

September 28, 1994

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Ambient Standards Branch (MD-12)  
Air Quality Management Division  
Office of Air Quality Planning and Standards  
U.S. Environmental Protection Agency  
Research Triangle Park, North Carolina 27711

Re: EPA Contract No. 68D30034, Assignment No. 0-4

Dear Mr. Polkowsky:

Enclosed is the final report *SAMI Operating Plan* prepared in accordance with work assignment change no. 4. This final report incorporates the Governing Body comments received on the September 2, 1994 draft. This is the final submittal under the subject work assignment. If you have any questions concerning the enclosed item, please contact me at (919) 493-6099.

Sincerely,

Rebecca Battye  
Project Leader

Enclosure

cc: Tom Donaldson, EPA/AQMD (MD-15)  
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Governing Body members

# **SAMI OPERATING PLAN**

May 10, 1994  
Revised July 5, 1994  
Revised August 16, 1994  
Revised September 1, 1994  
Revised September 21, 1994

Prepared for:

The Governing Body of the  
Southern Appalachian Mountains Initiative (SAMI)  
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EPA Contract No. 68-D3-0034  
Work Assignment No. 0-4

Work Assignment Manager:

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## List of Acronyms

<b>API</b>	American Petroleum Institute
<b>AQRV</b>	Air Quality Related Values
<b>CAAA</b>	1990 Clean Air Act Amendments
<b>CARB</b>	California Air Resources Board
<b>DOC</b>	Department of Commerce
<b>DOE</b>	Department of Energy
<b>DOI</b>	Department of the Interior
<b>DOT</b>	Department of Transportation
<b>EMO</b>	Emission Management Option
<b>EPA</b>	Environmental Protection Agency
<b>EPRI</b>	Electric Power Research Institute
<b>FC</b>	Funding Committee
<b>GIS</b>	Geographic Information Systems
<b>GB</b>	Governing Body of SAMI
<b>GCVTC</b>	Grand Canyon Visibility Transport Commission
<b>HAP</b>	Hazardous Air Pollutants
<b>LAER</b>	Lowest Achievable Emission Rate
<b>NAPAP</b>	National Acid Precipitation Assessment Program
<b>NESCAUM</b>	North East States for Coordinated Air Use Management
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NO<sub>x</sub></b>	Nitrogen Oxides
<b>NPS</b>	National Park Service
<b>OC</b>	Operating Committee of SAMI
<b>OTC</b>	Ozone Transport Commission
<b>PAC</b>	Public Advisory Committee
<b>PC</b>	Policy Committee
<b>PSD</b>	Prevention of Significant Deterioration
<b>P<sup>2</sup></b>	Pollution Prevention
<b>RADM</b>	Regional Acid Deposition Model
<b>RACT</b>	Reasonably Available Control Technology
<b>ROM</b>	Regional Oxidant Model
<b>SAMI</b>	Southern Appalachian Mountains Initiative
<b>SIP</b>	State Implementation Plan
<b>SOS</b>	Southern Oxidant Study
<b>SO<sub>x</sub></b>	Sulfur Oxides
<b>SOW</b>	Statement of Work
<b>TOC</b>	Technical Oversight Committee
<b>TTN/BBS</b>	EPA Technology Transfer Network/Bulletin Board System
<b>TVA</b>	Tennessee Valley Authority
<b>USFS</b>	United States Forest Service

**VOC**  
**VMT**

Volatile Organic Compounds  
Vehicle Miles Traveled

## **Glossary of Terms and Phrases**

**Air Quality Related Value (AQRVs):** Any of the resources of an area that can be affected by changes in air quality. AQRVs include, but are not limited to the following: visibility; flora; fauna; geological resources; archeological, historical, and other cultural resources; and soil and water resources and structures.

**Airshed:** A term denoting a geographical area, the whole of which, because of topography, meteorology, and climate, shares the same air mass.

**Air pollutants:** Any agent or combination of agents, including any physical, chemical, biological, or radioactive substance or matter which is emitted into or otherwise enters the ambient air and has a polluting effect or is a precursor to the formation of pollutants.

**Alternative fuels:** Any fuel containing methanol, ethanol, or other alcohols (including any mixture comprised of 85% or more, by volume, of such alcohols mixed with gasoline or other fuels), reformulated gasoline, diesel fuel, natural gas, liquefied petroleum gas, or hydrogen or other power sources (including electricity) that can be used in a clean-fuel vehicle that complies with the standards and requirements applicable to such vehicles under Title II of the CAAA when using the fuel or power source in question.

**Anthropogenic:** Resulting directly or indirectly from human activities.

**Aquatic ecosystems:** The stream channel, lake or estuary bed, water, biotic communities and the habitat features that occur therein. Waters of the United States, including wetlands, that serve as habitat for interrelated and interacting communities and populations of plants and animals.

**Assessment framework:** An evaluation system developed by the TOC to project the environmental, social, and economic responses to changes in emissions.

**Class I area:** Any international park, national wilderness area or national memorial park that exceeds 5,000 acres, or national park that exceeds 6,000 acres that was in existence on the date of enactment of the Clean Air Act Amendments of 1977.

**Demand Side Planning:** Conservation methods that are focused on planning for the reduction of energy consumption prior to a demand for such energy arising.

**Emission Management Options (EMOs):** Any initiative that would result in emission reductions.

**Environmental parameters:** Consideration of physical factors affecting the environment including air quality, water quality, temperature, humidity, and solar radiation.



## **Glossary of Terms and Phrases (continued)**

**Hazardous air pollutants:** Any of the 189 air pollutants listed under Section 112 (b) of the CAAA.

**Lowest Achievable Emission Rate (LAER):** For any source, the rate of emissions which reflects the most stringent emission limitation. This most stringent emission limitation will be either contained in a State implementation plan (SIP) for the specific class or category of source, or it will be the most stringent emission limitation which is achieved in practice by members of that class or category of source, and is determined to be whichever is more stringent.

**Long-term EMOs:** An EMO that will be evaluated in the long term. This term does not imply a deadline for the implementation of the EMO.

**Near-term EMOs:** An EMO that the PC can evaluate in the near term. This term does not imply a deadline for the implementation of the EMO.

**Ozone:** A pungent, colorless, toxic gas that contributes to photochemical smog. Photochemical oxidants, mostly as ozone, are the product of atmospheric reactions of such certain contaminants (precursors) as hydrocarbons and nitrogen oxides in the presence of sunlight. The formation of ozone also involves the physical processes of dispersion and transport of precursors.

**Particulate matter < 10 $\mu$  (PM<sub>10</sub>):** Any finely divided solid or liquid material, other than uncombined water, with an aerodynamic diameter less than or equal to a nominal ten micrometers, such as fugitive dusts, process dusts, or combustion products.

**Pollution prevention (P<sup>2</sup>):** Source reduction and protection of natural resources through conservation or increased efficiency in the use of energy, water, or other materials.

**Reasonably Available Control Technology (RACT):** Devices, system process modifications, or other apparatus or techniques that are reasonably available, taking into account (1) the necessity of imposing such controls in order to attain and maintain a National Ambient Air Quality Standard (NAAQS), (2) the social, environmental, and economic impact of such controls, and (3) the alternative means of providing for attainment and maintenance of such standards.

**Socioeconomic parameters:** Consideration of population growth and demographics, economic, social, and political factors.

**Terrestrial ecosystems:** A complete interacting system of organisms and their environment.

**Visibility degradation:** A reduction in visual range and increase in atmospheric discoloration.

**Volatile Organic Compound (VOCs):** Any organic compound which participates in

## **Glossary of Terms and Phrases (continued)**

atmospheric photochemical reactions.

## 1 Introduction<sup>1</sup>

Research and monitoring in national parks and national forest wilderness areas of the Southern Appalachian Mountains have documented adverse air pollution effects on visibility, streams, soil, and vegetation. Beginning in 1990, the Federal Land Managers for Shenandoah National Park, Great Smoky Mountains National Park, and Jefferson National Forest/James River Face Wilderness Area made several adverse impact determinations in the review of proposed air permits for major new sources. All parties acknowledge, however, that the pollution levels adversely affecting park and wilderness resources come largely from existing sources of pollution -- large and small, mobile and stationary, near and distant. However, the relative contribution of each source type to the regional air pollution problem is not well quantified. Although current air pollution levels in these areas typically do not exceed federal standards, the levels are threatening the natural ecosystems, resources, diversity, and beauty of the Southern Appalachian Mountains. In addition to the aesthetic values of this region, these areas are very important to the culture and economy of the surrounding states.

Over the course of the next decade, the 1990 Clean Air Act Amendments (CAAA) require major reductions in airborne pollutant chemicals, including sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), ozone and other photochemical oxidants, and volatile organic compounds (VOC). Although the reductions are expected to produce air quality improvements, there is uncertainty whether the results will be enough to protect and preserve the delicate ecosystems and natural resources of the Southern Appalachians, especially in Class I areas.

### 1.1 Mission Statement and Purposes of SAMI

*Through a cooperative effort, identify and recommend reasonable measures to remedy existing and to prevent future adverse effects from human-induced air pollution on the air quality related values (AQRVs) of the Southern Appalachians, primarily those of Class I parks and wilderness areas, weighing the environmental and socioeconomic implications of any recommendations.<sup>2</sup>*

*The purposes of SAMI are to:*

- develop and promote regional cooperation for protecting the air quality and the AQRVs of the Southern Appalachians, especially in Class I areas;*
- provide a forum for coordinating efforts among local governments/agencies, states and federal agencies, industries and public interest groups, and for encouraging public*

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<sup>1</sup> **Article I - Preamble**, Southern Appalachian Mountains Initiative Bylaws as adopted November 17, 1993.

<sup>2</sup> **Article III - Mission Statement**, Southern Appalachian Mountains Initiative Bylaws as adopted November 17, 1993.

*involvement in SAMI;*

- *assess scientific and technical data, studies, and other currently available information pertaining to air quality and adverse effects from air pollutants on the AQRVs of the Southern Appalachian Mountains, especially in Class I areas;*
- *identify gaps in current scientific and technical data, studies, and other currently available information and prioritize the need for additional information pertaining to air quality and adverse effects on the AQRVs of the Southern Appalachian Mountains, especially in Class I areas;*
- *assess the contribution of adverse effects from all air pollution sources, both within and outside the SAMI region to the Southern Appalachian Mountains, and Class I areas in particular;*
- *assess the impacts of current and future air quality management strategies on the areas of concern, including the socioeconomic implications of attempts to mitigate those effects;*
- *develop strategies to remedy existing and prevent future adverse effects from human-induced air pollution on the AQRVs of the Southern Appalachians, especially in Class I areas, and assess the socioeconomic implications of the strategies;*
- *make recommendations on both regulatory and non-regulatory approaches to improve and protect the air quality in the Southern Appalachians, and the AQRVs of the Southern Appalachians, especially in Class I areas; and*
- *coordinate SAMI projects with other efforts already underway to avoid redundancy and facilitate the efforts of other groups to address the Southern Appalachian air quality issues.*<sup>3</sup>

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<sup>3</sup> **Article V - Purposes**, Southern Appalachian Mountains Initiative Bylaws as adopted November 17, 1993.

## 1.2 History of SAMI

In March 1992, a conference was held in Gatlinburg, Tennessee to examine the scientific understanding of air pollution in the Southern Appalachian Mountains and ideas for addressing it. In response to the controversy over new source permitting and the discussions at the Gatlinburg conference, the eight states surrounding the Southern Appalachian Mountains, the Environmental Protection Agency (EPA), the National Park Service (NPS), and the U.S. Forest Service met in June 1992, to launch the Southern Appalachian Mountains Initiative (SAMI). Through this cooperative effort, SAMI participants seek to establish the necessary forums and processes to effectively assess the forthcoming changes to and ascertain solutions to the air pollution problems of the Southern Appalachians.<sup>4</sup>

In July 1993, SAMI held its first public meeting in Asheville, North Carolina. At this meeting, the majority of the issues regarding the by-laws for SAMI were addressed. In addition, the organizational structure of SAMI was proposed and the activities, structure, and goals of the SAMI committees were discussed.

In November 1993, SAMI had its first annual meeting in Salem, Virginia. At this meeting, the bylaws were ratified, the committees met for the first time and elected committee officers, and future activities were outlined.

In May 1994, SAMI had its first semiannual meeting in Knoxville, Tennessee. At this meeting, Section 3.3, the Conflict of Interest: Statement of Principles, and Section 3.2, the Travel Policy, were adopted by the Governing Body (GB), and a staff expansion of two positions to be funded by the SAMI states was authorized. In addition, the review draft of the SAMI Operating Plan and all of the committee and subcommittee draft work plans were presented for discussion and review.

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<sup>4</sup> **Article I - Preamble**, Southern Appalachian Mountains Initiative Bylaws as adopted November 17, 1993.

### **1.3 Organization of SAMI**

SAMI has a GB that is made up of representatives from 8 voting states (Alabama, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia), 3 non-voting federal agencies with 4 representatives (National Park Service, U.S. Forest Service, and U.S. EPA (Region III and IV)), 1 non-voting public interest representative, and 1 non-voting industry representative. Each GB member has a representative on the Operations Committee (OC), and, in addition, the SAMI Coordinator serves on this committee. The OC serves as the direct link to the GB. SAMI has four other committees: the Funding Committee (FC), the Public Advisory Committee (PAC), the Technical Oversight Committee (TOC), and the Policy Committee (PC). The TOC has four subcommittees: Effects, Modeling, Monitoring, and Inventory. Figure 1 illustrates the SAMI organization. Appendix A lists the Committee members as of September 21, 1994.

# **SAMI**

## **GOVERNING BODY**

**8 voting states**

**(GA,VA,WV,KY,NC,SC,TN,AL)**

**4 non-voting federal**

**(NPS, USFS, EPA III & IV)**

## **OPERATIONS COMMITTEE**

**15 members**

**Governing Body names 1 each**

**SAMI Coordinator**

These committees are comprised of volunteers (lay people and experts) and various stakeholders appointed by the member states and the federal agencies, and confirmed by the GB. These appointees represent a balance of industry, public interest, state, local, and federal agencies,

and academia. The PC and PAC have established work groups, as



necessary, to carry out their work. The work groups' functions are discussed under Section 2 Mission Statements and Committee Objectives.

#### **1.4 Definition of Final Products**

The purpose of this Operating Plan is to provide a tool that SAMI can utilize to achieve its stated mission. This Operating Plan identifies several final products. Task 5.3 will identify both short-term and long-term Emission Management Options (EMOs) for evaluation. Task 5.4 will document the baseline or present status against which EMOs will be analyzed, will identify the resources at risk, and will identify information (data, models, studies, and tools) gaps. Task 5.4 will also address data gaps that can be filled in the short-term and that are necessary to complete the assessment of EMOs. Task 5.5 will provide a framework that can be consistently utilized to assess EMOs. Task 5.6 will result in analysis of long-term EMOs, utilizing the evaluation criteria defined in Task 5.2 and the assessment framework developed in Task 5.5. Task 5.7 will identify and seek to initiate long-term research projects. Section 5.8 identifies the tasks that will be conducted by the PAC. Throughout the course of this program, SAMI will identify research needs and coordinate with other research programs to further the understanding of air quality issues in the Southern Appalachians. Finally, SAMI will develop recommendations to the GB that, when implemented, will achieve SAMI's mission, as stated in Section 1.1 of this document.

At the May 1994 meeting in Knoxville, Tennessee, the GB established two primary milestones around which this Operating Plan is organized. SAMI will prepare an interim report in November 1995 that provides the current scientific understanding, based on SAMI's work, and identify those EMOs that have been considered by SAMI, including any recommendations which might be appropriate to make at that time. A final report containing the information described for the interim report will be issued in May 1997. Any additional milestones after May 1997 would be addressed in a supplement to this Operating Plan.

## **2 Mission Statements and Committee Objectives**

The following mission statements have been developed by the committees and subcommittees of SAMI and are presented below to illustrate how the committees within SAMI envision their role.

In addition to the adoption of work area responsibility, the committees and subcommittees within SAMI have the responsibility for maintaining internal communication. Internal SAMI communication is addressed in Section 7.1 of this document.

## 2.1 Funding Committee

The purpose of the FC is to keep track of the SAMI funds, make budget recommendations to the OC, and identify additional funding avenues, as appropriate.

## 2.2 Policy Committee

The PC adopted the following mission statement:

*Develop and analyze both regulatory and non-regulatory strategies for emission management options (EMOs) and make policy recommendations to the SAMI Operations Committee (OC) to improve and protect air quality and associated AQRVs in the Southern Appalachian Mountains. Evaluate the environmental, socioeconomic, and other implications of selected EMOs prior to formulating recommendations for the Governing Body (GB) through the OC.*

*The PC, as does SAMI as a whole, has a commitment to work toward consensus, substantial agreement or concurrence that a potential, proposed or actual "work product" is acceptable to the PC members within the timeframe allowed for decision. Minority opinions will be reported by the PC.*

Initially, the PC developed four working groups. These are the Process and Planning Development, Pollutants and Pollution Effects of Concern, Criteria, and EMO Development and Analysis work groups. Other working groups can be organized as the need arises. Likewise, working groups can be dissolved when their function has ceased.

