The meeting was called to order at 9:00 AM by ESC Co-Chair Michelle Broido, who presented a review of the ESC's operating basis. Michelle emphasized that NARSTO is a real and active program that is moving forward rapidly to produce significant results, and that active participation by the full ESC membership is mandatory to guide the program on this course. During NARSTO's startup phase much of the decision process was conducted by the ESC Co-Chairs. This initial stance was necessary for expediency, but we need to move ahead to full and active representation now that the program is progressing toward a mature stage. At their January 1997 meeting the Executive Assembly tasked the ESC to initiate this process, and this combined ESC/S&RPG meeting is the first step.

At this meeting we need to respond to this challenge by defining a future meeting schedule, and also by broadening our membership to include more representatives from Canada and Mexico. Michelle noted that Don McKay's presence as a representative of Environment Canada is highly appreciated, but we need more Canadian members in NARSTO. We definitely need greater Mexican representation as well.

Peter Mueller suggested that if we focus strongly on production of NARSTO products, other desirable features are likely to follow. Michelle responded that we need to target these products to the client community, in order to be effective.

Many of these thoughts were picked up during the subsequent scheduled discussion, entitled "Overview of National and International Functional Groups and their Relationships to NARSTO." Dan Albritton introduced this topic by focusing on research/customer relations and used NARSTO's forthcoming 1998 Assessment as an example of research which is intended to supply a product to a “customer”; i.e., governments, industry, environmentalists, public, . . . Dan noted that this is a two-way information exchange, and we need to know the customers and their needs to facilitate this process: knowing the customer makes our “product” a better product. Because tropospheric ozone is relatively short lived, our customer base is interested mainly in local up to continental phenomena. Global considerations are of secondary importance. But this base is enormous and involves numerous sectors: it is impossible for us to interact intensively with each and every member of this community. We need to selectively target our information base to this community in the most effective manner possible.
Dan also noted that the process of creating an assessment is highly demanding on our best scientists, and we are paying an expense to divert them from their normal scientific obligations. Because of this it's important that we economize this process.

In concluding his introduction Dan suggested three ways of defining our most important customer base in view of these considerations. These are:

- Prioritize NARSTO's "most favored customer" base, and limit it to about 12 organizations. This list probably can be expected to vary with time.
- Use consortia (e.g., CMA, . . .) extensively in defining this base.
- Maximize advantage of "high leverage fora" (e.g., Broadcast Journalists A'ssn) for this purpose.

The main portion of this discussion was led by Robert Wendoll, who had prepared an extensive overview of environmentally cognizant groups, with the objective of identifying specific target organizations for NARSTO products. This overview is necessarily incomplete, and Robert requested that attendees wishing to add potential organizations to this list contact him directly to do so. Because Robert's report is quite extensive it is attached as Appendix B to these minutes. In addition to listing candidate organizations this document presents a suggested list of criteria for selection of target organizations and suggests three levels of contact between NARSTO and such organizations (pp 2 and 3 of report, respectively).

Extensive discussion followed Robert's presentation. Michelle asked whether "target customers" could be NARSTO members, or whether this was a conflict of interest. Gary Foley replied that we don't view interaction with a customer a conflict of interest. Jim Vickery commented that this issue was thought about extensively when NARSTO was designed, and this is where the idea of "policy-relevant," but not "policy-making" research came from. Dan agreed, stating that a “separate but interactive” environment is what we are attempting to achieve.

During Robert's presentation, the question arose of whether the Commission for Environmental Cooperation (CEC) and the International Joint Commission (IJC), both of which deal with international North American environmental considerations, are formally linked. Gary replied that all interactions between these groups are informal at present.

Dan suggested that a one-page, eye-appealing flyer describing the NARSTO Assessment be prepared to facilitate information exchange with these organizations.

Ron Patterson then reported on his trip to the CEC meeting, which occurred in Montreal this past April. Ron's trip report, which contains considerable detail, is attached to these minutes as Appendix C. Ron reported that the CEC has essentially three administrative levels:
- **The Council.** This is the governing body and is composed of the environmental ministers from the US, Mexico, and Canada.

- **The Joint Public Advisory Committee.**

- **The Secretariat.** This group implements the actual programmatic work of the CEC.

