December 2, 2002

Brenda Millar
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OAQPS, C339-02
Research Triangle Park, NC 27711

Dear Ms. Miller:

The Northeast States for Coordinated Air Use Management (NESCAUM) appreciates the opportunity to provide comments on the Draft National Ambient Air Monitoring Strategy Document (DSD) dated 06 September 2002. Established in 1967, NESCAUM provides a forum for regional cooperation and the exchange of technical and policy information among air quality regulators and our eight member states. The outcome of the revisions to the national air monitoring network proposed under the DSD has important implications for state regulatory agencies charged with meeting Federal air pollution standards and protecting public health over the next several years. It is clear from the effort spent to date in developing this draft strategy that EPA also considers this network redesign to be very important.

The NESCAUM states agree that it is appropriate to re-evaluate the network design in response to changes in programmatic emphasis resulting from substantial decreases in concentrations of some criteria pollutants over the last three decades. The NESCAUM committees also have substantial concerns about certain aspects of both the technical and budgetary approach that EPA is proposing in the DSD. These issues are described in the two sets of attached comments – one from the Monitoring and Assessment Committee and the other from the Air Quality and Public Health Committee.

The Northeast states recognize that the ambient air pollution network redesign is critical to insure that the public continues to get the best quality monitoring data for the resources available. NESCAUM and its member states are committed to working with EPA to address specific implementation issues regarding this Strategy and subsequent rulemakings and appreciate the opportunity to comment on this important issue.

Sincerely yours,

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Comments on the Draft National Ambient Air Monitoring Strategy Document
From the Monitoring and Assessment Committee of the
Northeast States for Coordinated Air Use Management (NESCAUM)

December 2, 2002

Note: The page numbers noted below refer to the Strategy Summary Document of 01 September 2002 unless otherwise noted.

General comments on components of the DSD that are considered useful to the NESCAUM states:

1. Revisions proposed in the DSD allow increased flexibility in size and layout of networks.
2. The proposed reduction in PM FRM networks will allow states to refocus on other areas.
3. Increased emphasis on continuous PM monitoring is appropriate.
4. The DSD legitimizes the existing monitoring network "downsizing" process.
5. With respect to network operational efficiency, we agree with the DSD that reducing the number of sites in a network is more valuable than reducing the number of monitors.

Comments on concerns on the DSD are grouped below into three broad topic areas of General, Measurement, and Funding.

General:

1. As noted in the draft summary (pg. 43), the scope and overall complexity of the DSD will require years to implement. Care must be taken during that period to insure no negative impact on data quality occurs due to "loss of focus".
2. The discussion of objectives for the new "Strategy" (pp. 5-8) needs to be revised. As defined in the opening paragraph the "objectives", "components", "attributes" and "operating principles" do not translate into the bulleted items listed as "12 key objectives". For example, the 4th bullet seems to be an "operating principle" of the 1st bullet and the 5th bullet appears to be a "component" of the 1st bullet. Other disconnects also appear under the "components" and "operating principles" sections - there is no "attributes" section. Also, the 2nd bullet under "12 key objectives" is so wide ranging as to be incomprehensible - what is the intent here, how does it differ from other objectives?
3. The Level 2 NCore sites required parameter list may not always make sense for all L2 site locations. Also, many instrument shelters are already filled to capacity. Enlarging, or replacing shelters with larger ones is expensive and in urban areas where the bulk of L2 sites are proposed, extremely difficult.