The Process and Planning Development Working Group will continue to refine the PC Plan, identify essential resources (and how to acquire them) for carrying out the PC mission, and define process of work.

The Pollutants and Pollution Effects of Concern Working Group will be a short-term group (i.e., 30-60 days) that will identify and prioritize issues of concern. Priority is relevant when the PC has to decide which issue it will work on.

The Criteria Working Group will identify, assess, and recommend options. This working group will develop a screen for dividing EMOs between the PC and TOC and a screen/criteria for evaluating EMOs that could be short-term actions.

The EMO Development and Analysis Working Group will identify short-term and longer term EMOs. Additionally, this group will identify, develop and initially assess EMO actions to improve AQRVs in the Southern Appalachians.

## 2.3 Public Advisory Committee

The PAC developed the following mission statement:

*Through a balanced representation, educate the public about air quality in the Southern Appalachians and SAMI; gather public concerns about air pollution, and encourage public participation in SAMI; advise SAMI about public concerns; provide feedback to the public on SAMI's response to their concerns.*

In order to carry out its responsibilities, the PAC has developed three working groups. These are the Media Strategy, Communication/Education, and Public Dialogue work groups. A fourth group, the Resources Working Group is in the process of being organized. Other working groups will be organized as the need arises. Likewise, working groups can be dissolved when their function has ceased.

The Media Strategy Working Group will develop an overall media strategy for SAMI, including direct public and press communications. This media strategy will be approved by the OC.

The Communication/Education Working Group will communicate specific SAMI messages through a set of communication and education tools, incorporating a peer review process as described in Section 7.1.5 of the SAMI Operating Plan, and a methodology for evaluating the effectiveness of the message. By definition, communication means that the information comes in and goes out, a fact that must be considered as various products are designed. All products of the working group will be approved by the OC prior to external distribution, and will fit within the overall media strategy set forth by the Media Strategy Working Group.

The Public Dialogue Working Group will distribute approved SAMI correspondence to the appropriate public sector audience in the most efficient and timely manner possible via the mechanism identified and procured by the Resources Working Group. This working group will also solicit public input, distribute it to the appropriate SAMI entities, and relay SAMI's response to the originator, as appropriate.

The proposed Resources Working Group will identify and set up a network of interested organizations, by state, who can assist in outreach and information gathering activities.

## **2.4 Technical Oversight Committee**

The TOC defined their mission as:

*Identify, prioritize, and review activities that provide the scientific and technical information needed by SAMI and provide technical support to all SAMI committees.*

In addition to the mission statement of the TOC, the four subcommittees within the TOC have mission statements to clarify their functions under the TOC. These missions are:

*The Effects Subcommittee will assess the impacts of air pollution on resources at risk (air quality related values) in Southern Appalachia and predict resource responses to alternative EMOs.*

*The Emission Inventory Subcommittee will provide historical, base-year, and projected emission inventories and cost of engineering controls in the SAMI region. These data will provide time series of emission distributions and the costs to manage them that will aid the design and assessment of SAMI's EMOs, and will provide input for SAMI's air quality modeling efforts.*

*The Modeling Subcommittee will provide technical oversight and direction in establishing an acceptable protocol and conducting modeling by assessing the impacts of air pollution on air quality.*

*The Monitoring Subcommittee will assess ambient monitoring data describing the air quality, visibility, and meteorology.*

## **3 Planning and Administrative Activities**

The following planning and administrative tasks are necessary prior to the initiation of much of the work of SAMI. The majority of these tasks will be undertaken by the OC.

### **3.1 Develop an Integrated SAMI Operating Plan**

This work is underway. The final product will be this document.

**Task Duration:** 7 months    **Completion Date:** September 30, 1994

**Responsibility:** All Committees

### **3.2 Travel Policy**

The GB adopted a travel policy on May 14, 1994. The GB amended the travel policy on September 21, 1994. The final amended travel policy is located in Appendix B.

### **3.3 Develop Contracting Procedures**

The GB adopted contracting procedures on September 21, 1994 which are located in Appendix C.

**Task Duration:** 4 Months    **Completion Date:** September 21, 1994  
**Responsibility:** OC

#### *3.3.1 TOC Statements of Work Development, Approval, Implementation, and Management*

The TOC and subcommittees will write statements of work (SOWs) for Tasks 5.4, 5.5, and 5.7 and will recommend to the OC and GB how the work should be accomplished and managed. These recommendations will consider and balance quality, timeliness, cost and administrative efficiency and will be forwarded to the OC/GB for approval. Ongoing studies and existing organizations will be possible candidates for the work. Mechanisms for accomplishing the work include, but are not limited to, sole-source procurement, requests for proposals (RFP), in-kind services from SAMI members, cooperative agreements, and level-of-effort contracts. The TOC will be guided in its deliberations by policies established by the OC and GB dealing with conflict of interest, peer review, policy review, and/or in-kind services.

Following approval by the OC and GB, the TOC will be assisted by the SAMI Technical Coordinator in managing the projects defined in the SOWs by providing guidance on day-to-day management issues, monitoring the technical progress of each project, and reviewing the interim and final products of each project.

**Task Duration:** ongoing    **Completion Date:** The SOWs for Task 5.4 will be awarded by October 15, 1994; the SOWs for Task 5.5 will be awarded by January 30, 1995; and, the SOWs for Task 5.7 will be awarded as projects are identified  
**Responsibility:** TOC

### **3.4 Staffing**

SAMI is a volunteer organization, and, as such, the majority of the committee and subcommittee members do not have the time or resources to conduct the work for SAMI. Two committees, the TOC and PAC, see a need for SAMI to hire staff, in addition to the SAMI Coordinator, to coordinate and/or carry out the work of their committee.

In general, the TOC and the subcommittees require support in the execution of their tasks. This support would include hiring a SAMI Technical Coordinator, as well as the possibility of contracting out specific work products. At the Knoxville, Tennessee meeting on May 14, 1994, the GB agreed to provide additional funds from the SAMI states' budgets to hire a SAMI Technical Coordinator to support the TOC. The SAMI Technical Coordinator will have primary reporting responsibility to the TOC. The TOC will play an integral part in the selection process employed to determine the appropriate mechanism for technical support to SAMI. The TOC will be guided in its deliberations by policies established by the OC and GB dealing with conflict of interest, peer review, policy review, and/or in-kind services.

The GB also approved hiring a full time administrative assistant to assist the SAMI Coordinator and the committees. That individual will be a North Carolina state employee.

**Task Duration:** 7 months    **Completion Date:** October 1, 1994 for hiring an administrative assistant, and January 1, 1995 for hiring a SAMI Technical Coordinator  
**Responsibility:** North Carolina has the lead on the administrative assistant selection, and TOC has the lead on the SAMI Technical Coordinator selection

### **3.5 Internal Committee Planning Activities**

Several of the committees have identified future planning activities that will result in the division of work among their committee members. Details on the types of workgroups currently envisioned by the committees and subcommittees can be found in the Appendices. Inter-committee working groups have also been created for the integrated assessment framework and socioeconomic part of that framework. Details on these inter-committee relationships will be incorporated in this plan at a later date.

## **4 Guiding Principles**

A variety of principles, philosophies, and assumptions will guide the work that SAMI conducts. These include frequent and continued communication (both internally and externally); reasonable attempts at the estimation of uncertainty; modifications, as necessary, to the SAMI Operating Plan; continued efforts to achieve a balanced representation and high level of participation from all interest groups; and a commitment to make decisions by consensus opinion, informed by science.

### **4.1 Communication**

The PAC's process is focused on education, information, citizen involvement, and feedback. The PAC will assist the public in understanding, reacting, and responding to information about the issues. All communications, whether internal or external, will be as concise as possible and as free of jargon as practical. All aspects of the issues and proposed solutions, including environmental, social, economic, and others, will be incorporated into public education

and dialogue. For a more detailed discussion on this guiding principle, refer to the Communications Strategy in Section 7 of this plan, and Appendix E: SAMI Public Advisory Committee Work Plan.

## **4.2 Uncertainty**

SAMI recognizes the issues associated with "uncertainty." Uncertainty will be considered during the development of work products. The certainty or uncertainty of data and research results will be factored into recommendations brought before the GB. The GB will make its decisions with full knowledge of the uncertainties.

## **4.3 SAMI Operating Plan as a Living Document**

This version of the SAMI Operating Plan represents the current understanding of the work that needs to be completed in order to attain the SAMI mission. This Operating Plan is a living document that will evolve over time as the resources at risk are better defined and the anthropogenic emissions are better understood.

## **4.4 Participation**

Committee activities will be fair, open to the public, and every effort will be made to avoid information bias. The PAC will assist other committee chairs in soliciting input from SAMI voting members and other attendees at SAMI meetings. All meetings will be open to the public and the public's input will be sought and acknowledged.

Committee members were appointed by the GB members. The committees will strive for balanced representation and participation from all interest groups. Committee chairs will notify the appropriate GB representative of any committee member who is not participating or attending meetings and request nomination of a new member.

## **4.5 Peer Review**

All information (as appropriate), either internally or externally distributed, will be peer reviewed, checked for accuracy and completeness, and checked for appropriate reflection of the state of the science.

## **4.6 Consensus**

All committee recommendations will be made based on consensus of that group. The committee chair and committee executive committee will seek to resolve differences by building consensus. Failing that, unresolved issues will be put before the OC and/or GB for final resolution.

#### **4.7 Conflict of Interest: Statement of Principles**

*It is SAMI's policy, and shall be the practice of all operating committees of SAMI, that no person or organization shall enjoy any preference in performing work for SAMI by virtue of being an active member of SAMI. This is to be ensured by an open and full review by qualified persons of every proposed research or information evaluation effort accepted or supported by SAMI.<sup>5</sup>*

### **5 Major Work Areas**

The committees and subcommittees met and exchanged ideas to define the work products for their groups. The work products are discretely defined as the individual tasks to be conducted by the committees and subcommittees for each major segment of work. The segments of work have been extracted from the committee and subcommittee work plans. In organizing the work products below, primary consideration was given to the original purposes of SAMI, as defined in the by-laws.

Each individual task listed in Table 1 identifies the committee(s) responsible for completion of the task, provides an initial estimate of the duration of the task, and identifies other actions which must be completed prior to each tasks' initiation or completion. Additional details on the proposed work of the committees and subcommittees can be found in the Appendices. Table 2 maps this section (Section 5) to the appropriate sections of the committee plans located in the Appendices.

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<sup>5</sup> Language adopted by the GB at the Knoxville, Tennessee meeting on May 14, 1994.



Table 1. Proposed Integrated Committee Activities and Completion Commitments

Activity	OC/GB	PC	TOC	PAC
5.1 - Establish and Prioritize Issues of Concern and Define their Parameters		10/94	7/94	ongoing
5.2 - Establish Evaluation and Prioritization Criteria		11/94		ongoing
5.3 - Identification of EMOs		11/94		ongoing
5.4 - Evaluation of Existing Information			6/95	ongoing
5.5 - Develop the Assessment Framework			6/96	ongoing
5.6 - Evaluation of EMOs Requiring Technical Assessment			2/97	ongoing
5.7 - Additional Research Requirements			6/95	ongoing
5.8 - Public Advisory Activities				ongoing

Table 2. Crosswalk Between Committee Plans and Integrated Operating Plan.

Activity	Committee Plan	Appendix	Section
5.1 - Establish and Prioritize Issues of Concern and Define their Parameters	PC	D	Objective 1
5.2 - Establish Evaluation and Prioritization Criteria	PC	D	Objective 2
5.3 - Identification of EMOs	PC	D	Objectives 3 & 4
5.4 - Evaluation of Existing Information	TOC	F	Objectives 1 & 2
5.5 - Develop the Assessment Framework	TOC	F	Objective 2
5.6 - Evaluation of EMOs Requiring Technical Assessment	TOC PC	F D	Objective 3 Objectives 5 & 6
5.7 - Additional Research Requirements	TOC	F	Objective 4
5.8 - Public Advisory Activities	PAC	E	Stages I - III

### **5.1 Establish and Prioritize Issues of Concern and Define their Parameters**

The PC is working with the TOC and PAC to define and prioritize the issues of concern (e.g., visibility, ozone damage, acid deposition). The prioritization of these airshed issues will impact the EMOs selected for analysis and recommendation to the GB. In addition, it will focus the efforts to describe the current status of the AQRVs and allow for the development of evaluation criteria. External factors may influence the prioritization of airshed issues. For example, in recent testimony before the Subcommittee on Environment, Energy and Natural Resources, EPA stated that it will pursue the development of Regional Haze Regulations by the first quarter of 1996.<sup>6</sup> SAMI has the ability to play a significant role in this process and may choose to orient aspects of its program accordingly.

The dimensions (or parameters) of SAMI's work must be defined. The advisory

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<sup>6</sup> Testimony of Mary Nichols, Assistant Administrator for Air and Radiation, U.S. Environmental Protection Agency, before the Subcommittee on Environment, Energy and Natural Resources of the Committee on Government Operations, U.S. House of Representatives. April 29, 1994.

committees, especially the TOC, need guidance for identifying and prioritizing the following parameters of SAMI's work:

- Resources at Risk -- Many AQRVs could be considered, but SAMI is focusing on streams, soils, vegetation, and visibility. The main concerns about these resources at risk are: effects of acid deposition on terrestrial ecosystems, effects of acid deposition on aquatic ecosystems, effects of ozone damage on terrestrial ecosystems, and visibility degradation.
- Pollutants of Concern -- Pollutants of concern need to be prioritized according to the relative importance of the air quality issues. Pollutants for consideration include ozone ( $O_3$ ), as it affects terrestrial ecosystems; acid deposition, as it affects aquatic and terrestrial ecosystems; and, the fine particulates impairing visibility.
- Emissions of Concern -- Emissions of concern need to be prioritized according to the relative importance of the air quality issues. Nitrogen oxides ( $NO_x$ ) and volatile organic compounds (VOCs) as they affect  $O_3$ ;  $NO_x$  and sulfur oxides ( $SO_x$ ) as they affect acid deposition formation; and  $NO_x$ ,  $SO_x$ , elemental carbon, VOCs, and particulate matter as they affect visibility impairment will be evaluated as emissions of concern.
- Near-term EMOs -- Emission reduction actions that can be evaluated in the near term. These actions need to be identified and prioritized based on the resources at risk and the pollutants of concern.
- Study Years of Concern -- One suggestion is to represent the past by the years 1970-1990, the present by 1993-1995, and the future by 1995-2010.
- Geographical Areas of Analysis -- The initial area, in terms of inventories and monitoring sites, is that of the eight SAMI states. The areas to be analyzed must be defined for relevant effects research data. Micro-areas, for modeling purposes, must also be defined (e.g., Great Smoky Mountains National Park, James River Face, Mount Mitchell, etc.). As appropriate, the secondary area would be the states from which air transport corridors convey air emissions that adversely affect the Southern Appalachians.
- Criteria for Socioeconomic Analysis -- Consideration of population growth and demographics, economic, social, and political factors will affect the issues of concern and the evaluation of EMOs. Considerations could include: changes in the demand in tourism and tourism-related sectors; the redistribution of jobs, job mix (by wage average and occupation categories), wealth, and disposable income jobs; effects on energy supply and reliability; effects on the overhead of production, competitiveness, prices, and the allocation of production between and among economic sectors; and changes in land use patterns. There are many other considerations that are not listed in this example.

The PC is currently focusing on air pollutants of concern. The PC members will identify those air pollution issues of concern from the list above for which sufficient information is available to confidently prioritize them. The TOC will then be requested to evaluate the availability of information on the entire list of issues and report back to the PC its recommendations on the feasibility of including these issues in the assessment of EMOs. In addition, the PC will communicate the initial list to the PAC and request its assistance in obtaining public feedback. The PC will also communicate to the TOC and PAC the criteria relevant to the prioritization

The PC members will consult with the PAC and TOC and revise their initial priority list, as necessary.

**Task Duration:** 4 months    **Completion Date:** November 1994

**Responsibility:** All Committees, primary responsibility of PC

## **5.2    Establish Evaluation and Prioritization Criteria**

The PC members will meet to identify and prepare an initial list of considerations for developing criteria to be applied in the following:

- identification and prioritization of the air pollutant issues of concern;
- identification and prioritization of the EMOs to be considered for assessment (for use in Tasks 5.3 and 5.7);
- reporting of EMO assessment results (for use by the PC in Task 5.3 and by the TOC as it conducts assessments); and
- evaluation of EMO assessment results and development of consensus recommendations.

