

Summary Minutes of the  
U.S. Environmental Protection Agency (EPA)  
Advisory Council on Clean Air Compliance Analysis  
Ecological Effects Subcommittee (EES)  
Public Meeting  
November 5, 2004

Committee Members: Dr. Charles Driscoll, EES Chair  
Dr. Elizabeth Boyer  
Dr. Christine Goodale  
Dr. Scott Ollinger  
Dr. Mark Castro  
Mr. Keith Harrison  
Dr. Ralph Stahl  
Ms. Laurie Chestnut (Council member participating by phone)  
Dr. Trudy Cameron (Council Chair participating by phone)

Date and Time: 9:00am – 4:00pm, November 5, 2004

Location: SAB Conference Center, 1025 F Street, NW  
Washington, D.C. 20004

Purpose: The purpose of this meeting was to discuss procedures and ideas for drafting responses to three charge questions posed by the Office of Air and Radiation (OAR).

SAB Staff: Dr. Holly Stallworth, Designated Federal Officer

Other EPA Staff: Mr. Jim Democker, OAR

Other: Ms. Maura Flight, Industrial Economics Inc.  
(participating by phone)

Meeting Summary

The discussion followed the issues and general timing as presented in the meeting agenda (Attachment A).

**FRIDAY, NOVEMBER 5, 2004**Opening of Public Meeting

Dr. Holly Stallworth, Designated Federal Officer (DFO) for EES, opened the meeting with a statement that the EES is a standing subcommittee of the Advisory Council on Clean Air Compliance Analysis, a chartered federal advisory committee whose meetings are subject to the requirements of the Federal Advisory Committee Act. Consistent with the requirements of FACA, and with EPA policy, the deliberations of the EES are conducted in public at meetings, for which advance public notice is given. The discussions and substantive deliberations of the panel; its interactions with the public, and the Agency, are conducted in sessions where the DFO, is present to ensure that the requirements of FACA are met (this includes the requirements for open meetings, for maintaining records of deliberations of the Panel, making available to the public summaries of meetings, and providing opportunities for public comment).

Dr. Vanessa Vu, SAB Staff Office Director, welcomed the Subcommittee. Dr. Driscoll asked for self-introductions all around. Ms. Chestnut and Dr. Cameron introduced themselves by telephone.

Mr. Jim Democker thanked everyone for coming and spoke briefly about his 13 year history of working on the 812 analysis. He described this as “plenty of time to get frustrated about EPA’s ability to handle ecological effects.” Mr. Democker described the overall goals of 812 study, stemming from Clean Air Act Sect. 812 statutory language as a broad review of all effects on human life, human health and the environment. Mr. Democker spoke about constant pressures on OAR to focus on benefits that can be monetized and the disadvantage this poses for ecological benefits.

Mr. Democker described a sunset provision applied to 812 as of 1999 which is interpreted as OAR no longer being statutorily obligated to provide these reports to Congress. Nonetheless, OAR remains obligated to do the analysis under Section 312 of the Act, and hence EPA is still strongly committed to doing 812 studies and uses the 812 results to guide strategic planning. 812 is also used to demonstrate the integrated effects of all OAR programs and thus complements OAR’s individual rules. The 812 process also benefits other analyses, e.g. routine RIAs for particular rules. The COUNCIL and its Subcommittees have a very important role to play and influence analyses in OAR and across the Agency.

Mr. Democker said the goal of the 812 ecological assessment is to provide a broad characterization of the range of effects of air pollutants on ecosystem structure, function and health. However, the longer the critical path stretches for conducting the actual analysis, the less useful it becomes. Hence primary research is beyond the scope of 812. The scenarios constructed for analysis can be highly subjective, e.g. Clear Skies legislation scenarios.

In response to a question from a member, Mr. Democker explained that 2020 was chosen as a reference year because rules in place have implementation schedules for which the full effects of reductions extend until 2020.

Mr. Democker described a 3 step approach with first 812 Prospective:

- Identify and characterize ecological effects of air pollution;
- Apply selection criteria for more in depth assessment and quantification of ecological impacts; identify endpoints;
- Conduct both quantitative and qualitative analyses to value a portion of the benefits of the 1990 Clean Air Act Amendments.

Mr. Democker showed a slide depicting the monetized ecological effects vs. mortality reductions for benefits of the Clean Air Act Amendments for a single snapshot year of 2010.

Ecological benefits were listed as acidification reduction, timber, nitrogen deposition reduction and & reduced mortality and thus the stark contrast between the lack of monetized benefits for ecological protection versus human health protection. Mr. Democker described a key limitation of the First Prospective Analysis as incomplete capture of long-term bioaccumulative and persistent effects of air pollutants.

When asked about the Council's treatment of ecological effects, Mr. Democker described the perspective of the Council as mixed. Some members wanted to stick to neoclassical valuation while acknowledging its limitations. Others preferred to adopt placeholder values. This lack of consensus on how to proceed motivated the creation of this Subcommittee.

Mr. Democker's overview of the 2003 *Analytic Plan* for ecological benefits in the *Second Prospective Analysis* included an updated literature review, re-estimation of the ecological effects quantified in the first prospective, broad conceptual characterization of links between ecology and economy and new quantitative case studies to demonstrate a rigorous approach at the ecosystem scale.

Mr. Democker described OAR's proposed case studies: Waquoit Bay and Chesapeake Bay and then invited discussion with the Subcommittee.

One member asked how far along is the planning for the case studies. Mr. Democker said the case studies were not on the critical path to the overall analysis. Now that the elections are over, OAR has a better sense of what the control case will be and can now map out a schedule for the overall analysis.