4. Do we even need NCore as a formal program requirement? Why not revise the regulations as proposed, procure funds for improved ITT, bulk up the network "assessment" process and rely on results of those assessments to identify gaps and redundancies? If an "emerging issues" angle is added to network assessments (and the assessments are rigorously done every 3 years), "new" criteria pollutants and "policy relevant" monitoring issues would be brought to the table and folded into the network.
5. What would be the venue for state's input on location of NCore sites (how will S/L/T input on location be evaluated?). There should be a formalized process under which site selection and approval for level 1, 2 & 3 sites take into account SLT concerns as well as consistency with EPA's network design aspects.
6. With respect to the proposed "real time" polling initiative, we believe that the existence of both real-time unvalidated data sets and "final" validated datasets (sent to AQS) could present serious problems. The strategy should clarify how data from the "improved telemetry" sites will be handled relative to data from other sites where data validation proceeds along more traditional lines.
7. New technologies should only be adopted after instrumentation has been proven ready for widespread deployment.
8. Solving the political issues associated with site shutdowns or reductions can absorb valuable resources with little return. In addition to the electronic and hardcopy material described in the summary (p. 40) will EPA be developing specific guidance for S/L/T's in communicating the proposed (and future) network changes to the public?
9. The importance of pollution transport is understated in both the overall Strategy and the NCore description. Since PM and ozone are both subject to transport this concept should be reinforced throughout the DSD.

Measurement:

1. The measurement of NOy is resource intensive and in urban areas provides data of little value. The MAC does not feel it is an appropriate parameter for inclusion at L2 sites. As noted on page 16 of the summary, “True” NO2 measurement at NCore L2 sites is also not appropriate at this time.
2. The DSD lacks specifics on deposition monitoring such as mercury and acid rain. Specifically regarding acid rain, it is the MAC’s understanding that there have been discussions regarding shifting Title IV source permitting funds to “receptor” states to support monitoring to track progress. If this is correct, potential reallocation of this funding needs to be discussed in the DSD.
3. The air toxics discussion needs more specifics and details. Is an increase beyond the 15 trend sites envisioned? Also, if "…the greatest risk from exposure to toxic (air) pollutants is dominated by mobile sources…." (p. 23) it would make sense for EPA to promote establishment of a limited number of highway or intersection oriented sites within 5-25 meters of major transportation arteries. In addition to tracking changes in tailpipe emissions related to upcoming fuel reformulation strategies, data from such sites would be more easily incorporated into exposure/risk assessments than data from instruments sited to avoid local source impacts.

4. With respect to "replacing up to 50%" of $PM_{2.5}$ FRMs with continuous monitors (p. 36 of the summary), is the intent to replace the FRMs or augment them so as to reduce the FRM sampling frequency?
5. On page 38, is the suggested use of a UPS to prevent "…data loss during a power outage…" aimed at protecting personal computers at a site or powering measurement instruments? The former use is, for the most part, standard procedure but the latter use requires unwarranted resources unless the interruption of data from a "mission critical" parameter endangers public health.
6. Although measurement of upper air met data is mentioned in the summary its importance and utility should be emphasized especially in light of the call (p. 9) for networks to be "…more supportive of predictive air quality model applications…." A reduced, rational network of upper air profilers would be of tremendous value to such models. However, this will only succeed if the profilers are accompanied by "user friendly" software to validate/display the collected data. Alternatively, EPA could "partner" with another agency (NOAA?) to implement these measurements.

Funding:

1. Page 19 of the summary notes the utility of "…steering agencies' portions of 105 Grants toward local needs, separate from NCore …." That approach may ultimately prove feasible, however, the MAC believes more robust language is needed to insure that once allocated by EPA, sufficient funds are made available for monitoring. Is there the possibility that during the revision process this concept can be codified in the "regulations"?
2. Although the "zero-sum" concept is understood to be operational throughout revisions of ambient air monitoring networks nationally, it is not clear at what level this applies. Is funding to remain constant only at the national level or at the EPA Regional level too? Also, as State and Local (S/L) agency revenue shortfalls continue to climb, the likelihood of maintaining the current level of effort in ambient monitoring declines. Can the DSD be crafted to include the Performance Partnership Agreement concept to insure that adequate resources are allocated to monitoring?
3. The MAC is also concerned that funding Level 1 NCore sites, possible "enhanced" QA programs and upgraded ITT for real time polling will erode baseline 105 Grant funding. The summary indicates (pp. 8, 15, 24) that additional funds for Level 1 sites are needed but unknown and that new funding for ITT initiatives will be sought, but the MAC believes this language should be more definitive. The DSD should explicitly state that Level 1 sites will *not* be funded from existing baseline grant resources. The concept of using 105 funds to promote "through the probe" auditing (pg. 34) is not acceptable to the MAC if it involves introduction of elevated concentrations of criteria pollutants into inlet manifolds (probes) at sites to which the public has access or which are in close proximity to publicly accessed areas.
4. Just as with the Strategy proposal for States/Locals/Tribes to move toward "performance based" QA programs, the MAC believes that EPA audit programs should be performance based. Monitoring organizations with good performance records should be audited less frequently and should be allowed to institute "interstate" audit programs where sister states, not EPA, audit each other.
5. QA funding issues need to be much more fully discussed.