The following list includes considerations that have been identified to date through the SAMI planning process. This list is not all inclusive nor mandatory for ultimate inclusion.

- The effect on AQRVs (i.e., air quality, visibility, aquatics, terrestrial, biodiversity)
- Control costs
- Equity (includes public perception)
- Socioeconomic (jobs, tourism; costs, benefits)
- Other environmental impacts (e.g., waste disposal)
- Administrative ease (includes enforcement)
- Technological feasibility
- Implementation mechanisms and ease
- Political acceptability
- Geographic considerations of pollution issues

The process for recommending criteria includes identifying the criteria, prioritizing the criteria, consulting with the OC, TOC, and PAC and, finally, developing a list for

recommendation to SAMI. Specifically, the PAC will seek public opinion on the list of criteria, and the TOC will offer an initial opinion on the scope of the work necessary to have the assessment respond to those criteria. It should be emphasized that the criteria lists may be revised periodically thereafter.

**Task Duration:** 6 Months    **Completion Date:** November 1994  
**Responsibility:** PC

### **5.3 Identification of Emission Management Options**

EMOs are defined as any initiative that would result in emissions reductions. The PC will initially identify EMOs useful for assessment by the TOC and the PC. Continuous consultation will occur with the PAC during the initial identification process. EMOs that are identified will be recommended to the GB through the OC prior to their evaluation by the TOC or PC.

#### *5.3.1 Define the Data That Are Needed from the TOC*

Prior to the selection and prioritization of EMOs for technical assessment, the PC may require background data from both the TOC and PAC. The criteria established in Task 5.2 will guide the TOC and PAC in the development of background data. The PC will identify and recommend to the GB through the OC those EMOs needing technical assessment and evaluation.

**Task Duration:** ongoing    **Completion Date:** ongoing  
**Responsibility:** PC and TOC

#### *5.3.2 Identify the EMOs*

The PC members will meet to identify and prepare an initial list of EMOs to be considered in priority order by the PC, and assessed by the PAC and TOC, if necessary. The list will include a preliminary rationale for each EMO which will include an initial indication of "pros and cons." The following list includes EMOs that have been identified, to date, through the SAMI planning process. This list is neither all inclusive nor are its components mandatory for ultimate inclusion.

- 1990 Clean Air Act Amendments, All Titles
- Federal Pollution Prevention Act
- Federal Energy Act
- Alternative fuels programs
- Clean vehicles
- EPA initiative to integrate Pollution Prevention (P<sup>2</sup>) into existing regulations
- State P<sup>2</sup> initiatives
- Industry P<sup>2</sup> initiatives
- Incentives to promote P<sup>2</sup> development
- Emissions trading

- Recommend removal of current dis-incentives for emission reduction
- Incentives for "Demand Side Planning"
- Improving effectiveness of implementing existing regulatory programs (e.g., VOC, NO<sub>x</sub>, and SO<sub>2</sub> regulations, permit programs, etc.)
- CAAA Implementation and Administration (Reasonably Available Control Technology (RACT), Lowest Achievable Emission Rate (LAER), offsets of new emissions and other measures beyond CAAA requirements)
- Ideas from previous studies of EMO assessments (from other sources)
- Transportation Controls Management
- Technological Advancement Incentives
- Regional emissions cap

The EMOs that require additional data development from the TOC will be differentiated from those EMOs which do not. The PC members will, for each EMO on the list, determine which require assessment by the TOC and which can be assessed wholly within the confines of the PC (i.e., those not requiring significant TOC assessment).

The PC will use the criteria developed in Task 5.2 to prioritize the list of EMOs for further analysis. The TOC will receive, review, and provide input on the list of EMOs for evaluation and their priority. The TOC will offer its opinion on the scope of the work necessary to perform the assessment. The PC will work cooperatively with the TOC and PAC to finalize the list of EMOs to recommend for TOC assessment. The concurrence of the OC and GB will be obtained on these recommendations before proceeding. This task will be revisited and modifications implemented, as necessary.

**Task Duration:** 6 months      **Completion Date:** November 1994  
**Responsibility:** PC

### *5.3.3 Evaluate and Recommend to GB through the OC Near term EMOs*

Assess, using established criteria, (considering possible environmental and socioeconomic costs and benefits, as well as other considerations) those EMOs which can be assessed wholly within the confines of the PC. In this step, close communication between TOC, PAC, and PC will continue. If, upon examination, TOC input is found to be needed, then PC will ask for TOC assistance. This TOC assistance will be performed under Task 5.7. Some EMOs can be recommended more quickly than others; a complete assessment of all EMOs is not necessary before the PC can recommend actions to the OC.

The PC members, or its consultants, will gather, archive, and use those currently available data, studies, and other relevant information. The TOC will be asked to review the reliability of any technical data or tools, as appropriate. The PC members will identify critical gaps in current information; design efforts to fill the gaps, including resource needs and schedule; make recommendations to the GB through the OC; and manage the implementation of approved

activities. The PC members will provide the results of the assessments to the TOC and PAC for consultation. A report will be prepared documenting the results of each assessment as it is completed and the PC as a whole will act on these reports. Each of these reports is to be a matter of record for the PC, but will be passed to other committees for their information.

**Task Duration:** 6 months    **Completion Date:** November 1994  
**Responsibility:** PC

#### **5.4    Evaluation of Existing Information**

Evaluation of the existing information (i.e., data, models, studies, etc.) is a three step process. First, the appropriate information will be identified and gathered. Second, the information will be evaluated for use, which includes analyzing the information to assess its quality, identifying gaps in the information, and determining the appropriate uses for it. Third, conclusions will be drawn from the available information. Some of the outcomes for this task include: identifying resources at risk; identifying critical gaps and filling short-term gaps that are necessary to conduct the assessment; establishing baseline/present status in order to evaluate EMOs; and building an integrated assessment framework for assessing selected EMOs.

The identification of information to be gathered is dependent upon completion of Task 5.1 Establish and Prioritize Issues of Concern and Define their Parameters. Due to this dependency, the subcommittees and TOC made preliminary recommendations on the dimensions of this task (i.e., the pollutants of concern, study years of concern, and areas to be analyzed). Specification is required on the resources at risk and their importance for the subcommittees of the TOC to define and prioritize their work.

The TOC and its subcommittees have identified, as an initial work product, the compilation of existing information. The desired information and its role in the SAMI program varies significantly from one subcommittee to another. The specific objectives under this task are discussed in the appendices representing the different subcommittees (emission inventory, modeling, monitoring, and effects).

The dimensions for concerns, such as emissions, air pollutants, resources, socioeconomic factors, geographical area and timeframe(s) for the evaluation of existing information will be established. Within those dimensions established, the TOC and subcommittees will develop the necessary SOWs, following the procedures outlined in Section 3.3.1, to evaluate existing information. Additional products from this task may include describing current knowledge in terms of the extent and condition of the selected, past and current emissions, air quality, environmental resources, and socioeconomic parameters. During this task, the information will be evaluated to identify its quality, any gaps (relative to the needs of SAMI), and its appropriate uses.

To the extent possible, dose-response functions and source-receptor relationships will be defined from the available information. This information will be used to design a mechanism for measuring the success of SAMI. Suggestions for possible measurement tools include the definition of alternative monitoring programs to track the effectiveness of emission reductions.

The TOC and its subcommittees will 1) evaluate the critical gaps in information and prioritize the needs, 2) determine what information is necessary to evaluate the effects of implemented EMOs, and 3) determine what information is needed to reduce the uncertainty in the assessment. A list of recommended projects with a rationale for each will be submitted to the PC and PAC for advice. The rationale will include the expected benefits to the EMO assessment and an estimate of time and resources needed for completion. The TOC will then report the results to the OC and GB for concurrence on which, if any, to implement.

An integrated report will be prepared to document the present status of AQRVs and discuss the current understanding and available tools. This document will be peer reviewed and distributed as a SAMI product.

**Task Duration:** 10 months    **Completion Date:** June 30, 1995  
**Responsibility:** TOC

## **5.5    Develop the Assessment Framework**

The PC will request that the TOC synthesize and assess the effects of various EMOs in terms of changes in air quality parameters, receptor specific exposures, and the AQRVs' status relative to air quality exposures. An integrated assessment framework will be developed by the TOC to conduct this analysis. Application of the assessment framework will result in projections of environmental, social and economic responses to changes in emissions.

The assessment framework will be applied to those EMOs referred to the TOC by the PC and will provide results in consistent terms and allow for prioritization and further analysis by the PC. The assessment framework may include the development of emission inventories, modeling dispersion and atmospheric chemistry of the emissions, modeling the interaction of air quality exposure and resource status, verification of both modeling results using monitoring data, analysis of source-receptor and exposure-response relationships to determine air quality impacts, and the analysis of socioeconomic impacts. Additional details on the subcommittee's current understanding of their responsibilities in the development of the assessment framework can be found in the Appendices.



### *5.5.1 Design of the Assessment Framework*

Using the information identified in Task 5.4 and the criteria for EMO evaluation developed in Task 5.2, the TOC will develop an integrated assessment framework. The assessment framework will be used to project the environmental, social, and economic responses to changes in emissions. Consideration will be given to:

- availability of data bases;
- consistency and usability of data base formats;
- complexity of models;
- compatibility of emissions projection, atmospheric and resource response, and socioeconomic projection models (outputs of Task 5.4); and
- criteria for assessing EMOs recommended for technical assessment (output of Task 5.2).

These will be used to establish the level of detail and flexibility necessary to address multiple EMOs. The TOC will work cooperatively with the PC and PAC to finalize the design of the assessment framework. This task will be revisited and modifications will be implemented, as necessary based on communications with the PC and PAC. Progress on the design of the assessment framework will be presented by the TOC at the semi-annual and annual meetings.

**Task Duration:** 6 Months    **Completion Date:** The PC will provide their input by September 1994; The TOC will complete the design by June 1995

**Responsibility:** TOC

### *5.5.2 Build the Assessment Framework*

Based on the design developed under Task 5.5.1, the TOC and subcommittees will write the SOWs, following the procedures outlined in Section 3.3.1, that will prepare the assessment framework for application. The purpose is to ensure that outputs from one model are compatible with the inputs to the next model and between models and supporting data bases. These are the models and databases that, for each EMO, project a) emissions temporally and spatially, b) the resulting changes in air quality, c) resulting changes in environmental resources, d) economic and social responses, and e) qualitatively or quantitatively, the certainty/uncertainty of the databases.

This task will provide for the gathering of resources necessary to implement the assessment framework, including any model or model interface development work required for application. The 1990 CAAA will be the standard used to assess the ability of the framework to be used successfully. The TOC will seek advice from the PC and PAC, and approval from the OC and GB, as necessary.

The subcommittees of the TOC currently envision that this work will need to be conducted utilizing support in the form of sole-source procurement, requests for proposals, in-kind services from SAMI members, cooperative agreements, or level-of-effort contracts.

Progress on the development of the assessment framework will be presented by the TOC at the semi-annual and annual meetings. A final report, summarizing the work accomplished under the assessment framework will describe the integrated assessment development, methodology, and its application to the 1990 CAAA.

**Task Duration:** 9 Months    **Completion Date:** March 31, 1996, Status report in November 1995

**Responsibility:** TOC

#### *5.5.3 Conduct Assessment of the Impacts of the 1990 CAAA*

The impacts of the 1990 CAAA will be assessed. Both the TOC and the PC have significant roles in this task. In general, the TOC will assess technical studies and reports (e.g.,

#### *5.6.1 Develop the Background Data for the EMOs Requiring TOC Assessment*

The subcommittees within the TOC will develop the appropriate background information necessary to conduct the technical assessment of the EMOs. At a minimum, these data will include estimates of emission reduction, appropriate air quality background data, and representative meteorological data sets.

Existing data and studies will be augmented with the integrated assessment framework, as necessary, to complete this task. Gaps in the current science will be identified for possible future research activities. To the extent possible, uncertainties in the existing data will be documented.

**Task Duration:** 8 months    **Completion Date:** June 30, 1995  
**Responsibility:** TOC

#### *5.6.2 TOC Assessment of EMOs*

The EMO evaluation criteria defined in Task 5.2 and the technical assessment framework developed in Task 5.5 will be utilized to assess the impacts of selected EMOs. The TOC will prepare a written report for each completed EMO assessment. At a minimum, each report will describe the EMO and the projected emissions, air quality, environmental resources, social, and economic changes. The certainty/uncertainty for these projections will also be described. The reports will explicitly address the criteria established by the PC for evaluating each EMO. Results of the assessment will be documented for review by all SAMI participants.

**Task Duration:** 8 Months    **Completion Date:** February 28, 1997  
**Responsibility:** TOC

#### *5.6.3 PC's Evaluation and Integration of the Assessments of EMOs*

The PC members will review and discuss the assessment results developed by the PC under Task 5.3.3 and by the TOC under Task 5.6.2. Any deficiencies or need for clarification will be communicated back to the appropriate group for resolution. The PC members will use the criteria and considerations developed under Task 5.2 to evaluate the results of each EMO assessment. The PC members will discuss the assessment results of each EMO separately and comparatively. The PC members will strive to reach consensus on which EMOs to recommend for action, which to recommend for further assessment, and which to recommend for deletion from further consideration (a deletion from further consideration does not preclude re-considering the proposed EMO at any date in the future). The PC members will include the GB, OC, PAC, and TOC in these discussions, as appropriate.

The PC will prepare annual written progress reports on the integration of the assessment results. These reports will also address the status of the assessments, in terms of identifying EMO assessments that are currently underway, EMO assessments that are planned, etc.

The PC will prepare a written report for each recommended EMO. The report will contain, at a minimum, the results of the EMO assessment, the criteria used to judge the results, the environmental and socioeconomic implications, and the uncertainties (risk of achieving or not achieving the anticipated environmental and socioeconomic implications). In addition, the report will include a write-up of diversity of opinions when consensus isn't reached. The PC, PAC, TOC, and OC will work together to draft the recommendations for the GB.

**Task Duration:** ongoing      **Completion Date:** 1<sup>st</sup> November 1994, 2<sup>nd</sup> November 1995, or as assessments are completed, if more frequent than once/year

**Responsibility:** PC

## **5.7 Additional Research Requirements**

To support the SAMI mission, additional research may be required. This research will fill data gaps and answer specific questions raised during the assessment process. One of SAMI's stated purposes is to *coordinate SAMI projects with other efforts already underway to avoid redundancy and facilitate the efforts of other groups to address the Southern Appalachian air quality issues.*<sup>7</sup> There are four steps to this task: identify ongoing research that could benefit SAMI, define SAMI data gaps through the evaluation of existing data and EMOs, develop work scopes, and seek to coordinate research efforts with other groups.

### *5.7.1 Identify Ongoing Research that Could Benefit SAMI*

Other research organizations will be canvassed to determine what programs exist in the government, private sector, and academia that could overlap with the research objectives of SAMI. This research could address any of the work areas being proposed, including the work of the subcommittees of the TOC, PC, or PAC. More traditional forms of research include locating monitoring sites, developing emission factors or activity data (including control efficiencies), developing or modifying atmospheric chemistry models, and conducting effects research. At a minimum, the U.S. EPA (e.g., RADM and ROM programs), Department of Energy (DOE), state agencies (e.g. California Air Resources Board (CARB)), trade associations (e.g., American Petroleum Institute (API)), Southern Oxidant Study (SOS), National Acid Precipitation Assessment Program (NAPAP), Tennessee Valley Authority (TVA), Department of Transportation (DOT), Department of Commerce (DOC), Department of Interior (DOI), National Oceanic and Atmospheric Administration (NOAA), and academia will be contacted during this effort. SAMI participants will be contacted to determine if any of the gaps identified are being filled by their research programs. Information on the research objectives, time frames, etc., will be sought.

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<sup>7</sup> **Article V - Purposes**, Southern Appalachian Mountains Initiative Bylaws as adopted November 17, 1993, Purpose :

**Task Duration:** 6 months    **Completion Date:** November 1994  
**Responsibility:** All Committees

#### *5.7.2 Identify Additional Research Needs*

The TOC and its subcommittees will 1) evaluate the critical gaps in information identified in Task 5.4 and prioritize the needs, 2) determine what information is necessary to evaluate the effects of implemented EMOs, and 3) determine what information is needed to reduce the uncertainty in the assessment. A list of recommended projects with a rationale for each will be submitted to the PC and PAC for advice. The rationale will include the expected benefits to the EMO assessment and an estimate of time and resources needed for complete it. The TOC will then report the results to the GB through the OC for concurrence on which, if any, to implement.

