sub>3</sub> season, and no suitable area for relocation was available. Any modification to the SLAMS network must be approved by the Regional Administrator (40 CFR § 58.14 (b)). This modification due to a logistical issue outside of the state's control should have been requested by Ecology and approved by R10 outside of the ANP e.g. via a letter. This is because the Washington O<sub>3</sub> monitoring season starts on May 1<sup>st</sup>, but the ANP was submitted July 1<sup>st</sup>. Ecology and R10 will work together to resolve time-sensitive requests for modification to the monitoring network outside of the ANP process as needed in the future.
2. Suspension of O<sub>3</sub> SLAMS monitoring at Issaquah-Lake Sammamish (AQS-ID: 53-033-0010). As described in the ANP, Ecology did not have the capacity to maintain all SLAMS sites during the O<sub>3</sub> season due to staffing shortages. These staffing shortages were due to Ecology's hiring freeze in response to the COVID-19 pandemic. This does not constitute a logistical issue outside the state's control. Furthermore, in the memo "Ambient Air Monitoring Programs Continuity of Operations Associated with the COVID-19 Response" from March 18, 2020, ambient air monitoring programs were classified as a mission essential function. We want to emphasize that state agencies may not unilaterally discontinue monitoring at a SLAMS site without Regional approval (40 CFR § 58.14(b)), and encourage Ecology to consult with us as operational issues arise. We understand Ecology plans to resume O<sub>3</sub> monitoring at this site during the 2022 O<sub>3</sub> season.

Other than the outstanding issue with O<sub>3</sub> monitoring at the Yelm-Northern Pacific and Issaquah-Lake Sammamish monitoring sites, we did not identify any part of Washington's ambient air monitoring network that does not meet the minimum monitoring requirements set out in 40 CFR 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. 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 CFR § 58.10 and the associated appendices of 40 CFR Part 58. 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 Washington's 2021 ANP. Region 10 appreciates the timeliness and detail provided in the ANP. 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,

Suzuki,  
Debra



Digitally signed by Suzuki, Debra  
Date: 2022.03.24 10:39:26 -0700

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

**Region 10 ANNUAL AIR MONITORING NETWORK PLAN CHECKLIST**

Year: 2021

Agency: Washington State Department of Ecology

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, 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	Incorrectly reported, or item requires attention to improve next year's plan

	ANP requirement	Citation within 40 CFR 58 <sup>1</sup>	Was the information submitted? <sup>2</sup> If yes, section or page #s.	Does the information provided <sup>3</sup> meet the requirement? <sup>4</sup>	Notes
<b>GENERAL PLAN REQUIREMENTS</b>					
1.	Submit plan by July 1 <sup>st</sup>	58.10 (a)(1)	Y	Y	Submitted on June 30, 2021
2.	30-day public comment / inspection period	58.10 (a)(1); 58.10 (c)	Y; ANP App F	Y	Posted for comment from May 17, 2021 - June 16, 2021
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; pg 16; ANP App D	Y	Thank you for adding this information to the ANP
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, pages 1-4	Y	<p>We do not approve the following network modifications:</p> <p>1) Suspension of the Issaquah O<sub>3</sub> monitor.</p> <p>2) Suspension of the Yelm-Northern Pacific O<sub>3</sub> monitor</p> <p>The following planned network modifications do NOT require regional approval:</p> <p>1) Relocation of the SPM nephelometer from Twisp-Glover St. to Twisp-Ewell St.</p> <p>2) Establishment of a SPM nephelometer at Newport-Calispel.</p> <p>3) Establishment of a SPM nephelometer at Auburn 29th St.</p> <p>4) Discontinuation of Tacoma-Tower Dr Met.</p>

<sup>1</sup> Unless otherwise noted.

<sup>2</sup> Response options: NA (Not Applicable), Yes, No, or Incomplete.

<sup>3</sup> Assuming the information is correct.