6. Revised regulations must match the zero-sum funding concept for L2+L3 - the DSD is weak on what you can free up re: proposed regulations.
7. Does EPA's Office of Environmental Information (OEI) have funding to assist in improving the state of real-time data acquisition?
8. The challenge of transferring monitoring personnel to new tasks while dis-investing in some areas (p. 24) is not trivial. Has a dollar amount been allocated for training/retraining?

Comments on the Draft National Ambient Air Monitoring Strategy Document
From the Air Quality and Public Health Committee of the
Northeast States for Coordinated Air Use Management (NESCAUM)

1. EPA needs to incorporate the public health basis for monitoring air toxics into the national strategy.

The Air Quality and Public Health Committee (the "Committee") commend the EPA and the Air Toxics Monitoring Steering Committee for their efforts to develop a national air toxics ambient monitoring program. In FY 2003 funding has been appropriated to continue the operation of the initial 13-site trends network, establish additional urban and rural trend sites in each of the ten EPA regions, and support various data analysis activities.1 Quality assurance activities (e.g. co-located sampling, round-robin sampling) will also be conducted.

Although the air toxics monitoring strategy is not addressed in detail in the Draft National Ambient Air Monitoring Strategy Document (DSD), we strongly support a central tenet of the DSD to increase HAP monitoring. The rationale for establishing a national air toxics monitoring network is presented in the 2000 Air Toxics Monitoring Concept Paper that was peer reviewed by the Science Advisory Board. We believe that it would be helpful for EPA to provide a discussion of the linkages between the Concept Paper and the DSD in the final Strategy document. In addition, the Committee supports the use of HAP monitoring data for long-term trend analyses, general air quality "characterizations" and evaluations of predictive air quality models. However, it is critical that the DSD also include with these criteria, the use of HAP monitoring data for exposure and risk assessment.

It is important to recognize that both the ambient air quality standards and the regulatory implementation plans (i.e., SIPs), which drive the criteria-monitoring program, are absent from the federal regulations for air toxics. In contrast, most state air toxic programs determine whether or not a source is required to control emissions based on public health risks2 that typically are associated with the most exposed individual(s). Ambient monitoring data are used, for example, to estimate the range of ambient concentrations in densely populated areas, predict the impact specific sources have on ambient pollutant levels, facilitate assessment of geographic variability, characterize environmental justice concerns, and assess ambient concentrations that are representative of small geographic areas which may be impacted by specific sources or multiple pollutants, such as in schools. As discussed in the

1 Data analysis activities consists of contract support for trace metal composition by particle size, analysis of elemental carbon vs. diesel particulate, analysis of hexavalent chromium vs. total chromium, seasonal variability, source apportionment, the effect of meteorology, derivation of background concentrations for air toxics, development of national data quality objectives, evaluation of the performance of air quality dispersion and deposition models and additional sampling of other diesel particulate-related monitoring, PAHs, continuous VOCs and/or formaldehyde and gaseous mercury.

2 For carcinogens, the annual average and 95th percentile concentrations are adequate for risk assessment. However, for diseases whose effects are triggered by short-term peak concentrations, such as exacerbation of asthma, it is necessary to consider the distribution of concentrations over a 24-hour period, such as 1 to 3 hour increments.