**Task Duration:** 7 months    **Completion Date:** May 1995  
**Responsibility:** TOC

#### *5.7.3 Secure Research Mechanisms*

Where possible, the SAMI research efforts will expand on existing or planned research programs. SAMI will prioritize the remaining needs, secure funding, and initiate research programs.

For each approved project, the TOC and its subcommittees will develop a SOW, as described in Task 3.3.1, for the conduct of the project. The TOC will also develop recommendations for the OC and GB on how they will do the work and how the work should be managed. These recommendations will be forwarded to the OC/GB for their approval. The TOC will balance quality, timeliness, cost, and administrative efficiency in making its recommendations. The TOC will consider a wide variety of mechanisms for getting the job done, including, but not limited to, cost-sharing with ongoing efforts, sole-source procurement, requests for proposals, in-kind services from SAMI members, existing cooperative agreements, and level-of-effort contracts. The TOC will be guided in its deliberations by policies established by the OC and GB dealing with conflict of interest, peer review, policy review, and/or in-kind services.

The TOC will prepare semi-annual verbal and/or written progress reports on its activities related to the identification of research needs and the conduct of research to address those needs. The TOC will be responsible for the development of a written report for each project under this objective. The report will contain, at a minimum, a summary of the dimensions of its purview, current knowledge with statements of certainty/uncertainty, important information gaps, recommendations for filling the gaps, and approaches to incorporating the research results into the integrated assessment framework. The reports will be provided to all SAMI committees. The PAC will be responsible for appropriate dissemination of the reports to the public.

**Task Duration:** ongoing      **Completion Date:** Reports in November 1994, April, 1995, November 1995, April 1996, November 1996, and May 1997

**Responsibility:** All Committees

## **5.8 Public Advisory Activities**

The primary objective or long-range challenge of the PAC is to inform the public of SAMI's work, to educate the public about the diverse issues and considerations affecting the Southern Appalachian region, and to encourage public dialogue and involvement in searching for solutions to pollution's impact on the region, so that the public can make informed public policy choices about state and federal air programs in the next few years.

The PAC plans to work toward this objective in three stages, as outlined below. At each stage, a number of tasks are defined and assigned to a working group. These tasks can be divided into two classes. The first class is tasks that are the primary responsibility of the PAC. The second class of tasks is those that are to be accomplished in support of the work of another committee.

### *5.8.1 Creating the Framework*

A framework for PAC activities must be constructed before the SAMI information flow begins. The framework should support the working group structure that has been defined in Section 2.2.3 of the SAMI Operating Plan. The first PAC strategy is to **Develop a framework to educate, inform and involve diverse groups and individuals.**

The Public Dialogue Working Group will identify constituents and concerned groups in each state.

Task 1 - Create the Public Dialogue Working Group charged with the responsibility of identifying the selection criteria for constituents and concerned groups, in order to reach a broad cross section of the publics and charged with collecting data state-by-state.

Task 2 - Create a state-by state mailing list of key organizations and individuals, including an organizational description, mission, newsletter, and number and type of members. The name title, address, telephone and fax number of a contact person for each organization will be included.

The Resources Working Group will assess human and financial resources.

Task 1 - Create the Resources Working Group charged with responsibility for assessing the state-by state resources (private, public interest, business, industry, and government) to find out the availability of their human and financial resources to support SAMI outreach programs.

Task 2 - Working closely with the other PAC working groups, design a questionnaire to send to the groups identified in Task 1 above, and compile a list of available human and financial resources, including in-kind services.

The Communication/Education Working Group will develop a public education program.

Task 1 - Create the Communication/Education Working Group with the responsibility of defining communication tools and creating messages to educate, inform and involve the public in SAMI issues. This working group will ensure that the messages prepared are easily understood by the targeted audience. The products of this working group will be reviewed by the full PAC and sent to the other SAMI committees for peer review.

Task 2 - Assess the availability of educational and communication tools available within SAMI and other organizations. Assess educational materials currently available in other organizations that could be endorsed by SAMI or which could be altered to suit SAMI's purposes.

Task 3 - Design appropriate feedback loops from the public to keep them informed about the results of their input. This may be accomplished by publishing a newsletter, individual correspondence, meetings, etc. The working group would develop a process for working with the public and would assist the public in framing questions.

Task 4 - Assess current educational programs related to air quality in the region, e.g., the National Park Service's CLEAR program to determine if they already address SAMI-related issues.

Task 5 - Utilize the peer review process developed by the Media Strategy Working Group for all information to be released to the public.

The PAC Chair will establish a clearinghouse of information.

Task 1 - Recommend the establishment of a centralized information clearinghouse through the SAMI Coordinator's office. Identify additional human and financial resources needed. Investigate the possibility of using loaned employees or volunteers.

The Media Strategy Working Group will develop a press relations and an internal communications strategy.

Task 1 - Establish the Media Strategy Working Group consisting of the PAC Executive Committee, the chairs of the other PAC working groups, and such other members of the PAC that shall choose to serve.

Task 2 - Develop a media strategy and an internal communication strategy. These

strategies will be approved by the full PAC and the Operations Committee. The media strategy will include provisions for immediate press response, when necessary.

Finally, the PAC Chair will establish an effective communications network with other SAMI committees through the appointment of liaisons to other SAMI committees.

#### *5.8.2 Immediate Outreach Actions*

There are some outreach and educational efforts that can or must take place in the near-term. These are included in the tasks that follow.

The second strategy of the PAC is to **Create public awareness and interest in the issues in the Southern Appalachians in the near-term.** The Communication/Education Working Group will Build public awareness of SAMI.

Task 1 - Plan events to describe the goals of SAMI. Consider such options as a press conference, regional seminar with a notable keynote speaker (e.g., Vice President Gore), presentation at an established regional conference, etc.

Task 2 - Create a package of information about SAMI, including a brochure, issue fact sheets, and other relevant material. List a SAMI contact person in each state. Send the packet through the peer review process. Send packets to the mailing list of key organizations provided by Public Dialogue Working Group and to individuals and groups who request information about SAMI.

Task 3 - Design a SAMI calendar of events to be produced and distributed by the SAMI coordinator's office.

The third strategy is **Support other SAMI committees in the near-term.** This strategy will be accomplished through the review of work products of the other committees, dissemination of information to the public, and solicitation of public input.

Task 1 - Provide support to the PC on defining issues of concern.

Task 2 - Provide support to the PC on the evaluation and prioritization criteria.

Task 3 - Provide support to the TOC on the evaluation of existing information.

Task 4 - Provide support to the TOC on the assessment framework.

Task 5 - Provide support to the PC on the identification of EMOs.

Task 6 - Provide support to the PC and TOC on the evaluation of EMOs.



Task 7 - Provide support to the TOC on additional research requirements.

Task 8 - Assist the PC and TOC in gathering both qualitative and quantitative information to be used in the socioeconomic evaluations of EMOs. Public awareness of the relevant issues and the SAMI efforts will be built. A package of information about SAMI, including a brochure, fact sheet about the issues, and other relevant material will be created. The information will be sent through the peer review process and sent to a list of key organizations in each state.

### *5.8.3 Long-Range Actions*

The fourth PAC strategy is to **Create public awareness and interest in the issues in the Southern Appalachians in the long-term.**

The Communication/Education Working Group will provide additional public educational programs.

Task 1 - Consider the establishment of a quarterly SAMI newsletter to be produced and distributed by the SAMI Coordinator's office. It would cover SAMI issues and actions as well as local, state and federal actions and legislative initiatives.

Task 2 - Consider setting up ozone awareness days in each state, to communicate the effects of ozone pollution through the media to the public.

Task 3 - Consider designing a series of field trips to visit the affected Class I areas and to educate the public and elected officials on the issues through interactive/educational park and wilderness field trips. A balanced perspective would be presented.

Task 4 - Consider establishing a speakers bureau consisting of individual who can address groups either on the technical issues related to air pollution in the Southern Appalachian region or on the goals and activities of SAMI.

The fifth PAC strategy is to **Support other SAMI committees in the long-term.** This strategy will be accomplished through the review of work products of the other committees, dissemination of information to the public, and solicitation of public input.

Task 1 - Provide support to the TOC and PC in the development of interim status reports.

Task 2 - Provide support to the TOC, PC, OC and GB in the production of a final report, including EMO recommendations and implementation strategies.

## **6 Timelines for Accomplishing Work**

Heading/Task	J	A	S	O	Section	Start Date	Finish Date	Description	J	F	M	A	M	J	J	A	S	O	N	D
Identifying Research					5.1	05-00-94	05-30-97	Development of the SAMI Operating Plan												
Contract with consultants					5.3	06-15-94	06-15-94	SOWs will be developed as research needs are identified												
Identify on-going research that could benefit SAMI					5.3.1	05-18-94	01-02-95	Identify on-going research that could benefit SAMI												
Specify research needs					5.3.2	05-18-94	05-30-94	Recommend projects, rationale, & expected benefits												
Admin. Assistant					5.7.2	05-31-94	05-31-94	NC has the lead on hiring an administrative assistant												
Secure mechanism					5.7.3	06-01-95	05-27-97	Secure research mechanisms												
TOC Coordinator						06-01-94	01-02-95	TOC has the lead on hiring SAMIs Technical Coordinator												
Reporting on Research Issues of Concern					5.1	08-01-94	11-30-94	TOC to prepare semi-annual verbal &/or written reports												
Research Report #1						11-30-94	11-30-94	PC to Establish & Prioritize Issues of Concern												
Define Criteria					5.2	05-31-94	11-30-94	PC to Define Evaluation & Prioritization Criteria												
Research Report #2						04-30-95	04-30-95													
Identify EMOs					5.3	06-31-94	11-30-94													
Research Report #3						11-30-95	11-30-95													
PC to Identify EMOs					5.3.2	05-31-94	11-30-94	Identify & prepare an initial list of EMOs												
Research Report #4						04-30-96	04-30-96													
Near term EMOs					5.3.3	05-31-94	11-30-94	PC to evaluate near term EMOs & provide recommendation												
Research Report #5						11-30-96	11-30-96													
Evaluate Existing Inf					5.4	10-15-94	06-30-95													
Research Report #6						05-31-97	05-31-97													
SOWs awarded					5.8	10-15-94	10-15-94	TOC to award SOWs for evaluation of existing information												
PAC Activities						05-16-94	05-09-97	Ongoing activities. See Appendix C for additional detail												
Comprehensive Report						11-30-95	11-30-95	Report on present status of AQRVs & available tools												
Interim Report						06-30-95	06-30-95	SAMI to provide interim report on all activities												
Assessment Framework					5.5	09-30-94	07-01-96	SAMI to provide final report on recommendations												
Final Report						05-31-97	05-31-97													
Framework SOW						01-30-95	01-30-95	SOW to design and build integrated assessment framework												
PC input on framework						09-30-94	09-30-94	PC to provide input on assessment framework design												
Framework design					5.5.1	12-29-94	06-30-95	TOC to complete assessment framework design												
Complete Framework					5.5.2	06-28-95	03-29-96	TOC to build assessment framework												
Assess 1990 CAAA					5.5.3	04-01-96	07-01-96	1990 CAAA: Standard used to assess framework												
Reports on Framework						06-01-95	06-30-96	TOC to present status at semi-annual and annual meeting												
Status Report #1						06-30-95	06-30-95													
Status Report #2						12-31-95	12-31-95													
Comprehensive Report						06-30-96	06-30-96	Final report on assessment framework & 1990 CAAA												
Evaluate EMOs					5.6	10-28-94	05-31-97													
Background Data					5.6.1	10-28-94	06-30-95	Develop data necessary for technical assessment of EMO												
Technical assessment					5.6.2	06-28-96	02-28-97	TOC to use assessment framework to assess EMOs												
Integrate & Evaluate					5.6.3	11-01-94	05-31-97	PC to integrate and evaluate EMO assessments												
EMO Report #1						11-01-94	11-01-94	PC to report annually on assessment of EMOs												
EMO Report #2						11-01-95	11-01-95	Reports will address status of EMO assessment &												
EMO Report #3						11-01-96	11-01-96	recommendations.												
EMO Report #4						05-31-97	05-31-97													

Table 3 summarizes the start and finish dates for the activities and tasks presented in this plan. Figure 2 illustrates the same information as an integrated time line.

## 7Communication Strategy

The communication strategy includes both the internal and external SAMI communications to and from the public. The purpose of the Communications Strategy is to define responsibilities for the exchange of information between the committees and subcommittees established to implement the Operating Plan and with the public and media. The following five key communication issues have been identified by the PAC.

- Geographic area - The primary area is the eight state SAMI region. As appropriate, the secondary area would be the states from which air transport corridors convey air emissions that adversely affect the Southern Appalachians.
- Products and Services - Products may include written and visual materials, such as brochures, fact sheets, video, documentaries, slide shows and a newsletter. Services may include speaker bureaus, conference presenters, regional conferences and workshops; press releases and briefings, articles prepared for news media and magazines; and the establishment of an information clearinghouse. Mailing lists and a directory of interested organizations (by state) will be used to implement outreach services
- Constituents (Stakeholders) and the Public - Constituents may be defined as those organizations and individuals who are aware of the issues and who have some level of interest or involvement in them. A partial list would include regulators, emissions-producing industries, the business community, public interest and environmental groups, local governments, tourism and recreation organizations, academia, federal land managers, and others. The PAC will also target individuals and groups who may not be aware of the issues, but once aware, may have an interest in them. These may include other business and industry, health organization, scouting groups, civic clubs, etc.
- Political/Social/Economic Climate - Consideration of population growth and demographics, economic, social and political factors will affect the strategy and design of outreach and inform/involve efforts. These issues need to be evaluated in order to create the most appropriate and effective educational programs. Some of the considerations are as follows: analysis of issue awareness level in constituent organizations within the different states and localities; analysis of interest and awareness level in local and state agencies and their willingness to support and help implement education efforts; human and financial resources available to assist in educational outreach activities; and analysis of individual resource availability within the PAC.
- Impediments to Successful Plan Implementation - Lack of familiarity with issues among some key groups; lack of human and financial resources; political unknowns.

## **7.1 Committee Responsibilities for Internal Communications**

The PAC will ensure distribution of relevant information to all SAMI members through the SAMI Coordinator's office. The PAC will assist other committee chairs in soliciting input from SAMI voting members and other attendees at SAMI meetings. The PAC will coordinate with the TOC and PC Chairs, the SAMI Coordinator, the OC and the GB on a regular basis. When differences arise in the PAC, the PAC Executive Committee and Chair will seek to resolve them by building consensus. Failing that, unresolved issues will be put before the OC and/or the GB for final resolution.

### *7.1.1 Establishment of Liaisons Within the Committee Structure*

It is the responsibility of each committee and subcommittee to designate liaisons with other committees to ensure that products meet the needs of receiving committees and to assure that input is provided from all contributor committees.

### *7.1.2 Calendar of Events*

Each committee chair shall maintain a running calendar of upcoming events and shall distribute it, at a minimum, quarterly, or more frequent if needed, to their committee members, liaisons to their committee and the Coordinator. The calendar shall include the name, date, location, and contact person (including phone number) for each event.

### *7.1.3 Information Distribution*

The committee chairs will be responsible for providing meeting agendas and information critical for committee member review, comment, and discussion to the established committee liaisons and to the Coordinator at least one week prior to meetings.

### *7.1.4 Committee Responsibilities for Documentation of Meetings*

For all meetings of committees or subcommittees (including telephone conferences) the Chair of the meeting shall ensure that a person is assigned to take notes and write a meeting summary statement to be sent to the Chair within 7 days after the meeting.

The Chair shall review the meeting statement and distribute it to meeting attendees, other committee liaisons, and the Coordinator no later than 14 days after the meeting.

Comments on the statement may be submitted to the Chair no later than 30 days after the meeting. The Chair shall incorporate comments from attendees, noting any comments that disagree with general consensus of the meeting statement. If there are any corrections or comments, the Chair will send an addendum to the attenders, committee liaisons and the

Coordinator within 7 days after the final date to receive comments.

Upon request, the Coordinator will provide committee statements to interested parties and will have copies available at the annual and semi-annual meetings.

#### *7.1.5 Policy to Ensure Peer Review of Reports*

Committees must ensure that only verifiable information is used as supporting or reference material in preparing any report documenting a work plan task. Supporting information and technical data must be reviewed in accordance with criteria clearly identified or appended to the report. Committees must ensure that reports have been reviewed by other committees, checked for accuracy and completeness, and checked for appropriate reflection of the state-of-the science. The OC is responsible for ensuring that the committees and subcommittees adhere to the criteria in preparing reports to fulfill the work plan tasks.

In addition, the GB will rely on the peer review process employed by each committee and subcommittee to determine the reliability of all materials used in developing reports and recommendations. The GB will require an unbiased presentation of facts and an identification of the limitations and quality of information presented. All TOC work will be peer reviewed, either internally or externally, as appropriate.