Ron discussed the possibility of CEC becoming a NARSTO member with Lisa Nichols and Janine Ferretti (Director) of the Secretariat. They responded that CEC hasn’t ever signed an agreement of this type in the past, but they’d consider it in NARSTO’s case: They requested that NARSTO prepare for them a list of advantages to CEC for such an arrangement. Ron, Michelle, and Jake Hales have prepared a list and forwarded it to CEC for this purpose.

Following Ron’s presentation on the CEC the discussion returned to potential target organizations. Michelle asked Bill Sprigg about the relationship between NAS and ICSU. Bill replied that the interaction is sometimes considerable, but it tends to fluctuate between hot and cold with time.

Gary noted some other important organizations not covered by Robert’s review. These include the ECE, the OECD and the EC (all European). Robert asked whether we should focus primarily on Level 1 (informational) contacts as defined in his report.

Karen Malkin noted that there are a number of North American consortia, such as the Southern Appalachian Council, that probably could be added to this list.

Referring back to Robert’s question, Michelle stated that in reality we are faced with two issues:

- Which high-level operations do we want to have close associations with?
- Which ones do we want to have level-1 contacts with?

Jim Vickery responded that we’re not really looking for funding organizations here: We want to identify the ‘mover and shaker’ organizations who should be consumers for our products.

Peter commented that between now and 1999, we should focus on US and Canadian contacts. There’s where our urgent policy problems are.

Howard Feldman noted that two paths are underway: 1. Assessment path. 2. Cooperative research path. We’re doing more on 1. currently. We may have a different message for the two different groups.
Michelle noted that we need to focus right now on the policy groups that are targets for our Assessment.

Ron asserted that we need to continue emphasizing a tri-national focus, in order to encourage a tri-national NARSTO.

This discussion led to a formal motion by Dan that the ESC consider this as a two-track issue, with the first associated with NARSTO assessment and the second associated with the research program. We should focus here on first track and select first priority target organizations immediately. The motion was seconded and passed.

The attendees then proceeded to identify priority target organizations and cognizant individuals responsible for making and maintaining contact. These are given as follows:

CEC (Ron Patterson and Jake Hales)
CCME (Canadian Council of Ministers for the Environment) (Don McKay)
OSTP/NSTP/CENR (Dan Albritton)
Environmental Council of the States and STAPPA/ALAPCO (John Elston)
“Mexico” placeholder (Sylvia Edgerton)
CASAC/FACA (Jim Vickery and Gary Foley)

Sylvia will make appropriate contacts with Mexican officials to determine the optimum target organization for that country.

The meeting continued after the lunch break to determine the sequencing of future ESC meetings. The attendees decided that three ESC meetings are needed per year, one of which is to be held in conjunction with the annual Executive Assembly meeting and at least one other of which shall be held in conjunction with the S&RPG.

The next topic involved the proposed letter to NARSTO Sponsoring Members requesting a voluntary $10K donation for incidental expenses not covered by previous contributions. There were two aspects to this discussion, the first involving the form of the final letter, and the second involving the repository for such funds.

With regard to the letter, Al Ferullo asked that the existing draft be modified to clarify just who is regarded as a "significant" contributor. It was agreed that the sentence leading to this confusion will be deleted. John Holmes asked that “and policy” be deleted from paragraph 3, page 1. Al stated that we need to clarify where the NARSTO funds go. John asked if any of the funds might go to support NARSTO "supporting" members. The answer was no. Steve Cadle asked if this is considered an annual contribution. Answer: yes. Robert suggested that we strike reference to 1997 and state that we will ask for more in the future. The ESC accepted distribution of the letter with these modifications.
Peter stated that it will be difficult for EPRI to contribute to this kind of fund, but EPRI could cover the cost of printing the Assessment Document. Jim asserted that it will be important to track donations and follow the letter up with phone calls.

Regarding the fund repository, Jake reported marginal results in selecting a location. EPRI could provide this service, at least for the private sector, but indications are that they would want to simply pass the money through to NARSTO Headquarters for dispersal. This is probably not feasible, because EPRI imposes a handling tax on such funds, and Washington State (where NARSTO Headquarters resides) also taxes such funds. This double tax is definitely not appealing. Jake reported also that, because of some personnel shifts, the University Corporation for Atmospheric Research (UCAR) is no longer a feasible candidate. Peter noted that perhaps EPRI could re-think its position, and disperse the funds directly.