Concept Paper, EPA is aware of the role of exposure and risk assessment in the evolving federal air toxics program, particularly in the 75% reduction in cumulative risks under the Urban Air Toxics Strategy and residual risk standards for MACT sources. For more information on this important area, please consult the EPA website for a FACA report on recommendations for integrating monitoring data into both state and federal regulatory programs --Recommended Framework for State/Local/Tribal Air Toxics Risk Reduction Program --http://www.epa.gov/ttnatw01/urban/facawg.pdf. Thus, DSD needs to specify that monitoring data are needed to address appropriate health endpoints associated with air toxics, provide suitable data to characterize the distribution of exposures across geographical areas3, and ultimately, assess cumulative exposure to air toxics.

Although the October 5, 2001 Battelle report, Air Toxics Monitoring Data: Analyses and Network Design Recommendations" specifically did not take into account the use of monitoring data to characterize exposure and risk to HAPs in developing recommendations for network design, we believe that EPA can successfully integrate this type of information into the existing air toxics monitoring strategy. This can be accomplished by involving the state air toxics/public health staff that has extensive knowledge both in monitoring air toxics and public health risk assessment. We recommend that a subcommittee be formed under the auspices of the STAPPA/ALAPCO Air Toxics Committee to provide input.

2. EPA needs to coordinate the various monitoring programs

It is critically important for the DSD to coordinate various EPA programs that monitor for persistent bioaccumulative pollutants (PBTs), motor vehicle air toxics, and metals and other toxics via speciated fine particle monitoring. The overlap between the DSD and EPA's 2000 PBT strategy is evident in the goals of the PBT strategy. Namely, the PBT strategy calls for: 1) developing a national network and assessment program that will assess the effectiveness of risk management actions; 2) collecting trends data for multiple media (e.g., air, water, food, human tissues, etc.); 3) integrating currently disparate monitoring programs: 4) providing information to target future risk management actions, and 5) collecting data for comparison studies (e.g., in different geographical areas). Similarly, air toxics monitoring for motor vehicle air toxics regulations under Section 202l focus on characterizing hotspots and microenvironment concentrations, identifying concentration variability in communities, characterizing locations where populations spend time, identifying the contribution of highway and nonroad emissions to exposure, identifying and, if necessary, correcting exposure factors that are not well represented in human exposure models, determining infiltration/penetration characteristics, and improving mobile source signature profiles for gasoline and diesel engines. Given the multiple pathways of exposure for air toxics that are PBTs, such as mercury and dioxins, EPA needs to develop an integrated monitoring strategy across media for these pollutants.

3 For example, MATES-II study in Los Angeles found that distances on the order of 200 meters could have concentration gradients of up to two orders of magnitude.

3. EPA needs to support and better leverage air toxics data collected by State and local sources.

There are approximately 300 independently operated State and Local monitoring programs which collect a myriad of air toxics data. The draft National Ambient Air Monitoring Strategy supports the collection of state and local air toxics data to augment the core trends data collected at the 20 national air toxics trends sites. Given the tremendous temporal, spatial and source-specific variability in relation to human activity and exposure patterns across the United States, the Committee believes it appropriate to have a limited core set of air toxics trends sites with the balance of resources concentrated at the local and state levels. This approach should help to maximize the overall efficiency of the air toxics monitoring program.

4. EPA needs to ensure that data quality assurance process ensures that the monitoring data that are collected are verified and easily accessible through a publicly available website.

For the data from the combined national, state and local air toxics network to be of value, the Committee believes it is critically important to have ready access to both national trends, and local and state data in a timely, quality assured manner. Hiring a contractor, to do work similar to what was done by Sonoma Technologies Inc. for the PAMS data, to conduct routine data review of air toxics data (including PAMS data), would provide reliable comprehensive air toxics data. In addition, this type of comprehensive data review would help inform and guide our future air toxics monitoring approach.

In a memo from Fred Dimmick to the Air Toxics Monitoring Steering Committee regarding the "Transition from Air Toxics Data Archive to Air Quality System (AQS)", he asks for comments and concerns about this transition and whether the existing ARCHIVE data should continue to be maintained. The Committee is concerned about the migration of air toxics data to AQS because of past difficulties of accessing data from the AIRS system. The ARCHIVE data was readily accessible and an appropriate model for continued support. This kind of large-scale data access needs routine, long-term support by EPA and also requires careful data cleaning and screening such as the work done by Sonoma Technologies on the PAMS data. The Committee urges EPA to commit resources to promote web-based query capabilities to access the air toxics data whether it occur through AQS, ARCHIVE or other appropriate means.