#### *7.1.6 Operations Committee Report Approval*

The OC shall be responsible for approving all work plan products and reports. Any reports developed by a subcommittee must first be approved by its respective committee before the report is forwarded to the OC.

The OC will use the following criteria, at a minimum, in reviewing any report that is submitted for approval:

1. The report adequately meets the intent and purpose of the task as identified in the Operating Plan; and
2. The report contains sufficient documentation to determine compliance with Section 7.1.5 of this Plan.

If the OC determines that any report does not meet the above criteria, the report shall be returned to the appropriate committee identifying deficiencies and needed revisions.

## **7.2 Coordinator Responsibilities for Internal Communications**

### *7.2.1 Documentation Requirements*

The Coordinator shall establish an official record for filing internal communications pertaining to the implementation of the Operating Plan. This will form the official record of meetings, decisions, and reports generated by the committees and subcommittees under the Operating Plan.

### *7.2.2 Calendar of Events*

The Coordinator shall maintain a running calendar of upcoming events on the EPA Technology Transfer Network/Bulletin Board System (TTN/BBS) regularly and shall distribute it to the mailing list quarterly.

### *7.2.3 Information Distribution*

The Coordinator shall forward meeting agendas and information critical for committee member review, comment, and discussion to the OC, the GB, and, upon request, to others.

### *7.2.4 Reports*

The Coordinator will develop semi-annual reports describing progress on the SAMI Operating Plan. The progress report will identify tasks completed, tasks underway, expected delivery dates, and changes to the Operating Plan that will affect upcoming tasks. The semi-annual reports will be sent to the OC, the GB, and the committee chairs. Committee chairs may distribute the quarterly reports to their members as needed or requested. Additional copies will be available from the Coordinator upon request.

## **7.3 Responsibilities for External Communication**

The PAC is responsible for gathering public concerns about air quality issues in the Southern Appalachian region and then communicating these concerns within SAMI and for advising the public about SAMI activities. The PAC will assist the SAMI Coordinator to insure that SAMI meetings are open to the public and that public input is acknowledged. The PAC will seek out individuals and groups who have a real or potential interest or involvement in the Southern Appalachians; in particular, the people who live in the eight state area. The PAC will be responsible for creating, producing, or reviewing printed materials and press releases, before they are released to the public. The PAC will ensure that the appropriate SAMI peer-review and approval process is carried out. The PAC will develop an environmental education outreach program on air quality issues relevant to SAMI's goals and objectives. The program will be designed to address technical issues and the socioeconomic impacts of alternative EMOs. The program will also be designed to reach various targeted audiences and age groups.



**Appendix A - SAMI Committee List (as of September 21, 1994)**

**SOUTHERN APPALACHIAN MOUNTAINS INITIATIVE  
COMMITTEES PHONE/ADDRESS LIST**

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September 21, 1994

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## **Appendix B - SAMI Travel Reimbursement Policy**

### **SOUTHERN APPALACHIAN MOUNTAINS INITIATIVE TRAVEL REIMBURSEMENT POLICY (Effective September 21, 1994)**

#### **I. General Policy**

The success of SAMI's work is dependent upon the participation of a broad range of interest on its committees. To this end, the Governing Body will authorize up to \$50,000 in a calendar year for travel reimbursement to qualifying individuals. It is the policy of SAMI to encourage carpooling and room sharing, to make business meetings accessible and compressed, to provide reasonable lodging and offer meals when possible, and to implement other such measures as to reduce the cost for individuals paying their own way to participate. To maximize the reimbursement budget, states and other capable agencies are encouraged to provide transportation (e.g., state vans and planes) for committee members whenever possible. The travel reimbursement policy applies only to SAMI committee members or special guests of the committee chairs, as approved by the Operations Committee. Oversight of this policy will be by the Operations Committee.

#### **II. Reimbursable Expenses and Rates**

##### **A. Round Trip Air Fare**

Round trip economy air fare to and from meetings is reimbursable for meetings >250 miles distance at a rate of 100% of actual cost up to \$500 (actual ticket cost).

##### **B. Auto Travel**

Auto travel to and from meetings is reimbursable at a rate of \$.26/mile up to the cost of 14 day advance purchase air fare.

##### **C. Room**

Lodging costs will be reimbursed at actual cost, not to exceed \$50 per day.

##### **D. Parking**

In the event that a parking fee is required where the meeting takes place, parking receipts will be reimbursed at actual cost.

##### **E. Limitations**

Only "voting" or "official" appointed committee members or special guests of the committee chairs are eligible for reimbursement.



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III. Activities Eligible for Reimbursement

A. SAMI Meetings

SAMI meetings are considered to be the annual and semi-annual meetings.

B. Official SAMI Committee Meetings

Official SAMI committee meetings are meetings which are called by the committee chair and for which the Coordinator has received advance notification.

IV. Procedural Requirements

A. Committee Chairs are responsible for submitting a list of committee meeting attendees to the Coordinator within three (3) days after the meeting. Individuals seeking reimbursement for attending such a meeting must be listed as attending to be reimbursed.

B. Individuals are responsible for making their own travel and hotel reservations.

C. Individuals shall cover their expenses and attach receipts to reimbursement forms provided by SAMI.

D. Air reservations must be made at least 14 days in advance to be eligible for reimbursement. This requirement will be waived when meeting notices are issued less than 14 days before a meeting. Individuals should use mobile transportation whenever possible, especially if the distance travelled is under 250 miles.

E. Individuals are urged to employ Saturday night stay overs whenever they will reduce the total cost of a trip.

V. Reimbursement Eligibility

A. Reimbursement will be provided for individuals who otherwise could not receive reimbursement for travel to meetings for the following categories:

1. State Government Officials and Employees

State government officials and employees are eligible ONLY when the meeting is out-of-state and there is a statewide freeze on travel.

2. Individuals Representing Local or Other Non State or Non Federal Government Body

Local government officials and employees are eligible ONLY if out-of-

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county travel is restricted.

3. Individuals Representing Non Profit Organizations
4. Individuals Representing University Systems
5. Other Individuals Not Covered by One of the Categories in this Section

B. Reimbursement will not be provided for individuals in the following categories:

1. Federal Government Officials and Employees
2. Industry Officials and Employees

VI. Emergency Fund

\$5000 will be set aside for emergency travel. Approval to use these funds will be subject to a special committee who will review any requests. This money is available only in the event the travel budget is expended 100% in a calendar year and more money is needed.

VII. Other

Each committee chair shall prepare a yearly budget estimate for their committee's travel reimbursement needs for approval by the Operations Committee.

## **Appendix C - SAMI Contracting Procedures**

### **GUIDELINES FOR SAMI CONTRACT AWARDS**

#### *Avoiding Conflict of Interest*

1. All interested parties are eligible to bid on contract opportunities. A potential contractor may be an individual, a partnership, a non-profit organization, a private organization, or a state or local government.
2. Those individuals currently serving on SAMI committees, subcommittees, and work groups who are interested in submitting proposals for SAMI contracts will be considered equally with others, but must be careful of potential conflict of interest situations. Specifically, they:
  - a. May not participate in the discussion or development of funding, rates, and contract awards.
  - b. May not be involved with the development of statements of work (SOWs) or work assignments; serve on evaluation panels or be involved with any contractor selection process.
  - c. While proposals are being evaluated, may not actively serve on the committee, subcommittee, or work group to which the proposal pertains; but, may attend public meetings.
  - d. If proposal is not selected, candidate may resume normal activities on the committee, subcommittee, or work group from which the candidate had recused himself/herself.
  - e. If a candidate's proposal is selected, contractor may attend meetings only upon invitation.
3. A disclosure of any possible conflict of interest shall be included with the proposal. The disclosure shall include a listing of any active contracts or grants with any member state of SAMI, with any federal agency participating in SAMI, with any industry operating in the SAMI member states, or with any environmental organization actively representing constituents in the SAMI member states. The SAMI committee making the selection shall reserve the right to make an individual judgement of whether there is an undesirable appearance of a conflict of interest based on this disclosure, and this finding can be grounds for the disqualification of an applicant.

## **Appendix D - SAMI Policy Committee Work Plan**

Policy Committee (PC) Mission Statement: Develop and analyze both regulatory and non-regulatory strategies (emission management options) and make policy recommendations to SAMI Operations Committee (OC) to improve and protect air quality and associated air quality related values (AQRVs) in the Southern Appalachian Mountains. Evaluate the environmental, socioeconomic, and other implications of emissions management options (EMOs) prior to formulating recommendations for the Governing Body (GB) through the OC.

The PC, as does SAMI as a whole, has a commitment to work toward consensus, substantial agreement or concurrence that a potential, proposed or actual "work product" is acceptable to the PC members within the timeframe allowed for decision. Minority opinions will be reported by the PC.

PC Committee participation: The PC consists of members appointed by the Governing Body in accordance with the Bylaws. The PC will strive for balanced representation and participation from all interest groups. The PC chair will notify the appropriate GB representative of any PC member who is not participating or attending meetings, and request nomination of a new member.

A 2-week notice is necessary for PC meetings. The PC will meet quarterly as a full body; subcommittee or workgroup meetings will be on an as-needed basis, agreed upon by subcommittee members. Member participation by mail (within 5 working days of a scheduled meeting) will be encouraged for all meetings if attendance is impossible.

Objectives and Tasks: In support of its mission, the PC will work to achieve the following objectives by conducting the tasks or actions identified. The time frames indicated are to be measured from the point of work plan approval and task initiation and are meant to represent guidelines for completing the initial outputs for each task, recognizing the iterative nature of the work. Each action may flow through the system quickly or more slowly, depending on the nature and speed of its evaluation. Some "contractor" assistance may be necessary to accomplish the required work.

Objective 1 Air Issues of Concern: Identify and recommend to the OC the air quality/affected resource issues which are of concern to SAMI and that should be the focus of assessment activities (Done simultaneously with Objectives 2 and 3).

Task 1.1 Initial Identification: A balanced workgroup of the PC members will meet to identify and prepare an initial list of issues of concern in rank order. The list should include a brief preliminary rationale for why each issue should be included.

Task 1.2 Solicitation of Additional Information: The PC members will identify those issues of potential concern for which insufficient information is available to confidently prioritize them. The Technical Oversight Committee (TOC) will then be requested to evaluate the availability of information on these issues and report back to the PC its recommendation on the feasibility of including these in the assessment of EMOs. In addition, the PC will communicate the list to the Public Advisory Committee (PAC) and

request its assistance in obtaining public feedback.

Task 1.3 Prioritization Updates: The PC members will review their recommendations periodically, consult with the PAC and TOC, consider any additional information that becomes available, and alter their recommendations, if necessary.

Task 1.4 Recommendations: The PC members will recommend a list of issues of concern to GB through the OC within 1 month of Task 1.1 initiation. A revised list will be recommended within 3 months of receipt of PAC, TOC, and OC inputs, as appropriate. The list will be revised periodically thereafter.

Objective 2--Criteria: Identify and recommend criteria for use by the PC and by the TOC, as appropriate. (Done simultaneously with Objectives 1 and 3). The focus and degree of precision for each set of criteria will be a function of their intended audience.

Task 2.1 Initial Identification: The PC members will meet to identify and prepare an initial list of considerations, in rank order, for developing criteria to be applied in the following:

- a) identification and prioritization of the issues of concern (for use in Objective 1);
- b) identification and prioritization of the EMOs to be considered for assessment (for use in Objective 3);
- c) reporting of EMO assessment results (for use by the PC in Objective 4 and by the TOC as it conducts assessments); and
- d) evaluation of EMO assessment results and development of consensus recommendations (for use in Objective 5).

The following list includes criteria relevant to the evaluation of alternative EMOs that have been identified to date through the SAMI planning process. This list is not all inclusive nor mandatory for ultimate inclusion.

- o The effect on AQRVs (i.e., air quality, visibility, aquatics, terrestrial resources, biodiversity--attributes of the National Parks and Wilderness Areas in the Southern Appalachian Mountains that are sensitive to air pollution)
- o Control Costs
- o Equity (includes public perception)
- o Socioeconomics (jobs, tourism; costs, benefits)
- o Other environmental impacts (e.g., waste disposal)
- o Administrative ease (includes enforcement)
- o Technological feasibility
- o Implementation mechanisms and ease
- o Political acceptability
- o Geographic considerations of pollution issues

Task 2.2 OC, TOC, and PAC Opinion: The PC members will consult with the OC, PAC, and TOC as it develops its criteria. PC evaluation will continue as this communication takes place. The PC will request the TOC's input on the scope of work necessary to have

assessments of EMOs respond to these criteria.

Task 2.3 Recommendations: The PC will recommend initial lists of criteria to the GB through the OC within 1 month of Task 2.1 initiation. The PC members will provide final criteria lists for Objectives 1 and 3 within 45 days of receipt of OC, PAC, and TOC inputs. Final criteria lists for Objectives 4 and 5 will be provided within 3 months of receipt of OC, PAC, and TOC inputs. Revised criteria lists will be provided periodically thereafter.

Objective 3 Emission Management Options (EMOs): EMOs are defined as any initiative that would result in emissions reductions. Identify and recommend to the GB through the OC those EMOs needing assessment and evaluation. (Done simultaneously with Objectives 1 and 2).

Task 3.1 Initial Identification: The PC members will meet to identify, and prepare an initial list of EMOs to be considered in rank order by the PC and assessed by the PC and TOC, if necessary. The list should include a preliminary rationale for each EMO which will include an initial indication of "pros and cons." The following list includes considerations for EMOs that have been identified to date through the SAMI planning process. This list is not all inclusive nor mandatory for ultimate inclusion.

- o 1990 Clean Air Act Amendments, All Titles
- o Federal Pollution Prevention Act
- o Federal Energy Act
- o Alternative fuels programs
- o Clean vehicles
- o EPA initiative to integrate Pollution Prevention (P<sup>2</sup>) into existing regulations
- o State P<sup>2</sup> initiatives
- o Industry P<sup>2</sup> initiatives
- o Incentives to promote P<sup>2</sup> development
- o Emissions trading
- o Recommend removal of current dis-incentives for emission reduction
- o Incentives for "Demand Side Planning"
- o Improving effectiveness of implementing existing regulatory programs (e.g., VOC, NO<sub>x</sub>, and SO<sub>2</sub> regulations, permit programs)
- o CAAA Implementation and Administration (RACT, LAER, offsets of new emissions and other measures beyond CAAA requirements)
- o Ideas from previous EMO assessments (Grand Canyon Visibility Transport Commission)
- o Transportation controls management
- o Technological advancement incentives
- o Regional emissions cap

Task 3.2 Assessment Categorization: The PC members will, for each EMO on the list, determine which EMOs require TOC assessment and which can be assessed wholly within the confines of the PC (i.e., those not requiring significant TOC assessment).

Task 3.3 OC, PAC, and TOC Consultation: The PC members will then consult with the OC on its list and priority scheme and which EMOs to subject to further assessment. The

PAC will be requested to consult with the public on the list. The PC will consult with the TOC on the scope of the work necessary to complete the assessments. The PC will continue work as these consultations take place.

Task 3.4 Request for Assessment: The PC will then communicate to the TOC which EMOs it needs TOC assessment, including the criteria the PC will use to evaluate the EMOs. The PC and the TOC will continue to develop an integrated assessment framework for use in evaluating each of the EMOs. Those EMOs the PC determines can be assessed wholly within the confines of the PC will be assessed under Objective 4.

Task 3.5 Recommendations: The PC members will recommend a list of EMOs to the GB through the OC by November 1994. The PC members will provide a revised list to the GB through the OC (Objective 4) within 3 months of receipt of OC, PAC, and TOC inputs, as appropriate. PC evaluation and prioritization will continue as this information exchange takes place. Further revision will be provided, as necessary.

Objective 4 EMO Assessment: Assess those EMOs using established criteria (considering possible environmental and socioeconomic costs and benefits, as well as other considerations) which can be assessed wholly within the confines of the PC. In this step, close communication between the TOC, PAC, and PC will continue. Some EMOs can be recommended more quickly than others; a complete assessment of all EMOs is not necessary before the PC can recommend actions to the GB through the OC.

Task 4.1 Data Gathering and Evaluation: The PC members, or its consultants, will gather, archive, and use those currently available data, studies, and other relevant information. The TOC will be asked to review any technical data or tools, as appropriate.

Task 4.2 Gap Filling: The PC members will identify critical gaps in current information, design efforts to fill the gaps (including resource needs and schedule), make recommendations to the GB through the OC, and manage the implementation of approved activities. (See Objective 4 of the TOC plan).

Task 4.3 Report Results: A report will be prepared documenting the results of each assessment as it is completed, and the PC as a whole will approve these reports. Each of these reports is to be a matter of record for the PC, but will be passed to other committees for their information.