Another member asked why the nitrogen studies were put forward. Mr. Democker said he was convinced by the team working on nitrogen deposition that they had extensive information with which to gauge consequences.

Mr. Democker was asked whether it was difficult to separate out the multiple inputs of nitrogen and attribute only a portion to air pollution. Mr. Democker replied that there are estimates/models that give us the particular contribution of airborne nitrogen to watersheds and it ranges from 10-40%.

Another member said he had questions about the data that the models are using. Another member raised the time period over which you can see an ecosystem response. Decades are needed before you see the full effect and most of the ecosystem response could be missed if the analysis stops at 2020. Mr. Democker explained that while the analysis only shows monetized/quantified benefits until 2020, these numbers are capturing actual effects (in present value terms) all the way out to 2175.

Another member pondered the moral challenges that come with assigning a dollar amount to, for example, an asthma attack. Mr. Democker responded that this is one factor in driving the Council to recommend emphasizing direct physical consequences in our report. The Subcommittee members heard from both the Council Chair and the Council Liaison to the Subcommittee Laurie Chestnut on the difficulties and caveats associated with neoclassical valuation of nonmarket benefits.

Mr. Democker spoke about the limitations of having a single observation when the 812 Analysis needs a function. A single point estimate isn't helpful to OAR.

One member raised the question of the economic effects of complete ecosystem collapse such as Europe's loss of certain forests. The Council Chair responded that in the US, the margins at which we're operating usually don't include a complete collapse of ecosystems.

A question was raised about whether the 812 analyses are capturing the costs and benefits of the entire Clean Air Act or the Clean Air Act Amendments of 1990. Mr. Democker responded that the current practice is to capture the benefits of the Amendments and this decision was partly a result of the COUNCIL endorsing a focus on the Amendments themselves.

One member asked about current proposals for multi-pollutant initiatives and whether OAR needed to look at multi-pollutant interactions in terms of ecological response. Mr. Democker said OAR hadn't yet been able to capture interaction effects and bio-accumulative effects.

Another member suggested that these case studies might not be the best choices for looking at the consequences of air pollutants and that agriculture probably shows bigger effects in these basins. This member thought that the proposed hedonic study of the Chesapeake Bay suffers from lack of connection to deposition in terms of singling out air pollution. This member suggested there were case studies such as the Gulf of Maine where air deposition is the dominant source of nitrogen.

Another member suggested that the Catskills or Adirondacks both have drinking water and fisheries issues and would capture entirely different goods and services than the estuarine examples.

A suggestion was made to map the relative contribution of air deposition to all estuaries. Though the numbers aren't identical, there is a consensus among the studies as to what the dominant sources are and it would be possible to identify watersheds where air dep was more than 60% of inputs. One member suggested Barneget Bay in New Jersey as an example with a lot of data.

Discussion continued on whether the Council would allow avoided abatement costs to be a placeholder for ecological benefits of air pollution reduction. One member suggested that some models show non-linear responses in terms of hitting thresholds at some point into the future.

The Chair directed the Subcommittee's attention to the three charge questions. Waquoit Bay was thought to be a case study that would not demonstrate the largest effect and was further plagued by nitrogen deposition not being the dominant stressor in Waquoit Bay. Mr. Democker talked about his considerations in choosing a case study: how a case study needed to have validity all the way through the analytic chain.

The Chair suggested the Subcommittee had a consensus to recommend alternative case study and members agreed. Members discussed providing a table of possible case studies and criteria by which to compare them. Mr. Democker said he'd be open to as many as 6 – 7 ideas.

- Subcommittee members discussed a number of possible case studies, listed below.

The members agreed to work on filling out the following table with the suggested case studies.

Comparison of Qualitative Site Evaluation Ratings	
Criteria:	
1. Well-document impacts to a particular ecosystem function or service	
	<ul style="list-style-type: none"> <li>a. Impacts</li> <li>b. Level of degradation</li> <li>c. Importance of air dep</li> </ul>
2. Quantifiable endpoints	
	<ul style="list-style-type: none"> <li>a. Ecological</li> <li>b. Economic</li> </ul>
3. Available Monetary Values for at least some endpoints	
4. Existing initiatives	

It was suggested that the Subcommittee provide data on watershed loadings from atmospheric deposition. Further discussion ensued on the difficulty of separating out anthropogenic sources of pollution versus natural sources.

The Subcommittee continued discussing each of the ecosystems in terms of what information was available and which Subcommittee member would be responsible for in terms of completing the above table and taking the lead on drafting responses to particular questions. The meeting concluded with an agreement to send out draft materials by 12-1-04 and to teleconference on 12-9-04 and 12-20-04.

Gulf of Maine -- Ollinger  
Long Island Sound -- Driscoll  
Barnaget Bay -- Castro  
Adirondacks -- Driscoll  
Catskills -- Goodale  
SAMI – Southern Appalachian Mtn. Initiative -- Driscoll  
Shenandoah Watersheds --- SWAS  
Everglades -- Stahl  
Rockies or Sierras --- Boyer  
Great Lakes – Harrison  
Chesapeake Bay – Castro  
Waquoit -- Boyer

Next Steps:

- Materials out by Dec. 1
- Teleconference on Thursday Dec. 9 at 11am & Mon. Dec. 20 --- 2pm Eastern
- Fri. Jan. 21 – 2pm Eastern – COUNCIL reviews and approves EES Advisory

Respectfully Submitted:

*/Signed/*

Holly Stallworth, Designated Federal Officer

Certified as True:

*/Signed/*

Charles Driscoll  
Chair

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by the Panel members during the course of deliberations within the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect definitive consensus advice from the panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, letters or reports prepared and transmitted to the EPA Administrator following the public meetings.