An alternative to a large-scale national effort for collecting, cleaning and screening air toxics data is the establishment of an air toxics data node at the regional level. Organizations like NESCAUM could coordinate the collection, quality assurance and overall support for air toxics monitoring similar to the ARCHIVE for the Northeast region.

5. EPA needs to support the development of continuous monitoring methods to assess short-term exposure to pollutants such as carbonyls

For diseases whose effects are triggered by short-term peak concentrations, such as exacerbation of asthma, it is necessary to consider the distribution of concentrations over a 24-hour period, such as in 1 to 3 hour increments. Therefore, it is important to have reliable continuous monitoring methods. Since reliable continuous monitoring methods do not yet exist for carbonyls, the Committee recommends that methods development be an initial priority followed by resources being made available to conduct continuous monitoring for select carbonyls.

6. Additional technical comments

- NESCAUM recently sent a letter to EPA regarding the importance of developing an efficient measurement method for acrolein (see Attachment A). Since acrolein is the major non-carcinogenic risk driver in the US, according to the 1996 NATA results, the Committee believes it is critically important to support the development of a reliable and accurate field sampling method for measuring acrolein.

- Because of the highly complex concentration gradients vary greatly both temporally and spatially, exposures to air toxics vary considerably and be difficult to predict. Therefore, the Committee proposes developing a "standard mobile sampling platform" (i.e., a van), with state-of-the-art continuous sampling equipment and trained, full-time operator(s) to maximize the efficiency of data collection. This could be a shared resource among states and/or regions.

- The air toxics trend sites now primarily focus on four pollutants: benzene, formaldehyde, acrolein and chromium. The Committee is interested in how these pollutants were selected and whether they will continue to be focus of the Level 2 NCore network. Further, the Committee is concerned about measuring total chromium from air toxics trend sites without speciating CrVI. Discussions on these issues could occur in the aforementioned proposed subcommittee of public health risk assessment staff under the auspices of the STAPPA/ALAPCO Air Toxics Committee.

- Consideration should be given to the redirecting of PAMs type technologies (auto-GC) to focus more directly on toxic species with year-round monitoring at a few toxics sites. Existing PAMs sites may not be appropriately located for toxics monitoring.

- The Committee also supports the comments made by the NESCAUM Monitoring and Assessment Committee regarding the need for setting up stations to monitor for air toxics from mobile sources near highways and intersections.

7. EPA needs to discuss in future documents, selection criteria for air toxics trends sites that will become part of the NCore Level 2 network and for state and local monitoring projects

In the past two years, EPA has funded the operation of 13 air toxics trends sites and has proposed adding eight more sites to go live in May 2003. The DSD proposes the inclusion of 10 –15 sites in the Level 2 network. The Committee is concerned what the selection criteria will be, who will be making the selection decisions and whether the other sites that make up the balance of the 20 will continue to be supported by the EPA.

Additionally, as was acknowledged in the DSD, the DSD did not discuss the criteria for EPA selection of proposals for the state and local run monitoring sites. Similarly, the Committee is concerned about understanding the process for funding special state and local projects such as the $3 million of Section 103 FY03 funding for air toxics and the $6.5 million of Section 105 FY03 funding. The Committee looks forward to future documents from the Standing Air Monitoring Work Group (SAMWG), the STAPPA/ALAPCO Monitoring Committee and the NMSC that will discuss these implementation details.

October 28, 2002

Dr. Gary Foley
Director, National Exposure Research Laboratory
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Mailcode: D305-01
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Research Triangle Park, NC 27711

Dear Dr. Foley:

On behalf of NESCAUM, I would like to address a very pressing issue. The substantial health risks posed by acrolein, a hazardous air pollutant (HAP), have created great concern among the Northeast states. In the 1996 National-Scale Air Toxics Assessment (NATA), acrolein is one of the major non-cancer risk drivers nationwide. There are very few counties in the United States, according to NATA results, that have a hazard quotient of less than one. In fact, several counties are designated with a hazard quotient greater than three. Furthermore, EPA's overall relative confidence in the acrolein modeling estimates is described as "lower" than other HAPs evaluated in the assessment. However, since reliable acrolein monitoring data are not available, it is impossible to perform the critical model-to-monitor comparison to validate the results. Beyond NATA, many states in the U.S. regulate acrolein as a toxic air pollutant. If these states are unable to reliably measure acrolein, they cannot determine whether ambient concentrations are in compliance with their ambient health-based standards.