The meeting then moved to a presentation of the OTAG effort by Mike Koerber. Now two years old, OTAG was established under the Environmental Council of the States (ECOS). The project is performing extensive chemical-transport model computations, using the UAM-V code, for the Eastern US for four ozone episodes. The OTAG modeling results will be available on several Web sites (see Koerber's overheads in Appendix D). The official modeling component of OTAG will conclude on May 30.

The group discussion then turned to how NARSTO can best utilize the OTAG product. This will definitely be reviewed by, and incorporated in, the 1998 Assessment; but it was suggested that OTAG personnel probably have some valuable insights regarding needed ozone research as a result of their experience. It was suggested that we request OTAG to compose a list of scientific needs determined as a result of their process.

Following the OTAG presentation, Bill Chameides provided an overview of progress on the Assessment Document. The Synthesis Team, which is writing the document, will use the Critical Review Papers as a primary source of scientific input. These papers are currently in progress, but the Synthesis Team has created an early outline of the Assessment Document for comment and review. As currently established this will be a short (50-60 page) report that has the policy-analysis and policy-making communities as their primary target audience.

In viewing the outline, Jim Vickery voiced concern that the Assessment Document may be moving into the policy-making arena, and stated that NARSTO should be careful not to breach this boundary. Bill responded that this was definitely not the intent of the Synthesis Team: that they were focused on providing policy-relevant scientific information in a form that is optimally assimilable by the policy community, although the present outline may not convey this point clearly.
This led to considerable group discussion. Dan suggested a quick and practical description of policy relevancy as "news you can use." Robert suggested that if we think of policy as the process of choosing actions to deal with an issue, then “policy relevant science” is the science that links actions with outcomes -- so that policy-makers can choose actions intelligently. Policy-relevant science does not, however, prescribe what choices can or should be made. There was general consensus on this statement. Also in this discussion it was emphasized that we must not forget the tri-national aspect of the NARSTO Assessment Report. Ron reminded the group that the foundation of the Assessment is based in the formal statement of Science and Policy Questions: these should serve as strong guidelines for the Assessment effort.

Following Bill's presentation Jake brought forward the names of Rich Scheffe, Laurel Schultz, and Alan Dunker as replacements for John Bachmann and George Wolff as members of the Synthesis Team. George will be unable to remain active because of pressing new commitments, but would like to be considered as an ex-officio member during future months. These replacements were approved by the attendees.

On Friday morning Michelle opened the meeting by announcing that a possible solution to the fund-repository issue discussed yesterday is the Oak Ridge Institute for Science and Education. Their institutional overhead there is about 10%. The ESC asked Michelle to proceed to explore this.

Ron Patterson then gave a status presentation on NARSTO’s Quality Systems and Data Management effort. (Ron's overheads are included as Appendix E to these minutes). Immediately following funding by DOE in January, the NARSTO QS&DM center was established at the Oak Ridge Carbon Dioxide Information and Analysis Center (CDIAC).

Jim Vickery asked if the NARSTO Quality Systems program provides a mandatory universal format, or if equivalent systems within NARSTO member organizations are acceptable. Answer: Equivalent systems are acceptable. This is considered a resource to help develop plans, and as a back-check to examine holes in existing plans.

Dan asked about previous plans for the NARSTO creation of one-pagers on quality aspects of chemical species measurement; are these still on the screen? Answer: Yes; we’re planning a workshop to do this in the near future.

Ron announced that Wanda Ferrell, the DOE Program Manager for the NARSTO Quality Systems Science Center, has been appointed a new member of the S&RPG. Following Ron's presentation, Ray Wassel gave a brief status report on the NAS oversight committee for NARSTO. Announcement of the committee's membership will follow formal acceptance by the Academy - a process which is expected to occur soon. Ron announced that, because of administrative and legal considerations, the name of this committee has been changed to the Science Review Council.
Gary Foley then presented a draft of the ESC White Paper on fine particles (Attachment F to these minutes), which was prepared by himself, Jim Vickery, and Peter Mueller. Key questions for NARSTO in this regard are:

- Do we expand our ozone research to include fine particles?
- Do we further expand to include research on effects?
- What is our schedule and pace, should we choose to proceed?