Objective 5 Completing the EMO Assessment: Evaluate, in light of established criteria, the assessment results from TOC and PC and develop consensus on which EMOs to recommend for action. Some EMOs can be recommended more quickly than others; a complete assessment of all EMOs is not necessary before PC can recommend actions to the GB through the OC. (Objectives 5 and 6 may alternate, since reports at regular intervals may be required before all assessments are complete).

Task 5.1. Review Assessment Results: The PC members will review and discuss the assessment results. Any deficiencies or need for clarification will be communicated back

to the appropriate group for resolution.

Task 5.2 Evaluate Assessment Results Using Criteria: The PC members will use criteria and considerations developed under Objective 2 to evaluate the results of each EMO assessment.

Task 5.3. Consensus: The PC members will discuss the assessment results of each EMO separately and in comparison. The PC members will strive to reach consensus on which EMO to recommend for action, which to recommend for further assessment, and which to recommend for deletion from further consideration. (A deletion from further consideration does not preclude reconsidering the proposed EMO at any date in the future.)

Task 5.4. OC, PAC, and TOC Opinion: The PC members will include the GB, OC, PAC, and TOC in these discussions, as appropriate.

Objective 6 Recommendations and Reporting: In order to facilitate SAMI's two primary reporting milestones, an interim November 1995 and a final May 1997 report, the PC will evaluate EMO's and prepare recommendation within each of these time frames. In addition, the PC will provide an interim report and recommendations on a first set of EMOs not requiring assessment by the TOC in December 1994. Those EMOs upon which consensus is reached will be recommended to the GB through the OC. Reports will also include discussion of EMOs on which consensus was not reached, with an explanation of majority and minority opinions and number of SAMI participants supporting each opinion. Reports from PC will be addressed to the GB/OC, and further distributed as necessary by PAC. (See Task 6.2 for report dates.)

Task 6.1 Status Reports: The PC will prepare and present, verbally upon request and in writing twice per year, a status report on the activities of the PC, including an explanation of the status of each EMO under consideration.

Task 6.2 Interim Reports: The December 1994 report will contain the first set of EMOs that the PC can recommend. An interim report in November 1995 will address EMOs evaluated up to that time. Another report at the end of three years (May 1997) will summarize the PC activities.

Task 6.3 EMO Action Reports: The PC will prepare a written report for recommended EMOs. The report will contain, at a minimum, the results of the EMO assessments, including a discussion of each criteria and consideration used in judging the results. Each recommended EMO should be the product of consensus (or at least majority view), since it is much more likely to yield action by the GB. However, the PC can recommend an EMO without consensus, provided that a complete discussion of the differing opinions is included.



## **Appendix E - SAMI Public Advisory Committee Workplan**

### **Introduction**

This work plan summarizes the mission, goals, objectives, tasks, work products and organizational structure of the PAC. It is a living document that will be changed as the need arises.

### **Mission Statement**

Through a balanced representation, educate the public about air quality in the Southern Appalachians and SAMI; gather public concerns about air pollution, and encourage public participation in SAMI; advise SAMI about public concerns; provide feedback to the public on SAMI's response to their concerns.

### **PAC Committee Participation**

The PAC will strive for balanced representation and participation from all interest groups on the committee as a whole and on each of the working groups.

### **PAC Organization**

The PAC has an authorized membership of 55 individuals. Not all of these positions are currently filled. The PAC is led by an Executive Committee, consisting of the Chair, two Vice-Chairs, a Secretary, and a Funding Committee representative. The PAC has assigned liaisons to the Technical Oversight Committee (TOC) and Policy Committee (PC) in order to develop a close working relationship with each of these committees.

In order to carry out its responsibilities, the PAC has developed three working groups. These are the Media Strategy, Communication/Education, and Public Dialogue Working Groups. A fourth group, the Resources Working Group is in the process of being organized. Other working groups will be organized as the need arises.

The Media Strategy Working Group will develop an overall media strategy for SAMI including direct public and press communications. This media strategy will be approved by the OC. The working group will consist of the PAC Executive Committee, the chairs of the other PAC working groups, and such other members of the PAC that shall choose to serve.

The Communication/Education Working Group will communicate specific SAMI messages through a set of communication and education tools, incorporating a peer review process as described in Section 7.1.5 of the SAMI Operating Plan, and a methodology for evaluating the effectiveness of the message. By definition, communication means that the information comes in and goes out, a fact that must be considered as various products are designed. All products of the working group will be approved by the Operations Committee prior to external distribution and will fit within the overall media strategy set forth by the Media Strategy Working Group.

The Public Dialogue Working Group will distribute approved SAMI correspondence to the appropriate public sector audience in the most efficient and timely manner possible via the mechanism identified and procured by the Resources Working Group. This working group will also solicit public input, distribute it to the appropriate SAMI entities, and relay SAMI's response

to the originator, as appropriate.

The proposed Resources Working Group will identify and set up a network of interested organizations, by state, who can assist in outreach and information gathering activities.

## **Guiding Principles**

There are a variety of principles, philosophies, and assumptions on which future strategies and actions will be based. They are as follows:

### The PAC Inform and Involve Process

1. The PAC's process is focused on education, information, citizen involvement and feedback. The PAC will assist the public in understanding, reacting and responding to information about the issues.
2. All information, either internally or externally distributed, will be peer-reviewed and checked for accuracy and completeness, and for appropriate reflection of the state of the science.
3. The PAC process and deliberations will be fair, open to the public, and every effort will be made to avoid informational bias.
4. All aspects of the issues and proposed solutions including environmental, social economic and other aspects will be incorporated into public education and dialogue.
5. All communication, whether internal or external, will be as concise as possible and as free of jargon as practical.

### The Internal Role of the PAC

1. The PAC will ensure distribution of relevant information to all SAMI members through the SAMI Coordinator's office.
2. The PAC will assist other committee chairs in soliciting input from SAMI voting members and other attendees at SAMI meetings. It will coordinate with the TOC and PC chairs, the SAMI Coordinator, the OC and the Governing Body (GB) on a regular basis.
3. When differences arise in the PAC, the PAC Executive Committee and Chair will seek to resolve them by building consensus in a democratic fashion. Failing that, unresolved issues will be put before the OC and/or the GB for final resolution.

### The External Public Role of the PAC

1. The PAC is responsible for gathering public concerns about air quality issues in the Southern Appalachian region and then communicating these concerns within SAMI and for advising the public about SAMI activities.
2. The PAC will assist the SAMI Coordinator to insure that SAMI meetings are open to the public and that public input is acknowledged.
3. The PAC will seek out individuals and groups who have a real or potential interest or involvement in the Southern Appalachians; in particular, the people who live in the eight state area.
4. The PAC will be responsible for creating or producing, or reviewing printed materials and press releases, before they are released to the public. The PAC will ensure that the appropriate SAMI peer-review and approval process is carried out.
5. The PAC will develop an environmental education outreach program on air quality issues relevant to SAMI's goals and objectives. The program will be designed to address technical

issues and the socioeconomic impacts of alternative emission management options. The program will also be designed to reach various targeted audiences and age groups.

## **Key Communication Issues**

In developing a work plan for the PAC, consideration must be given to the following communication issues:

1. Geographic area - The primary area is the eight state SAMI region. As appropriate, the secondary area would be the states from which air transport corridors convey air emissions that adversely affect the Southern Appalachians.
2. Products and Services - Products may include written and visual materials, such as brochures, fact sheets, video, documentaries, slide shows and newsletter. Services may include speaker bureaus, conference presenters, regional conferences and workshops; press releases and briefings, articles prepared for news media and magazines; and establishment of a clearinghouse function. Mailing lists and a directory of interested organizations by state will be used to implement outreach services
3. Constituents (Stakeholders) and the Public - Constituents may be defined as those organizations and individuals who are aware of the issues and who have some level of interest or involvement in them. A partial list would include regulators, emissions-producing industries, the business community, public interest and environmental groups, local governments, tourism and recreation organizations, academia, federal land managers, and others. The PAC will also target individuals and groups who may not be aware of the issues, but once aware, may have an interest in them. These may include other business and industry, health organization, scouting groups, civic clubs, etc.
4. Political/Social/Economic Climate - Consideration of population growth and demographics, economic, social and political factors will affect the strategy and design of outreach and inform/involve efforts. These issues need to be evaluated in order to create the most appropriate and effective educational programs. Some of the considerations are as follows; analysis of issue awareness level in constituent organizations within the different states and localities; analysis of interest and awareness level in local and state agencies and their willingness to support and help implement education efforts; human and financial resources available to assist in educational outreach activities; and analysis of individual resource availability within the PAC.
5. Impediments to Successful Plan Implementation - Lack of familiarity with issues among some key groups; lack of human and financial resources; political unknowns.

## **Objectives and Tasks**

The primary objective or long-range challenge of the PAC is to inform the public of SAMI's work, to educate the public about the diverse issues and considerations affecting the Southern Appalachian region, and to encourage public dialogue and involvement in searching for solutions to pollution's impact on the region, so that the public can make informed public policy choices about state and federal air programs in the next few years.

The PAC plans to work toward this objective in stages, as outlined below. At each stage, a number of tasks are defined and assigned to a working group. These tasks can be divided into two classes. The first class is tasks that are the primary responsibility of the PAC. The second class of tasks is those that are to be accomplished in support of the work of another committee.

## **Stage I - Creating the Framework**

A framework for PAC activities must be constructed before SAMI informational flow begins. The framework should support the working group structure that has been defined.

*Strategy 1 - Develop a framework to educate, inform and involve diverse groups and individuals*

### Objective A - Identify constituents and concerned groups in each state

Responsibility - Public Dialogue Working Group

Task 1 - Create the Public Dialogue Working Group charged with the responsibility of identifying the selection criteria for constituents and concerned groups, in order to reach a broad cross section of the publics and charged with collecting data state-by-state.

Task 2 - Create a state-by state mailing list of key organizations and individuals, including an organizational description, mission, newsletter, and number and type of members. The name title, address, telephone and fax number of a contact person for each organization will be included.

### Objective B - Human and financial resource assessment

Responsibility - Resources Working Group

Task 1 - Create the Resources Working Group charged with responsibility for assessing the state-by state resources (private, public interest, business, industry, and government) to find out the availability of their human and financial resources to support SAMI outreach programs.

Task 2 - Working closely with the other PAC working groups, design a questionnaire to send to the groups identified in Task 1 ,and compile a list of available human and financial, resources, including in-kind services.

### Objective C - Develop a public education program

Responsibility - Communication/Education Working Group

Task 1 - Create the Communication/Education Working Group with the responsibility of defining communication tools and create messages to educate, inform and involve the public in SAMI issues. The working group should ensure that the messages it prepares are easily understood by the targeted audience. The products of this working group will be reviewed by the full PAC and sent to the other SAMI committees for peer review.

Task 2 - Assess the availability of educational and communication tools available within SAMI and other organizations. Assess educational materials currently available in other organizations that could be endorsed by SAMI or which could be altered to suit SAMI's purposes.

Task 3 - Design appropriate feedback loops from the public to keep them informed about the results of their input. This may be accomplished by publishing a newsletter, individual correspondence, meetings, etc. The working group will develop a process for working with the public and will assist the public in framing questions.

Task 4 - Assess current educational programs related to air quality in the region, e.g., the National Park Service's CLEAR program to determine if they already address SAMI-related issues.

Task 5 - Utilize the peer review process developed by the Media Strategy Working Group for all information to be released to the public.

Objective D - Establish a clearinghouse of information

Responsibility - PAC Chair

Task 1 - Recommend establishment of a centralized information clearinghouse through the SAMI Coordinator's office. Identify additional human and financial resources needed. Investigate the possibility of using loaned employees or volunteers.

Objective E - Develop a press relations and internal communications strategy

Responsibility - Media Strategy Working Group

Task 1 - Establish the Media Strategy Working Group consisting of the PAC Executive Committee, the chairs of the other PAC working groups, and such other members of the PAC that shall choose to serve.

Task 2 - Develop a media strategy and an internal communication strategy. These strategies will be approved by the full PAC and the OC. The media strategy will include provisions for immediate press response, when necessary.

Objective F - Establish effective communications network with other SAMI committees

Responsibility - PAC Chair

Task 1 - Appoint liaisons to other SAMI committees.

**Stage II - Immediate Outreach Actions**

There are some outreach and educational efforts that can or must take place in the near-term. These are included in the tasks that follow.

*Strategy 2 - Create public awareness and interest in the issues in the Southern Appalachians in the near-term*

Objective A - Build Public Awareness of SAMI

Responsibility - Communication/Education Working Group

Task 1 - Plan events to describe the goals of SAMI. Consider such options as a press conference, regional seminar with a notable keynote speaker (e.g., Vice President Gore), presentation at an established regional conference, etc.

Task 2 - Create a package of information about SAMI, including a brochure, issue fact sheets, and other relevant material. List a SAMI contact person in each state. Send the packet through the peer review process. Send packets to the mailing list of key organizations provided by Public Dialogue Working Group and to individuals and groups who request information about SAMI.

Task 3 - Design a SAMI calendar of events to be produced and distributed by the SAMI Coordinator's office.

*Strategy 3 - Support other SAMI committees in the near-term*

Objective A - Review work products of the other committees, disseminate information to the public and solicit public input

Responsibility - (later)

Task 1 - Provide support to the PC on defining issues of concern.

Task 2 - Provide support to the PC on the evaluation and prioritization criteria.

Task 3 - Provide support to the TOC on the evaluation of existing information.

Task 4 - Provide support to the TOC on the assessment framework.

Task 5 - Provide support to the PC on the identification of EMOs.

Task 6 - Provide support to the PC and TOC on the evaluation of EMOs.

Task 7 - Provide support to the TOC on additional research requirements.

Task 8 - Assist the PC and TOC in gathering both qualitative and quantitative information to be used in the socioeconomic evaluations.

**Stage III - Long-Range Actions**

*Strategy 4 - Create public awareness and interest in the issues in the Southern Appalachians in the long-term*

Objective - Provide additional public educational programs

Responsibility - Communication/Education Working Group

Task 1 - Consider the establishment of a quarterly SAMI newsletter to be produced and distributed by the SAMI Coordinator's office. It would cover SAMI issues and actions, as well as local, state and federal actions and legislative initiatives.

Task 2 - Consider setting up ozone awareness days in each state, to communicate the effects of ozone pollution through the media to the public.

Task 3 - Consider designing a series of field trips to visit the affected Class I areas and to educate the public and elected officials on the issues through interactive/educational park and wilderness field trips. A balanced perspective would be presented.

Task 4 - Consider establishing a speakers bureau consisting of individual who can address groups

either on the technical issues related to air pollution in the Southern Appalachian region or on the goals and activities of SAMI.

#### *Strategy 5 - Support other SAMI committees in the long-term*

##### Objective A - Review work products of the other committees, disseminate information to the public and solicit public input

Responsibility - (later)

Task 1 - Provide support to the TOC and PC in the development of interim status reports.

Task 2 - Provide support to the TOC, PC, OC and GB in the production of a final report, including EMO recommendations and implementation strategies.

### **Implementation of the PAC Plan and Internal Product Review**

Implementation of the PAC work plan is designed as follows:

The work groups will develop their own work plans to support the scope of work outlined in the PAC work plan. These plans should be submitted to the PAC Executive Committee, the PAC as a whole and the SAMI Coordinator for review and approval. Work products such as press releases, presentation scripts, newsletters, brochures and fact sheets, and other publications should be submitted to the PC and TOC for review and comment and to the OC and/or GB for review and approval, in accordance with SAMI's peer review policy.

Information will be disseminated through appropriate avenues, such as the SAMI Coordinator's office (for items such as newsletters, clearinghouse, regional conference information); SAMI government representatives; public interest; business and industry resources; SAMI sponsored and co-sponsored seminars and conferences; or a PAC Coordinator.

The PAC will make a periodic assessment of the success of its outreach activities. Assessment tools may include questionnaires, interviews, and other appropriate means.

### **Interim and Final Reports**

An interim report on PAC activities will be submitted in November 1995, and a final report in May 1997. These reports will be in coordination with the primary milestones as indicated in Section 1.4 of the Operating Plan.

### **Conclusion**

It is important to begin the public education and involvement process as soon as possible, so that the public can become more informed about air quality-related issues in the Southern Appalachians, and about SAMI's mission and proposed activities. It is also important that the PAC insure that information it disseminates is scientifically accurate and balanced and that the SAMI process is open to public scrutiny and input. To be effective, the PAC will need external human and financial resources, the support of other SAMI committees and the SAMI Coordinator. Adoption of the PAC work plan is the first important step in the process of reaching its goals.

