CASTNET 2015 Annual Network Plan

Response to Comments

Clean Air Markets Division

Office of Atmospheric Programs

US Environmental Protection Agency

June 30, 2015

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1. **Comments in regard to the CASTNET sites Beltsville, MD (BEL116) and Blackwater National Wildlife Reserve, MD (BWR139).**

Commenter: Colleen Williams, Ambient Air Monitoring Program, Maryland Department of the Environment (MDE).

Date received: May 7, 2015

Comment 1. *I looked at the draft plan, and I'm writing to ask you a question about the latitude/longitude you have listed. Can you tell me what GPS coordinate system you are using: WGS84 or NAD83, or some other system? For the Maryland CASNET sites at Beltsville and Blackwater NWR, we have horizontal data that are slightly different from those listed in your report.*

Response 1. CASTNET uses the WGS84 coordinate system. The most current latitude and longitude coordinates are included in the final 2015 CASTNET Annual Network Plan.

2. **Comments on the CASTNET factsheet URL and OAQPS' AMTIC webpage.**

Commenter: Richard Marriner, Bureau of Air Quality, Maine Department of Environmental Protection (MEDEP).

Date received: June 3, 2015

Comment 1. *1. Network Overview - Paragraph 1: Broken link at http://epa.gov/castnet/javaweb/docs/CASTNet_Factsheet_2013.pdf.*

Response 1. The URL address in the Annual Network Plan has been updated: http://epa.gov/castnet/javaweb/docs/CASTNET_Factsheet_2013.pdf.

Comment 2. *9. Annual Monitoring Network Plans and Network Assessment – Paragraph 1: Link to http://www.epa.gov/ttn/amtic/plans.html is active but the page is out of date, displaying 2012 plans.*

Response 2. USEPA is aware that the Ambient Monitoring Technology Information Center (AMTIC) State and Local Monitoring Plans webpage is out of date and is working to update this webpage.

3. Comments in regard to the operation of a monitoring site in Denali National Park (DEN417).

Commenter: Barbara E. Trost, Program Manager, Air Monitoring and Quality Assurance Program, Alaska Department of Environmental Conservation (ADEC)

Date received: June 4, 2015

Comment 1. *Audit frequency: In section 1, 'Network Overview', para 3, it is stated that "EE&MS performs annual Performance Evaluations at every CASTNET site…" In section 2, 'Ozone Data', it states "the CASTNET contractors perform semi-annual audits at each CASTNET site." Then, in numerous places in the document (e.g., Tables 1 & 3, and section 5), it states that audits occur annually.*

CFR requires annual audits but it is unclear how frequently audits are to be conducted at CASTNET sites, and specifically of interest to us, the site at Denali Nat'l Park.

Response 1. A performance evaluation (PE) audit is conducted annually by an independent auditor at each CASTNET site, including at Denali National Park. The language in section 2, 'Ozone Data' has been clarified to read, "In addition to the QC checks required for meeting the measurement quality objectives and validation templates, semi-annual system checks are performed at each CASTNET site. During these checks, a field operations technician challenges the on-site analyzer and reverifies the on-site transfer standard, calibrates the on-site analyzer to the traveling transfer standard (Level 2) as needed, and verifies the data logger and the shelter temperature probe using National Institute of Standards and Technology (NIST) traceable standards."

Comment 2. *In 'Network Overview' at [SIC] states that all CASTNET O3 analyzers were upgraded to Thermo 49i. However, in Appendix A the Thermo 49C is listed as the Denali site monitor.*

Response 2. The ozone monitor at Denali National Park is a Thermo 49C. The language in 'Network Overview' has been updated to clarify that the National Park Service established their regulatory O_3 monitoring program prior to 1990 and the CASTNET O_3 equipment upgrades to Thermo 49i monitors in 2010 and 2011 applied to EPA-sponsored CASTNET sites to ensure compliance with the requirements in 40 CFR Part 58.