As you are well aware, the EPA's method TO11-A is insufficient for obtaining acrolein and crotonaldehyde in the ambient air under normal field operating conditions. The hydrazone derivative of acrolein, for example, is not stable in the acid DPNH reagent. A technical article on the subject by a reputable laboratory indicates if using a DNPH-based method for acrolein, that the cartridge would have to be extracted within one hour for proper recovery of this compound.[1] This type of limitation is virtually impossible to implement for established state and local ambient air toxics monitoring networks.

Furthermore, statements identified in the EPA Compendium Method TO-11A point directly to the core of the problem. In Section 4.4.1 of the latest version (January 1999), it states that Tejada, one of the initial investigators of the DNPH cartridge method, documented in a 1986 journal publication that, *"Olefinic aldehydes such as acrolein and crotonaldehyde degraded partially and formed unknown species."* This phenomenon has been demonstrated repeatedly in recent Performance Audit samples analyzed by multiple New England state laboratories. In addition, an addendum to the TO methods dated April
15, 1999 states: "Note also that TO-11A is *not* applicable for acrolein." These statements indicate the severity of the problem and suggest that most, if not *all*, acrolein monitoring data derived using this method are invalid. To our knowledge, no ambient airfield sampling method currently exists that accurately and fully recovers acrolein.

For these reasons, NESCAUM strongly urge EPA's Office of Research and Development to invest the resources to develop and validate an appropriate, practical field sampling method that

provides reliable and accurate acrolein results (as well as other carbonyl compounds such as formaldehyde, acetone, acetaldehyde etc.). Importantly, this method could be implemented nationwide in new and established ambient air toxics monitoring networks. NESCAUM also encourage EPA to evaluate the various alternative carbonyl sampling/analytical methods that currently exist. These could include derivatization methods such as DNSH[2] and/or PFBHA[3] as well as whole air sampling methods using specially lined stainless steel canisters, such as TO14A-TO15.

NESCAUM understands that EPA has recently proposed field testing the passive DNSH methodology as specified in Zhang et al. study (footnote 2) at selected ambient air toxics "trends" sites across the country. This is very encouraging, but we are also concerned that ambient concentrations of acrolein (and other carbonyl compounds) in units of mass/time, derived from this passive exposure-type monitoring approach, may not provide equivalent data quality as compared to mass/volume concentrations derived from traditional active sampling methods, such as TO11A. Consequently, current and historical ambient carbonyl data collected from these two different monitoring methodologies would not be directly comparable. To address these concerns, we encourage EPA to consider an active sampling approach in their development and validation of an alternative ambient air carbonyl method.

Thank you in advance for your consideration of this important issue. Please contact Bart Sponseller or me if you have any questions.

Sincerely,

/s/

Dick Valentinetti, Director

Vermont Air Pollution Control Division
Vermont Department of Environmental Conservation

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[1] *What is the "best" way to determine Acrolein?* - Air Toxics Ltd. Publication: *In the Air, Vol. 4, No. 2 – Fall 1999*. - Contact: Wade Bontempo (916)-985-1000.

[2] Zhang, J.; Zhang, L.; Fan, Z.; and Ilaqua, V. "Development of the personal aldehydes and ketones sampler (PAKS) based upon DNSH derivatization on solid sorbent". Environmental Science & Technology 2000, 34(12): 2601-1607.

[3] Destaillats, H.; Spaulding, R.S.; and Charles, J.M. "Ambient Air Measurement of Acrolein and Other Carbonyls at the Oakland-San Francisco Bay Bridge Toll Plaza." Environmental Science & Technology 2002, 36, 2227-2235.