## **Appendix F - SAMI Technical Oversight Committee Workplan**

### **TOC MISSION STATEMENT:**

The purpose of the Technical Oversight Committee (TOC) is to identify, prioritize, and review activities that provide the scientific and technical information needed by the Southern Appalachian Mountains Initiative (SAMI) and to provide technical support to all SAMI committees.

### **BACKGROUND:**

The TOC, organized according to the SAMI Bylaws (effective November 17, 1993), comprises 23 appointed members. The TOC has primary responsibility for providing projections of the environmental, social, and economic responses to selected emission management options (EMOs).

To accomplish its responsibilities, the TOC will oversee the design, building, and application of an integrated assessment framework. The TOC is supported by four subcommittees (Effects, Emissions, Modeling, and Monitoring) that will work to provide the appropriate data, models, and other information for the framework within their scope of responsibility. (See individual subcommittee work plans.)

Following the passage of the Bylaws, the Governing Body (GB) gave the TOC primary responsibility for addressing economic, environmental, and social issues with the added provision that it work closely with the Policy Committee (PC) and Public Advisory Committee (PAC). In response, the TOC has assigned the assessment of direct environmental responses to the Effects Subcommittee and assessment of direct emissions control cost to the Emissions Subcommittee. Since the remaining indirect economic, environmental and social parameters have yet to be identified and will be influenced by the Criteria working group of the PC, the TOC intends to establish an inter-committee working group with members from the TOC, PC, and PAC for the purpose of identifying these parameters and overseeing the work to implement them within the integrated assessment framework.

### **OBJECTIVES AND TASKS:**

The TOC, its subcommittees and work groups, will accomplish four objectives through completion of the following tasks. These objectives are:

1. Evaluate existing information
2. Develop assessment framework
3. Assessment of emission management options
4. Development of new information

The tasks focus on: a) effects of acidic deposition to aquatic ecosystems, b) effects of acidic deposition to terrestrial ecosystems, c) effects of ozone to terrestrial ecosystems, and d) visibility impairment. Work on each task will be accomplished by contractors and/or in-kind services of SAMI members with oversight by the TOC and subcommittee members. All work will be peer reviewed either internally or externally, as appropriate.



## Objective 1--Evaluate Existing Information

The TOC will be responsible for the identification, gathering, and evaluation of existing data, models, and studies. The purpose is not only to establish a foundation of current knowledge, but also to identify critical gaps, fill those short term gaps that are necessary to conduct the assessment, and build an integrated assessment framework for assessing selected EMOs.

### Task 1.1 Establish Dimensions for Evaluation:

Dimensions for such concerns as emissions, air pollutants, resources, socioeconomic factors, geographical area, and time frame(s) of concern for the evaluation of existing information will be established by the TOC. Input is expected from the PC and PAC. In particular, the PC will be suggesting "issues of concern" and "criteria for the assessment of EMOs." The TOC will suggest the extent of the work required to respond to those issues and will work cooperatively with the PC and PAC to finalize the dimensions. The initial establishment of dimensions by the TOC will be completed by July 15, 1994, but will be revisited and modifications implemented as necessary.

### Task 1.2 Development of Scopes of Work:

Within the dimensions established in Task 1.1, the TOC and its subcommittees will develop the necessary Scopes of Work (SOWs). At a minimum, the SOWs will require the evaluation of information that focuses on: a) describing current knowledge including uncertainty, b) identifying critical gaps in that knowledge, including recommending and filling short term data needs that need to be filled to complete the assessment, c) identifying available information that can be applied to an integrated assessment framework to assess selected EMO's, and d) identifying other gaps that can be filled to reduce the uncertainty in the assessment. The TOC will seek advice from the PC and PAC, and approval from the OC and the GB on these SOWs as necessary. The SOWs to accomplish Objective 1 will be completed by July 31, 1994.

### Task 1.3 SOW Approval, Implementation, and Management:

The TOC and its subcommittees will provide recommendations for review by the OC and the GB on how the work defined in Task 1.2 can best be accomplished. The recommendations will consider and balance quality, timeliness, cost, and administrative efficiency. Ongoing studies and existing organizations in the region will be reviewed by the TOC for opportunities. Mechanisms for accomplishing the work include, but are not limited to, sole-source procurement, requests for proposals (RFP), in-kind services from SAMI members, existing cooperative agreements and level-of-effort contracts. The TOC will be guided in its deliberations by policies established by the OC and GB dealing with conflict of interest, peer review, policy review, and/or in-kind services.

Following approval by the OC and GB, the TOC will be assisted by the SAMI Technical Coordinator in managing the projects defined in the SOWs by providing guidance on day-to-day management issues, monitoring the technical progress of each project, and reviewing the interim and final products of each project. The SOWs will be awarded by September 1, 1994.

#### Task 1.4 General Technical Support:

The TOC and its subcommittees will provide an ongoing technical support function for all SAMI committees. The TOC will respond to any technical questions received within the time and resources allotted to it. If the request cannot be addressed within the time and resources available, the TOC will recommend an appropriate course of action.

#### Task 1.5 Reporting:

Progress on Objective 1 will be presented by the TOC at the semi-annual and annual meetings. A comprehensive written report will be provided to all SAMI members by June 30, 1995. This report will include a statement of the dimensions; identify currently available information, including statements of certainty and uncertainty, critical gaps, and recommendations for filling the gaps; and, recommended approaches to building the integrated assessment framework for the EMOs. Written reports on this Objective will be included in the November 1995 interim report and the May 1997 final report for SAMI.

### Objective 2--Develop Assessment Framework

Using the information identified in Objective 1 and the criteria for EMO evaluation provided by the PC, the TOC will develop an integrated assessment framework. The assessment framework will be used to project the environmental, social and economic responses to changes in emissions.

#### Task 2.1 Design Assessment Framework:

The TOC and its subcommittees will design the assessment framework using information derived from Objective 1, such as the availability of data bases, consistency and usability of data base formats, complexity of models, compatibility of emissions projections, atmospheric and resource response, socioeconomic projection models, and the criteria for assessing the EMOs recommended for technical assessment. These will be used to establish the level of detail and flexibility necessary to address multiple EMOs. This task will be revisited and modifications implemented, as necessary, based on communications with the PC and PAC. Completion of this task is planned for June 1, 1995.

#### Task 2.2 Build Assessment Framework:

Based on the design developed under Task 2.1, the TOC and subcommittees will write the SOWs that will prepare the assessment framework for application. The purpose is to ensure that outputs from one model are compatible with the inputs to the next model and between models and supporting data bases. These are the models and databases that for each EMO project a) emissions temporally and spatially, b) the resulting changes in air quality, c) resulting changes in environmental resources, d) economic and social responses, and e) qualitatively or quantitatively, the certainty/uncertainty.

This task will provide for the gathering of resources necessary to implement the assessment framework including any model or model interface development work required for application. The 1990 CAAA will be the standard used to assess the ability of the framework to be used successfully. The TOC will seek advice from the PC and PAC, and approval from the OC and GB, as necessary. Completion of this task is planned for June 30, 1996.

Task 2.3 SOW Development, Approval, Implementation, and Management:

The TOC and subcommittees will write SOWs for Objective 2 tasks and will recommend to the OC and GB how the work should be accomplished and managed. These recommendations will consider and balance quality, timeliness, cost and administrative efficiency and will be forwarded to the OC/GB for approval. Ongoing studies and existing organizations will be possible candidates for the work. Mechanisms for accomplishing the work include, but are not limited to, sole-source procurement, requests for proposals (RFP), in-kind services from SAMI members, cooperative agreements, and level-of-effort contracts. The TOC will be guided in its deliberations by policies established by the OC and GB dealing with conflict of interest, peer review, policy review, and/or in-kind services.

Following approval by the OC and GB, the TOC will be assisted by the SAMI Technical Coordinator in managing the projects defined in the SOWs by providing guidance on day-to-day management issues, monitoring the technical progress of each project, and reviewing the interim and final products of each project. The SOWs for the design work and for building the integrated assessment framework will be awarded by January 30, 1995.

Task 2.4 Reporting:

Progress on Objective 2 will be presented by the TOC at the semi-annual and annual meetings. A written status report will be provided to all SAMI committees by June 30, 1995. A comprehensive written report for all work accomplished under Objective 2 will be provided to all SAMI committees by June 30, 1996. This final report, summarizing the work accomplished under Objective 2 will describe the integrated assessment development methodology and the application to the CAAA. Written reports on this Objective will be included in the November 1995 interim report and the May 1997 final report for SAMI.

Objective 3--Assessment of Emission Management Options:

The integrated assessment framework developed under Objective 2 will be applied to each recommended EMO. Corresponding projections of environmental, social, and economic responses to proposed changes in emissions will be included in this objective.

Task 3.1 Selection of EMO for Technical Assessment:

The TOC will receive, review, and respond to input by the PC and PAC on EMOs to be considered for technical assessment using the integrated framework developed under Objective 2. The TOC will offer its opinion on the scope of the work necessary to perform the assessment. The TOC will work cooperatively with the PC and PAC to finalize the list of EMOs to recommend for assessment. The concurrence of the OC and GB will be obtained on these recommendations before proceeding. This task will be revisited and modifications implemented, as necessary. Completion is expected by January 31, 1995.

Task 3.2 EMO Assessment:

The TOC and its subcommittees will apply the integrated assessment framework from Task 2.2 to each EMO selected to evaluate predicted changes resulted from implementation of the EMO. This task will be accomplished through SOWs managed by the TOC and the SAMI Technical Coordinator. This task will begin with the completion of Task 2.2 by June 30, 1996, and is expected to be completed by February 28, 1997.

Task 3.3 Review:

The TOC will seek the review of the PC, PAC, OC, and GB at appropriate intervals. The TOC will respond, as necessary, to the comments provided.

Task 3.4 Reporting:

Progress on Objective 3 will be presented by the TOC at the semi-annual and annual meetings. Comprehensive written reports summarizing the work accomplished under Objective 3 will describe the EMO and the projected emissions, air quality, environmental resources, social and economic changes. The certainty/uncertainty of these projections will also be described and address the criteria established by the PC for evaluating each EMO. Each SAMI committee will be provided copies of the reports as they are completed or by February 28, 1997, at the latest. Written reports on this Objective will be included in the November 1995 interim report and the May 1997 final report for SAMI.

Objective 4--Development of New Information:

The TOC will prioritize, recommend, and implement approved research projects that would provide new information critical to achieving SAMI's goals. The TOC will also recommend indicators and any necessary monitoring to assess the effects of EMOs that are implemented.

Task 4.1 Prioritize, Evaluate:

The TOC and its subcommittees will 1) evaluate the critical gaps in information identified in Objective 1 and prioritize the needs, 2) determine what information is necessary to evaluate the effects of implemented EMOs, and 3) determine what information is needed to reduce the uncertainty in the assessment. A list of recommended projects with a rationale for each will be submitted to the PC and PAC for advice. The rationale will include the expected benefits to the EMO assessment and an estimate of time and resources needed for completion. The TOC will then report the results to the OC and GB for concurrence on which, if any, to implement.

Task 4.2 Development, Approval, Implementation, and Management of Scopes of Work:

The TOC and its subcommittees will provide recommendations for review by the OC and the GB on how the work defined in Task 4.1 can best be accomplished. The recommendations will consider and balance quality, timeliness, cost, and administrative efficiency. Ongoing studies and existing organizations in the region will be reviewed by the TOC for opportunities. Mechanisms for accomplishing the work include, but not limited to, sole-source procurement, requests for proposals (RFP), in-kind services from SAMI members, existing cooperative agreements and level-of-effort contracts. The TOC will be guided in its deliberations by policies established by the OC and GB dealing with conflict of interest, peer review, policy review, and/or in-kind services.

Following approval by the OC and GB, the TOC will be assisted by the SAMI Technical Coordinator in managing the projects defined in the SOWs by providing guidance on day-to-day management issues, monitoring the technical progress of each project, and reviewing the interim and final products of each project. Work on these SOWs will begin in June, 1994, and will continue throughout the project.

Task 4.3 Reporting:

Progress on Objective 4 will be presented by the TOC at the semi-annual and annual meetings. A comprehensive written report will be provided to all SAMI committees by June 30, 1995. Final reports will be prepared for each project at its completion. All reports will provide a summary of the objectives, methods, and results of each project and will focus on how the research will enhance SAMI's objectives and further science in the future. Written reports on this Objective will be included in the November 1995 interim report and the May 1997 final report for SAMI.

## Appendix G - SAMI Effects Subcommittee Workplan

### **Objectives and Tasks**

**Effects Mission Statement:** The Effects Subcommittee will contribute to the mission and objectives of SAMI's Technical Oversight Committee (TOC) by assessing the impacts of air pollution on resources at risk (air quality related values) in Southern Appalachia and predicting resource responses to alternative emissions management options (EMOs). Three specific questions will be addressed:

- 1) What is the present status of resources in the Southern Appalachians and what changes in status are related to air quality?
- 2) What changes in resource status are predicted to occur in the future given current regulatory controls on air quality and deposition, including 1990 Clean Air Act Amendments (CAAA)?
- 3) What changes in resource status are predicted to occur in the future under alternative EMOs?

Four separate, parallel assessments of resources at risk are proposed to address the following resources potentially at risk:

- 1) effects of acidic deposition to aquatic ecosystems
- 2) effects of acidic deposition to forest ecosystems
- 3) effects of ozone to forest ecosystems
- 4) visibility impairment

Interactions among pollutant stressors, climate, and other natural stressors (e.g., insect or disease) will be considered as appropriate under each category.

The Effects Subcommittee will work with the TOC and other technical subcommittees to ensure that the TOC workplan will achieve its stated objectives. Specifically the Effects Subcommittee will help resolve the assignment of technical responsibilities and delivery dates, define information dependencies between subcommittees, and ensure consistent presentation of workplan components and deliverables. The Effects Subcommittee will recommend to the TOC and other committees means to accomplish the assessment (e.g. requests for proposal, in-kind services, cooperative agreements, etc). The Effects Subcommittee will establish peer reviewers to ensure the scientific credibility of work plans and products.

### **Objective 1 Evaluate Existing Information**

#### *Task 1.1 Establish Dimensions*

The Effects Subcommittee will work with the TOC and other subcommittees to define the dimensions (e.g., spatial and temporal parameters for emissions, pollutant exposures, meteorology, resources, and socioeconomic indicators) of the evaluation of existing information.

The Effects Subcommittee will focus on identifying the indicators that will be used to define resources at risk, the measures that will be used quantify impacts to these indicators, and the methods available to characterize impacts spatially and temporally.

### *Task 1.2 Develop scopes of work*

The Effects Subcommittee will contribute to the development of scopes of work (SOWs), within the dimensions established under Task 1.1, to evaluate existing information for each of the four resource categories. SOWs under this task should include the following:

- A. Characterization and evaluation of the current status and historical trends for resources of concern and identify the potential impacts from anthropogenic emissions.
- B. Identification and evaluation of factors that affect resource sensitivity to pollutant stress (e.g., watershed geology, soils, and hydrology affect sensitivity to acidification, environmental factors that reduce stomatal conductance alter ozone uptake and damage, and atmospheric humidity effects of scattering visible light). Formulation of a set of preliminary hypotheses regarding the principal agents in defining the current status of resources.
- C. Identification and evaluation of information available on exposure-response relationships, including a combination of field observation, experimental manipulation, and response modeling.
- D. Characterization of the uncertainty in the understanding of the magnitude and spatial extent of impacts, the factors that affect resource sensitivity, and the hypotheses regarding causal agents, and exposure-response relationships.
- E. Identification of information gaps that limit the capability to define current resource status and to project resource responses to alternative EMOs. Recommendation of priority to fill information gaps to the TOC.

### *Task 1.3 Statement of Work Approval, Implementation, and Management*

The Effects Subcommittee will work with the TOC and the other subcommittees to recommend methods to select who should perform the SOWs and to implement and manage these activities.

### *Task 1.4 General Technical Support*

The Effects Subcommittee, through the TOC, will provide general technical support to the other SAMI committees as time and resources allow. If a request is beyond the resources available to the Effects Subcommittee, then recommendations on how to respond will be made to the TOC.

### *Task 1.5 Reporting*

Results of these activities will be combined with results from the other subcommittees to produce an integrated TOC work product that catalogs existing information on resources of concern.

## **Objective 2 Develop an Assessment Framework**

The Effects Subcommittee will contribute to the development and implementation of the TOC assessment framework. The effects module will define exposure-response relationships for resources at risk and will be applicable to predicting resource responses to EMOs designated by the PC. The framework will also need to provide spatial and temporal distributions for emissions, exposures, and resource impacts and methodology to describe how changes in emissions will alter exposures at specific receptors, and how resources will respond to changes in exposures. The costs and benefits of alternative EMOs will also need to be calculated.