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

					<p>5) Suspension of North Bend-North Bend Way Met.</p> <p>6) Temporarily suspending meteorological monitoring from the Vancouver-Blairmont site from May 2020 - April 2022.</p> <p>7) Suspension of Met. monitoring at White Swan.</p>
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; pages 2-5	Y	<p>We approve all the following planned network modifications laid out in the ANP:</p> <ol style="list-style-type: none"> <li>1. Discontinuing the Auburn SLAMS site.</li> <li>2. Addition of PM10 SLAMS site at Cheny-Turnbull (approved 2020 ANP, COVID delayed to 2021)</li> <li>3. Establishment of PAMS monitoring at the NCore site. (Delayed ~ 1 month due to COVID)</li> <li>4. Discontinuation of Nephelometer at Tukwila - Allentown and replacement with FEM BAM.</li> <li>5. Temporary onsite relocation of Vancouver -Blairmont (with in 200m)</li> </ol>
6.	Does plan include documentation (e.g., attached approval letter) for system modifications that have been approved since last ANP approval?	N/A	N/A		There were not any system modifications that required approval since the 2020 ANP
7.	Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal	58.10 (b)(5)	Y; pages 2-5, ANP App D tables	Insufficient	The information provided was not sufficient for discontinuing the Auburn SLAMS site.
8.	Statement that SPMs operating an FRM/FEM/ARM that meet Appendix E also meet either Appendix A or an approved alternative. Documentation for	58.11 (a)(2)	Y; Introduction and App D tables	Y	Thank you for adding this information to the ANP



	any Appendix A approved alternative should be included. <sup>5</sup>				
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. <sup>6</sup>	58.20 (c)	Y; ANP App D tables	Y	WDOE redesignates SPM sites that run for over 24 months as SLAMS
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)	Y; ANP App E	Y	WDOE has an MOU with ODEQ for the Portland-Vancouver-Hillsboro MSA
<b>GENERAL PARTICULATE MONITORING REQUIREMENTS (PM<sub>10</sub>, PM<sub>2.5</sub>, Pb-TSP, Pb-PM<sub>10</sub>)</b>					
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 10, ANP App D tables	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	Y	Seattle Beacon Hill listed as 4.5 with no units.
<b>PM<sub>2.5</sub>-SPECIFIC MONITORING REQUIREMENTS</b>					
13.	Document how states and local agencies provide for the review of changes to a PM <sub>2.5</sub> monitoring network that impact the location of a violating PM <sub>2.5</sub> monitor.	58.10 (c)	N/A	N/A	No changes to PM <sub>2.5</sub> monitoring network that impact the location of a violating PM <sub>2.5</sub> monitor
14.	Identification of any PM <sub>2.5</sub> 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 <sub>2.5</sub> with NAAQS-	58.10 (b)(13) 58.11 (e)	Y; App D tables	Y	

<sup>5</sup> 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.

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

	comparable monitor at the required sample frequency.]				
15.	Minimum # of monitoring sites for PM <sub>2.5</sub> [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; Table 11	Y	
16.	Requirements for continuous PM <sub>2.5</sub> monitoring (number of monitors and collocation)	App. D 4.7.2	Y; Tables 10, 11, 12, and 14	Y	
17.	FRM/FEM/ARM PM <sub>2.5</sub> QA collocation	App. A 3.2.3	Y; Table 12	Y	
18.	PM <sub>2.5</sub> Chemical Speciation requirements for official STN sites	App. D 4.7.4	Y; Table 18	Y	WA has 1 STN site at Beacon Hill, three supplemental CSN sites, and two special study sites.
19.	Identification of sites suitable and sites not suitable for comparison to the annual PM <sub>2.5</sub> NAAQS as described in Part 58.30	58.10 (b)(7)	Y; ANP App. D tables	Y	
20.	Required PM <sub>2.5</sub> sites represent area-wide air quality	App. D 4.7.1(b)	Y; Table 10	Y	The majority of WA PM <sub>2.5</sub> monitoring sites operate at the neighborhood scale
21.	For PM <sub>2.5</sub> , 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; ANP App D tables	Y	
22.	If additional SLAMs PM <sub>2.5</sub> is required, there is a site in an area of poor air quality	App. D 4.7.1(b)(3)	Y; Table 10, ANP App D	Y	
23.	States must have at least one PM <sub>2.5</sub> regional background and one PM <sub>2.5</sub> regional transport site.	App. D 4.7.3	Y; Table 10; ANP App D	Y	Cheeka Peak and Beacon Hill monitor background PM <sub>2.5</sub> with FRM/FEM monitors. Moses Lake SLAMs is the transport site. The CFR specifies that background and transport sites may use non-FEM monitors.  Thanks for differentiating between background and transport sites.
24.	Sampling schedule for PM <sub>2.5</sub> - applies to year-round and seasonal sampling	58.10 (b)(4); 58.12(d);	Y; ANP App D	Y	

