



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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To: Johanna M. Hunter, Acting Director Office of Environmental Measurement and Evaluation
EPA New England

From: Marc Cone, Director Bureau of Air Quality Control Maine Dept. of Environmental Protection

Subject: Maine Enhanced Monitoring Plan 2018

The Maine Department of Environmental Protection (ME DEP) has operated a Photochemical Assessment Monitoring Station (PAMS) as a part of the State Ambient Air Monitoring Network since 1993 at Cape Elizabeth, Two Lights State Park (Site ID 23-005-2003). Recently revised ozone NAAQS rules require PAMS measurements at NCore sites that are located in Core-Based Statistical Areas (CBSAs) with populations of 1,000,000 or more. Since Maine has no CBSA with populations of 1,000,000 or more, the revised ozone NAAQS Rule 1 requirement does not apply to ME DEP. The NCore site in Maine is at McFarland Hill in Acadia National Park near Bar Harbor and no PAMS measurements are required at that location.

Within the revised NAAQS rule is language that provides states with moderate or above ozone non-attainment areas, and states within the Ozone Transport Region (OTR), flexibility for their monitoring organizations to implement additional monitoring to suit the needs of their area, such as additional ozone monitors, PAMS, and other ozone precursor and/or meteorological monitoring activities. These states are required to develop and implement Enhanced Monitoring Plans (EMPs) to justify the additional enhanced monitoring efforts. Maine is within the OTR and is developing such a plan in coordination with the other States (and DC) in the OTR and EPA Regions 1, 2, and 3.

The continuation of the long standing PAMS monitoring at Cape Elizabeth, Two Lights State Park (CETL) is the central piece of the Maine EMP request. CETL represents an extreme downwind site for the Greater Connecticut area, which continues to remain in a moderate non-attainment status of the 8-hour ozone standard. Continuing the historic PAMS record will help to better characterize the nature and extent of the ozone problem, aid in tracking volatile organic compounds (VOC) and nitrogen oxides (NOx) emission inventory reductions, assess air quality trends, make attainment/non-attainment decisions, and evaluate photochemical grid-model performance. The addition of a NASA Pandora Spectrophotometer at the site would help to align the existing CETL PAMS measurements with the newer PAMS equipment requirements by providing important information about upper air chemistry, mixing, layering and transport.

The ME DEP already monitors for ozone year-round at several locations in the state, and has been kicking-off the ozone field season in March for many years. DEP meteorologists and others have long been aware of a late winter/early spring ozone maximum in western Maine due to long range transport of pollutants and the absence of tree leaves that normally scour ozone in that region during summer months. This ongoing yet additional ozone monitoring effort is offered for consideration as a second part of the Maine plan.

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Data from the long-running Maine HAPs (Hazardous Air Pollutants) program should also be considered as a key piece to the Maine EMP. Maine has operated a network of passivated stainless steel canisters collecting air samples every six days since the late 1990s. Using a state-of-the-art GC/MS, employing the TO-15 methodology and following National Air Toxics Trends Stations (NATTS) protocols, analyzes the samples for over a hundred volatile organic compounds. The Maine HAPs program seeks to maintain valuable status and trends data for VOCs at Maine locations, and the lab will continue to provide vital support for the Long Island Sound Tropospheric Ozone Study (LISTOS), and any future projects in the region.

Finally, we would like to install and operate a ceilometer at a site on the Bar Harbor waterfront to augment the NCore data being collected at the nearby McFarland Hill site. Ceilometers or other similar instruments to help define cloud base height, mixing layers and aerosol concentrations in the air column will be installed at other NCore sites in the PAMS network. While the Maine NCore site will not be required to deploy such instrumentation as part of the current PAMS program, it is anticipated that the ME DEP can accommodate the additional sampling with existing personnel. Locating a ceilometer at the water's edge in Bar Harbor minimizes the amount of mixing due to terrestrial heating that occurs in a column of air located inland.

The Maine Enhanced Monitoring Plan reflects some existing and historic programs in the State and augments a few of them with additional instrumentation. The program is aimed to better understand, within the context of interstate and interregional transport of ozone and ozone precursors, the fate of pollutants within Maine.