There are two risk-assessment—related aspects to this discussion: health and ecology, and source-receptor evaluation.

Gary presented a schedule for the ESC leading into the 1998 EA meeting, which includes a November workshop, followed by the EA Mtg, followed in turn by a second workshop in spring, 1998. He asked for an ESC decision on whether to pursue this schedule.

Peter expressed his feeling for the need to add effects research to the NARSTO science-team complex for the case of particles, and suggested that we probably need to add this for ozone as well.

Michelle Broido said she was very uncomfortable with this. She is cautious about advancing into the fine-particle arena, in view of the fact that NARSTO currently has its hands full with ozone alone. Her primary concern, however, is with the addition of effects research. This presentation makes it seem like the decision to proceed with particles has already been made. The EA should make this decision, not us.

Jeff West expressed the opposite viewpoint. He feels that programmatic interest — as well as financial support — will fade if we stick with ozone alone.

Howard Feldman expressed an intermediate view. Scientific overlap makes moving into fine particles appealing, but he doesn’t favor moving into effects research.

Michelle commented that Howard's expressed approach was acceptable, but cautioned that we don’t want to usurp the decision authority of the EA.

Cyril Durrenburger commented that this is really opening the barn door. When we drag in fine particles we also necessarily bring in sulfur, ammonia, and all sorts of additional compounds. We’d better be prepared to deal with this broadening of scope.

Dan expressed his conviction that we should proceed; but choosing procedure and pace is totally important. NARSTO is a "system that works, and the world is not overly burdened with systems that work." We need to proceed, but in a manner that doesn’t kill the Assessment and other important NARSTO efforts. Dan suggested that we cautiously extend our probe into effects by firing up the Liaison Team.
Karen Malkin commented that this a major change, which should be reflected in an amendment to the Charter.

Robert commented that this draft document, by suggesting effects research, takes things farther than was discussed by the EA; He is generally in favor of some combination of effort, but based on the physical interplay between ozone and PM.

John Holmes stated that this linkage results in economies of combining field and possibly other scientific efforts. We should make a concerted effort to do this.

Don McKay questioned why we shouldn’t proceed. Ozone game was catch-up. Getting into fine particles allows us to take a proactive charge for a change.

Jack Kaye observed that the underlying science drives the issues together. Doing things in a unified way will result in better science for both. We aren’t a health-effects organization, however, and should stay with physical- and chemical-process research.

Jim Vickery noted that the PM issue is growing rapidly in political importance, and it will take a organization of NARSTO’s proportions to do it. Yes, we do need to start moving forward, cautiously. We need to agree on the process to proceed. He suggests an initial step of a joint meeting of effects and source-receptor communities.

Cyril stated that one can’t just look at a little piece of PM. Using the “NARSTO engine” to pull the “PM train” makes a lot of sense.

Don McKay noted that we have a Charter. How would we change this to accommodate fine particles? What would be the additional cost in the sense of dollars and time?

Peter stated the need to take a survey of PM work. We need a workshop for this.

Dan proposed that we send Jake our comments on this outline, and have him distribute them via e-mail.

Sylvia will volunteer to help in that effort.

Jim Vickery requested each organization to give him a one or two pager on what they are doing on fine particle research. Send these to Jim, Sylvia, and Peter two weeks from today.

Following the fine-particle discussion, Mary Anne Carroll presented an overview of the new Program for Research on Oxidants: Photochemistry, Emissions, and Transport (PROPHET). This program is centered on an air-chemistry observatory at the University of Michigan Biological Station, near Pellston, Michigan and involves the analytical, theoretical, and modeling efforts of a number of scientific organizations.
Mary Anne’s presentation, which was intended to present PROPHET for consideration as a formal NARSTO component, was well received by the attendees. After some discussion regarding PROPHET’s intent to utilize NARSTO quality systems management facilities and to submit PROPHET data to the NARSTO data base, the attendees voted to include PROPHET within NARSTO.

The meeting concluded after a brief discussion, led by Jake, on the status and format for NARSTO’s November 1997 Science meeting. API is hosting this meeting, and Howard Feldman will have the formal announcement prepared shortly.