	schedules (note: date of waiver approval must be included if the sampling season deviates from requirement)	App. D 4.7			
<b>PM<sub>10</sub> -SPECIFIC MONITORING REQUIREMENTS</b>					
25.	Minimum # of monitoring sites for PM <sub>10</sub> [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; Table 16, App B	N	WA has waivers for PM10 monitoring in the MSAs: Seattle-Tacoma-Bellevue, Yakima, and Spokane-Spokane Valley. App B of the ANP includes excerpts of the pertinent part of these waivers. In future ANPs, please include the complete waiver document, so that dates and signatures are documented.  Cheyney-Turnbull status: operational as of Oct 1, 2021.
26.	Manual PM <sub>10</sub> method collocation (note: continuous PM <sub>10</sub> does not have this requirement)	App. A 3.3.4	N/A		WA does not operate any manual PM10 samplers.
27.	Sampling schedule for PM <sub>10</sub>	58.10 (b)(4); 58.12(e); App. D 4.6	N/A		All WA PM10 samplers are continuous.
<b>Pb -SPECIFIC MONITORING REQUIREMENTS</b>					
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	N/A		WA does not operate any non-NCORE Pb monitoring
29.	Pb collocation: for non-NCORE sites	App A 3.4.4 and 3.4.5	N/A		
30.	Any source-oriented Pb site for which a waiver has been granted by EPA Regional Administrator	58.10 (b)(10)	Y; ANP App B	Y	DOE has a waiver for lead monitoring at the only source above the 0.5 tpy threshold in the state.
31.	Any Pb monitor for which a waiver has been requested or granted by EPA Regional Administrator for use of Pb-PM <sub>10</sub> in lieu of Pb-TSP	58.10 (b)(11)	N/A		

32.	Designation of any Pb monitors as either source-oriented or non-source-oriented	58.10 (b)(9)	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		
<b>O<sub>3</sub> -SPECIFIC MONITORING REQUIREMENTS</b>					
34.	Minimum # of monitoring sites for O <sub>3</sub> [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 8	Y	
35.	Identification of maximum concentration O <sub>3</sub> site(s)	App D 4.1 (b)	N; see Table 24	N	Thank you for identifying the max concentration sites
36.	Sampling season for O <sub>3</sub> (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; ANP App D Tables	Y	
37.	An Enhanced Monitoring Plan for O <sub>3</sub> , 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 <sub>3</sub> nonattainment, whichever is later.	58.10 (a)(11); App D 5 (h)	N/A		
<b>NO<sub>2</sub> -SPECIFIC MONITORING REQUIREMENTS</b>					

38.	Minimum monitoring requirements for area-wide NO <sub>2</sub> monitor in location of expected highest NO <sub>2</sub> concentrations representing neighborhood or larger scale	App D 4.3.3	Y; Table 6	Y	
39.	Identification of required NO <sub>2</sub> monitors as either near-road, or area-wide	58.10 (b)(12)	Y; Table 6	Y	
<b>NEAR ROADWAY - SPECIFIC MONITORING REQUIREMENTS</b>					
In CBSAs ≥ 2.5 million, the following near-roadway minimum monitoring requirements apply:					
40.	Two NO <sub>2</sub> monitors	App. D 4.3.2(a); 58.13(c)(3) and (4)	Y; Table 6	Y	Thank you for stating your intentions to work with ODEQ to find a suitable second near-road site. We look forward to collaborating on this with you.
41.	One CO monitor	App. D 4.2.1(a); 58.13(e)(2)	Y; Table 5	Y	
42.	One PM <sub>2.5</sub> monitor	App. D 4.7.1(b)(2); 58.13(f)(2)	Y; Table 10	Y	
In CBSAs ≥ 1 million and AADT ≥ 250K, the following near-roadway minimum monitoring requirements apply:					
43.	Two NO <sub>2</sub> monitors	App. D 4.3.2(a); 58.13(c)(3) and (4)	N/A		Additional NO <sub>2</sub> monitor will be needed in Vancouver-Portland MSA.
44.	One CO monitor	App. D 4.2.1(a); 58.13(e)(2)	N/A		
45.	One PM <sub>2.5</sub> 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 <sub>2</sub> 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 <sub>2.5</sub> monitor	App. D 4.7.1(b)(2);	N/A		