4. **Comments in regard to the operation of a monitoring site in Great Basin National Park (GRB411).**

Commenter: Phillip W. Shoopman. P.E., Chief, Bureau of Air Quality Planning, Nevada Division of Environmental Protection (NDEP)

Date received: June 5, 2015

Comment 1. *The GRB411 CASTNET site is co-located with an IMPROVE site in dense pinyon-juniper forest typical of eastern Nevada with the nearest trees approximately 10 meters from the monitor (the detailed site information from the draft Plan, Appendix A is incorrect in stating the distance to trees as greater than 50 meters).*

Response 1. The site information for GRB411 contained in the Annual Network Plan's Appendix A was incorrect and has been updated to reflect current conditions. The lateral distance from the monitor inlet on top of the 10-meter tower to the drip line of the nearest tree is approximately 10 meters. The CFR (Part 58 Appendix E) requires that "at least 90 percent of the monitoring path must be at least 10 meters or further from the drip line of trees". The pinyon-juniper forest surrounding the monitor is less than 5 meters in height and, therefore, the drip line is below the ozone inlet. Furthermore, the inlet's flow path is not obstructed by trees that are 5 meters below and approximately 10 meters laterally from the inlet. Park personnel have recently trimmed all vegetation within a 10 meter radius around the base of the sampling tower.

Comment 2. *The primary park access road is located 135 meters from the monitor. The site is located at an elevation of approximately 7,200 feet in an area of complex terrain directly downwind of Wheeler Peak (elevation 13,065 feet) just over 6 miles away. Wheeler Peak and the crest of the Snake Range is a significant topographic feature that the NDEP suggests induces downwind turbulence and cavitation affecting monitored concentrations. The NDEP suggests the features noted above are not consistent with site-specific siting criteria in the QAPP* [Clean Air Status and Trends Network (CASTNET) Quality Assurance Project Plan (QAPP), Revision 8.2, October 2014, Section 1.3.1.2.1. Available at http://epa.gov/castnet/javaweb/docs/qapp v8-2 Main body.pdf.

Response 2. The site complies with the siting criteria for ambient air quality monitoring described in 40 CFR Part 58, Appendix E. 40 CFR Part 58, Appendix E specifies that the minimum distance for a roadway with less than 1,200 vehicles per day is 10 meters. There are no siting restrictions for distant topographic features. According to the 2014 State of Nevada Annual traffic report, the park access road has an annual average vehicle count of approximately 400 cars per day. As the ozone monitor is 135 meters from the road, the site conforms to the siting criteria in the regulations. The siting criteria in the CASTNET QAPP was originally developed for determining whether a monitoring station conforms to the assumptions of the Multi-Layer Model (MLM), which is used for estimating dry deposition rates, and are not intended as siting criteria for regulatory ozone monitors. The siting criteria in the CASTNET QAPP

will be updated to conform to 40 CFR Part 58 and clarify the application of other siting criteria for the network.

Comment 3. *It is not clear how CASTNET's primary objectives address the use of the ambient air quality data for regulatory compliance (i.e., comparison to the National Ambient Air Quality Standards or "NAAQS").*

Response 3. The three monitoring objectives for ambient air quality monitoring networks used in regulatory compliance are listed in 40 CFR Part 58, Appendix D 1.1. Specifically, these are "(a) Provide air pollution data to the general public in a timely manner; (b) Support compliance with ambient air quality standards and emission control strategy development; and (c) Support for air pollution research studies." These objectives are comparable and complementary to the CASTNET primary objectives.

Comment 4. *[T]he NDEP is concerned with the appropriateness of the siting of GRB411 for comparison to the ozone NAAQS. Furthermore, the CASTNET monitor was co-located with an existing IMPROVE monitor, and it is not clear what site selection process was implemented by the NPS for GRB411... The NDEP requests a copy of the site documentation package for the Great Basin National Park CASTNET monitor site, including the site evaluation report. The NDEP will assess the site documentation package and continue its dialogue with CASTNET staff as needed.*

Response 4. The site installation report was prepared in August 1993 and will be sent to the NDEP from the National Park Service's Air Resources Division.

Comment 5. *In 1998 guidance, the USEPA states, "For regulatory compliance, the principle objective is to measure the ozone concentration in the high population density areas and the maximum downwind concentration from the urban region .... Generally, the area with the highest population density that might be reasonably exposed to a significant ozone concentration should be chosen." GRB411 does not meet these objectives as it is located in a county with low population (just over 10,000) and low local precursor emission rates (1,463 tons NOx per year and 74,484 tons VOC per year, with over 98 percent of VOC emissions from biogenics).*

Response 5. In Section 4.3 of the "Guideline on Ozone Monitoring Site Selection (EPA-454/R-98-002, August 1998) the USEPA states that the data from an ozone monitoring network serves a myriad of purposes, including regulatory compliance, measuring air quality, providing data for research and policy development, human exposure assessments, or evaluating exposure experienced by a natural area. The commenter chose to cite only one of these purposes. GRB411 is well-situated to meet its monitoring objectives in measuring air quality for public information, providing data for research and policy development and evaluating exposure experiences by a natural area.

Comment 6. *Since the USEPA has calculated 2011-2013 ozone design values based on CASTNET data, it is now appropriate for the USEPA to review the siting of all NPS-operated CASTNET sites to ensure full*

compliance with 40 CFR Part 58. The NDEP notes that some CASTNET sites have been discontinued due to siting concerns. While the NDEP appreciates the utility of this long-lived trends monitor, it is critical that the USEPA only uses appropriate ambient air quality data for NAAQS compliance. NPS-operated CASTNET sites should meet all the criteria of 40 CFR Part 58 for an ambient air quality monitoring network, not only in Nevada but across the West.

Response 6. USEPA is required to consider data from any ozone monitor that meets the criteria established in 40 CFR Parts 53 and 58 in calculating design values. All CASTNET sites with regulatory ozone monitors meet these criteria, including those for siting. CASTNET sites undergo numerous on-site audits to ensure compliance with these regulatory requirements, including an annual performance evaluation, biennial technical systems audits, and site visits by the National Performance Audit Program every five years. Each of these audits is performed by an independent third-party auditing agency and audit results are available online or by request. All deficiencies that have been reported have been minor in nature and have been corrected in a timely manner. Since 2011, four ozone monitors at CASTNET sites have been discontinued or relocated because of site accessibility (Howland, ME and Sequoia-Kings Canyon National Parks, CA), budgetary constraints (Mount Ranier National Park, WA) or ability of local operators to collect data (Konza Prairie, KS). Prior to 2011, some sites were discontinued because the site locations did not conform to the assumptions of the MLM dry deposition model. No CASTNET sites have been discontinued because of siting concerns for ozone measurements.

5. **Comments in regard to the CASTNET ozone monitor count, PE and TSA schedule, and TTP audit methodology.**

Commenter: Gordon Pierce, Program Manager, Technical Services Program, Colorado Department of Public Health and Environment (CDPHE).

Date received: June 5, 2015

Comment 1. *In "Table 3, PE and Field TSA Schedule", 77 sites are listed, but the network plan states there are 80 ozone sites as of May 2015 in the introduction (page 3 section 1 paragraph 3).*

Response 1. Table 3 was updated to include missing information for Howland Forest, ME (HOW191); Great Smoky National Park, TN (GRS420); and Gothic, CO (GTH161).

Comment 2. *In "Appendix I", 77 sites are listed for 2015, but the network plan states there are 80 ozone sites as of May 2015 in the introduction (page 3 section 1 paragraph 3).*

Response 2. Appendix I was updated to indicate that there are 79 CASTNET ozone sites and 77 are used for comparison against the NAAQS. The two sites that are NAAQS Excluded are the EPA-sponsored QA monitor in Rocky Mountain National Park, CO (ROM206) and the collocated QA monitor in Mackville, KY (MCK231).

Comment 3. *In "Table 3, PE and Field TSA Schedule", Gothic Colorado (GTH161) is missing.*

Response 3. Table 3 was updated to include missing information for Gothic, CO (GTH161); in addition, the update to Table 3 included adding missing information for Great Smoky National Park, TN (GRS420).

Comment 4. *On page 8 part 7, it states: "The TTP audits are performed using a NIST-traceable certified gas". Ozone audits are performed using a generator referenced back to a Standard Reference Photometer, not via certified tanks.*

Response 4. The language pertaining to TTP ozone audits has been clarified to read, “Through-the-probe audits are also performed during an NPAP audit using a zero air generator to supply the carrier gas to an ozone generator. Audit ozone concentrations are delivered to the through-the-probe dual glass manifold connected to the monitor’s inlet probe while venting excess flow to the atmosphere. The ozone generator is referenced back to a level 2 ozone standard which is in turn referenced to a level 1 standard reference photometer.”