		58.13(f)(2)			
<b>SO<sub>2</sub> -SPECIFIC MONITORING REQUIREMENTS</b>					
49.	Minimum monitoring requirements for SO <sub>2</sub> 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; page 23	Y	
<b>NCORE -SPECIFIC MONITORING REQUIREMENTS</b>					
50.	NCORE site and all required parameters operational: year-round O <sub>3</sub> , SO <sub>2</sub> , CO, NO <sub>y</sub> , NO, PM <sub>2.5</sub> mass, PM <sub>2.5</sub> continuous, PM <sub>2.5</sub> speciation, PM <sub>10-2.5</sub> mass, resultant wind speed at 10m, resultant wind direction at 10m, ambient temperature, relative humidity, NO <sub>y</sub> waiver, if applicable.	App. D 3(b)	Y; Table 20	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)	Y; p 42-43, Table 21	Y	
<b>SITE OR MONITOR - SPECIFIC REQUIREMENTS (OFTEN INCLUDED IN DETAILED SITE INFORMATION TABLES)</b>					
52.	AQS site identification number for each site	58.10 (b)(1)	Y; Table 4, ANP App D tables	Y	
53.	Location of each site: street address and geographic coordinates	58.10 (b)(2)	Y; ANP App D tables	Y	
54.	MSA, CBSA, CSA or other area represented by the monitor	58.10 (b)(8)	Y; ANP App D tables	Y	
55.	Parameter occurrence code (POC) for each monitor	Needed to determine if other requirements	Y; ANP App D tables	Y	

		(e.g., min # and collocation) are met			
56.	Basic monitoring objective for each monitor	App D 1.1; 58.10 (b)(6)	Y; ANP App D tables	Y	
57.	Site type (designation) for each monitor (e.g. SLAMS, SPM)	App D 1.1.1	Y; multiple places including Table 4, App D Tables	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; ANP App D tables	Y	
59.	Scale of representativeness for each monitor as defined in Appendix D	58.10(b)(6); App D	Y; multiple places including ANP App D tables	Y	
60.	Parameter code for each monitor	Needed to determine if other requirements (e.g., min # and collocation) are met	Y; ANP App D tables	Y	
61.	Method code and description (e.g., manufacturer & model) for each monitor	58.10 (b)(3); App C 2.4.1.2	Y; ANP App D tables	Y	
62.	Sampling start date for each monitor	Needed to determine if other requirements (e.g., min # and collocation) are met	Y; ANP App D tables	Y	
63.	Distance of monitor from nearest road	App E 6	Y; ANP App D tables	Y	
64.	Traffic count of nearest road	App E	Y; ANP App D tables	Y	

65.	Groundcover	App E 3(a)	Y; ANP App D tables	Y	
66.	Probe height	App E 2	Y; ANP App D tables	Y	
67.	Distance from supporting structure (vertical and horizontal, if applicable, should be provided)	App E 2	Y; ANP App D tables	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; ANP App D tables	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; ANP App D tables	Y	
70.	Distance from the drip line of closest tree(s)	App E 5	Y; ANP App D tables	Y	
71.	Distance to furnace or incinerator flue	App E 3(b)	Y; ANP App D tables	Y	
72.	Unrestricted airflow (expressed as degrees around probe/inlet or percentage of monitoring path)	App E, 4(a) and 4(b)	Y; ANP App D tables	Y	
73.	Probe material (NO/NO <sub>2</sub> /NO <sub>y</sub> , SO <sub>2</sub> , O <sub>3</sub> ; For PAMS: VOCs, Carbonyls)	App E 9	Y; ANP App D tables	Y	
74.	Residence time (NO/NO <sub>2</sub> /NO <sub>y</sub> , SO <sub>2</sub> , O <sub>3</sub> ; For PAMS: VOCs, Carbonyls)	App E 9	Y; ANP App D tables	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
  - o 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
  - o 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
  - o ADEC ANP refers to SLAMS/SPM/NCore status as "monitor designation"
  - o The ADEC ANP does not explicitly specify which monitors are FRM/FEM beyond providing the method code