### *Task 2.1 Approve, Implement, and Manage Scope of Work*

The Effects Subcommittee will make recommendations to the TOC concerning mechanisms to accomplish workscopes. Following approval, the Effects Subcommittee will oversee the technical review of workplans, the implementation of the work, and the review and comment on progress and products.

### *Task 2.2 Establish Dimensions of the Assessment Framework*

The Effects Subcommittee will define methodology available to accomplish an assessment of resources at current and future risk. Dimensions to be identified include a resource assessment endpoint (e.g., productivity, diversity, reproduction), and tools (models) to predict exposure-response relationships over temporal and spatial scales. Assumptions on relationships between emissions and exposures and exposures and responses will also need to be made.

### *Task 2.3 Build Assessment Framework*

The Effects Subcommittee will work with TOC to develop SOWs for each of the four resource categories, mechanisms to accomplish the workscopes, products, and schedule.

### *Task 2.4 Reporting*

Workscopes under the Effects Subcommittee will follow all agreed upon reporting and review requirements for the TOC.

## **Objective 3 Assessment of Emission Management Options**

The Effects Subcommittee will evaluate changes to resources at risk as a function of alternative EMOs selected by the PC. Uncertainties will be characterized and activities that will reduce uncertainties and the time frame that these products could be available will be identified. The Effects Subcommittee will support the TOC in reviewing the EMOs selected by the PC, applying the assessment framework, estimating uncertainty, and reviewing and reporting results.

## **Objective 4 Development of New Information**

The Effects Subcommittee will identify, prioritize, recommend, and implement projects to provide new information in areas critical to achieving SAMI's objectives.



#### *Task 4.1 Identify Ongoing Research that Could Benefit SAMI*

Cooperation with other research organizations will be sought where objectives overlap those of SAMI. Examples of programs known to overlap with SAMI include National Park Service, National Biological Survey, US Forest Service, Tennessee Valley Authority, Environmental Protection Agency, Department of Energy, Department of Transportation, Southern Oxidant Study, Southern Appalachian Man and the Biosphere, NOAA, academia, state organizations, etc. These organizations and SAMI participants will be poled to determine interest and opportunities for cooperation.

#### *Task 4.2 Identify and Prioritize Additional Research Needs*

Information gaps will likely be identified in cataloging existing information. The subcommittee will identify and prioritize information gaps and define how improved information would reduce uncertainty in the assessment product.

#### *Task 4.3 Define Work Scopes to Support SAMI Activities*

#### *Task 4.4 Reporting*

## **Appendix H - Emission Inventory Subcommittee Work Plan**

### **I. Introduction**

#### **A. Purpose of the Analysis**

The Emission Inventory Subcommittee will contribute to the mission and objectives of SAMI's Technical Oversight Committee (TOC) by providing historical, base-year, and projected emission inventories and cost of engineering controls in the SAMI region. These data will provide time series of emission distributions and the costs to manage them that will aid the design and assessment of SAMI's emission management options (EMOs) and will provide input for SAMI's air quality modeling efforts.

#### **B. Planning and Coordination**

The Emission Inventory Subcommittee will support the TOC as it fashions its input to the Public Advisory Committee (PAC) and the Policy Committee (PC) to assist them in performing their functions and, as the TOC derives input from those groups in an ongoing process, the Emission Inventory Subcommittee will coordinate with SAMI's other organizations as follows:

1. The PC --
  - a. To learn from the PC about the types of emission inventory and cost data that might be needed to support the formulation and assessment of EMOs, and
  - b. To alert the PC to the types of emission inventory and cost data that might be available to guide the EMO process.
2. The Modeling Subcommittee --
  - a. To learn from the Modeling Subcommittee about the types of emission inventory data that might be needed to provide input for the use of alternative models, and
  - b. To alert the Modeling Subcommittee to the types of emission inventory data that might be available for model input.
3. The TOC --
  - a. The Emission Inventory Subcommittee will work with the TOC to establish the dimensions of its work and the coordination of new SOWs as these are developed.

## **C. Evaluation of the Data**

The Emission Inventory Subcommittee will evaluate all of the data regarding emissions and cost for its applicability to SAMI's endeavors and its acceptability for that purpose in light of criteria developed in conjunction with the TOC and its subcommittees, the PC, and the PAC.

## **II. Acquiring and Evaluating Available Emission Inventory and Cost Data (TOC Objective 1)**

The principal product of the Emission Inventory Subcommittee's review of available data will be a catalog of existing information, regarding the historical, base-year, and projected emission inventory data and engineering costs for the SAMI region with a discussion of data quality. This will be accomplished in two phases. Phase I will involve the establishment of historical trends; coordination with states; assessment of previous analyses, including the 1990 Clean Air Act Amendments (CAAA) and other EMOs; and the identification of gaps. The development of the baseyear/modeling emission inventory will occur in Phase II.

### **A. Dimensions of the Analysis**

The tentative dimensions of the emissions and cost work, which will be used as defaults until SAMI provides contrary guidance, are listed below. The emissions to be addressed in the review of available emission inventory data include:

1. S02 and primary S04
2. Nox and primary nitrate
3. Elemental carbon, organic carbon, and VOCs
4. PM-2.5, PM-10, and TSP
5. Ammonia
6. Carbon Monoxide
7. Base cations
8. Hydrogen Sulfide, mercaptans and other sulfur species

The TOC has elected not to include air toxics in the inventory. The study area may include, for modeling purposes, the eastern portion of the United States (including southern Canada). The identification of gaps and the improvements to the database will focus on the eight SAMI states. The source categories to be studied are all of those that emit these substances.

The Subcommittee will also review the available data on the issue of the costs to manage emissions. Capital costs, annual O&M expenses, and total levelized annual expenses in a specific year's dollars will be sought.

The tentative years of interest for historical analyses are 1900 through 1993 with 1990 as the base-year.

## **B. Phase I**

### **1. Historical Emissions**

#### **TASK 1.**

Obtain and evaluate the historical data for emissions for the pollutants, states, and time periods of interest that are readily available from EPA, DOE, other organizations, or published references. Provide electronic and tabular estimates of emissions and, where available, identify the data on a source category basis.

### **2. Evaluation of existing Base-Year Emission Inventories and Costs**

#### **TASK 1.**

Review published information and interview the states, EPA, DOE, TVA, and others, as needed, with emission inventories regarding the specifications of the data that they have and that would contribute to the creation of an integrated base-year emission inventory (and a data base on the costs to manage those emissions) for SAMI. This research will cover the pollutants regions, and source categories of interest, consistent with the needs of SAMI's PC and Modeling Subcommittee. Describe in a written report the adequacy of the base year emission inventory for providing a foundation for the projection of emissions under alternative EMOs and for atmospheric modeling.

### **3. Assessment of Previous CAAA/EMO Analyses**

#### **TASK 1.**

Compile and evaluate data and methods on the emission reductions and the costs to achieve those reductions in the SAMI region expected as a result of the 1990 CAAA and other EMOs. Present the data in such a manner as to illustrate the emission reductions and costs by source type and by state. Identify and evaluate all of the key assumptions used to develop the emission and cost projections.

### **4. Identifying Gaps in Available Data**

#### **TASK 1.**

The Emission Inventory Subcommittee will identify the gaps in the available emissions data, with respect to SAMI's needs. The output from this process will distinguish between short-term and long-term projects needed to fill critical gaps. Short term (e.g. 6-12 months) projects will aim at filling critical gaps in the inventory efforts, to the extent they are identified. Long-term projects will aim at reducing overall inventory uncertainties. The Emission Inventory Subcommittee will identify and prioritize information gaps and define how improved information would reduce uncertainty in the assessment process.

## **5. Administrative Matters**

### **TASK 1.**

Combine the results of this section with the results from the TOC's other subcommittees to produce an integrated TOC work product that catalogs the results of Phase I's focus on existing information.

## **RESOURCE REQUIREMENTS**

Duration of tasks: 4 months

Completion date: November 1994

Resource requirements: To Be Determined

### **C. Phase II**

The purpose of Phase II is to use the information obtained in Phase I to construct the type of emission inventories and cost data needed by SAMI. Tasks during Phase II would also fill any short term critical gaps, as SAMI deems necessary. Longer term information needs will be pursued under Section V.

#### **TASK 1.**

Using the available data from Phase I, assemble a base year emission inventory for the pollutants, regions, and source categories of interest, consistent with the needs of the TOC. Assemble the cost information associated with each control strategy listed in the base year emission inventory.

#### **TASK 2.**

Survey other research sponsors to ascertain whether the crucial gaps are being timely filled by ongoing work or whether it can be readily expanded to fill the gaps in SAMI's record. For those crucial gaps that are not otherwise being filled by ongoing efforts, the Emission Inventory Subcommittee will develop a plan for performing the necessary work to close those residual gaps and present it to the TOC. This may include the need for the preparation of a micro-inventory of emissions for the region in and around the Class I areas in SAMI.

#### **TASK 3.**

Based on the approval of the TOC, utilize the plan developed in Task 2 to fill all critical gaps in the base year emission inventory developed in Task 1.

## **RESOURCE REQUIREMENTS**

Duration of tasks: 12 months

Completion date: June 1995

Resource requirements: The cost of this objective is to be determined at a future time.

### **III. Development of the Emission Inventory Component of the TOC Assessment Framework (TOC Objective 2)**

The TOC will develop an integrated assessment framework. The assessment framework will be used to project the environmental, social, and economic responses to changes in emissions. The Emission Inventory Subcommittee's contribution to this process is the development of projections of emissions and costs that SAMI will use in the evaluation of EMOs. The projections will either be derived from currently available data generated by others or from the application of model(s) that project emissions and the costs to manage those emissions.

**\*\*This section is preliminary and will be refined by the Emission Inventory Subcommittee at a later date.\*\***

#### **TASK 1.**

Work with the TOC, the PC, and the PAC to identify the type and extent of the emission reduction programs from the 1990 CAAA and the EMOs that SAMI will assess.

#### **TASK 2.**

Compare the emission reduction programs with those characterized in the available data to ascertain how many needed projections already exist.

#### **TASK 3.**

Determine the applicability of the available projection models to the emission reduction programs not covered by currently available projection data and the availability of input data to run these models. Outline the nature of the analysis needed to apply these models.

#### **TASK 4.**

Outline the nature of the projection model(s) needed to handle any emission reduction programs for which there are neither projection data nor projection models.

#### **TASK 5.**

Develop an SOW for the emission and cost projections, which could include displaying available data, applying available models, and/or developing and using new models. This

SOW will include, at a minimum, the documentation of the projections, their application to the 1990 CAAA, recommendations for the mechanisms to accomplish the work, the key deliverables, and schedules.

#### **TASK 6.**

Following approval by the Operations Committee (OC), the Emission Inventory Subcommittee will oversee implementation of the work, review and comment on progress and interim products, and report results.

### **RESOURCE REQUIREMENTS**

Duration of tasks:

Completion date: June 1996

Resource requirements: To be determined

### **IV. Evaluation of EMOs (TOC Objective 3)**

The Emission Inventory Subcommittee will support the TOC in reviewing the EMOs selected by the PC by applying the necessary data and/or models for emission and cost projections in the context of the assessment framework, estimating uncertainty, and reviewing and reporting results.

**\*\*This section is preliminary and will be refined further by the Emission Inventory Subcommittee at a later date.\*\***

#### **TASK 1.**

Develop an SOW for the emission and cost projections for the other EMOs to be assessed, which could include displaying available data and/or applying available models. This SOW will include recommendations to the TOC concerning mechanisms to accomplish these work scopes. Following approval, the Emission Inventory Subcommittee will oversee technical review of work plans, implementation of the work, and review of work products.

#### **TASK 2.**

Report results under the work scopes consistent with the TOC's reporting requirements.

#### **TASK 3.**

Integrate the results from the emission inventory assessments into the report from the TOC that will be peer reviewed and revised in response to reviewers, comments prior to decisions regarding the benefits of the EMOs.

## **RESOURCE REQUIREMENTS**

Duration of tasks:

Completion date: February 1997

Resource requirements: To be determined

### **V. Development of New Information (TOC Objective 4)**

The Emission Inventory Subcommittee will identify, prioritize, recommend, and implement projects to provide new information in areas critical to reducing the uncertainty in SAMI's assessment.

#### **TASK 1.**

Cooperate with other research organizations that are working to reduce the uncertainty in the data and models used in SAMI's assessment.

#### **TASK 2.**

Identify and prioritize information gaps and define how improved information would reduce uncertainty in the assessment product.

#### **TASK 3.**

Define work scopes to fill these gaps and implement those approved by SAMI.

#### **TASK 4.**

Results of these activities will be combined with results from the other subcommittees to produce an integrated TOC work product that catalogs new information.



## ATTACHMENT TO EMISSION INVENTORY SUBCOMMITTEE WORK PLAN

### LESSONS- FROM THE GCVTC

Assuming that SAMI does not have the resources to develop a model to project emissions and the costs to manage them, SAMI might be able to benefit from the experience of the GCVTC. Finding itself in the functionally equivalent position as SAMI is in now, the GCVTC developed a detailed RFP (and is now soliciting bids on it) to apply currently available models to project the effects on emission distributions and costs of compliance with the 1990 CAAA and other EMOs. The GCVTC believes its biggest challenge to be developing the data needed to apply the existing techniques. As with SAMI, the GCVTC found the key questions to be:

- A. How reliable are the methods for projecting emissions and costs in the region of interest?
- B. What information is required on source regions outside of the immediate region of interest?
- C. Which method(s) best suits current needs?
- D. What are the data requirements for the method(s) under consideration?
- E. What portions of the 1990 CAAA and other EMOs will need to be automated in the emission inventory and cost module of the assessment framework and which options will need to be assessed in a case-study mode?
- F. Who, what, and how much will be associated with the development of the emission inventory module and case-study methods for the assessment framework?
- G. How certain are the projections?

Building on the work by other analysts who have been successful with these projections, the GCVTC is looking to use existing models to help it work through the following steps:

- 1. Listing and categorizing the EMOs to identify the relevant source sectors, species, and implementation schemes (e.g., voluntary; incentive programs, command and control technology requirements; emission caps with and without trading of emission credits; or air quality targets). The identification and prioritization of EMO's will be initiated by the PC.
- 2. Distinguishing those EMOs that are amenable to automation and those for which a case study or possibly a screening study method might be more

appropriate.

3. Selecting between screening or detailed analytical forms unless both are needed.
4. Determining whether the analysis should be static (where decisions at one time step need not be considered in a subsequent time step) or dynamic (where there is logical linkage between time steps).
5. Characterizing the current status of the source categories that are important emitters of the species of concern on a state-by-state basis.
6. Subcategorizing the sources of a given source category such that each source in a subcategory has similar emission profiles and dispersion characteristics and can utilize the same controls to achieve additional emission reductions. As part of this subcategorization process, the fuel, technology, production processes, utilization, vintage, emission characteristics, and controllability of each subcategory needs to be incorporated into the emission inventory.
7. Identifying the options available to each source category for expansion of its productive capacity, along with each option's fuel, technology, production process, utilization, emission characteristics and parameters that describe how incremental emission reductions can be achieved and what their costs are. There may be the need for new subcategories in the source category if the options for additional capacity are very different from the source subcategories now in the inventory.
8. Identifying the options available to each source subcategory for controlling the emissions from the subcategories (whether an existing or new subcategory) along with their direct cost (capital and O&M) and control effectiveness. These options include fuel switches, process shifts, tail-end treatment facilities, or repowering.
9. Developing the costs to pursue those options on a subcategory level for each state for each future time step.
10. Acknowledging the inter-dependencies among the content of each subcategory on a state-by-state basis. If industrial expansion or contraction eliminates jobs in one place but creates jobs in another place and if people relocate in response, there will be shifts in the area and mobile source profiles to follow the relocation of the people.
11. Estimating the demands for production over time from the source category. Shifts in production give rise to shifts in the source inventory and, hence, in emissions. Thus, demand for goods and services will need to be predicted over the time horizon of the assessment as will the response to

that demand from the various source categories that service that demand. This response could call for the increased utilization of sources in existing subcategories, for the creation of new subcategories as sources with different characteristics are added to the inventory, or for expansions or contractions of existing subcategories as they respond to demand and control requirements. once all subcategories are created and filled by specific units of production, emissions for each subcategory can be estimated, and air quality modeling can be applied to the resulting emission distribution.

12. Assessing the validity of the methodology through evaluations of its performance.
13. Understanding the alternative EMOs and how their requirements will (a) affect the economics of production and control decisions and (b) be converted into shifts in the emission distributions. Because choices about which existing sources to control, how to control them, and what new sources to install will be dictated by relative costs of units of production, estimates of the subcategories' costs to manage emissions will be a direct by-product of projections of those emissions.
14. Projecting from the base year to 2050, or some alternate end point, how each subcategory will (a) respond to the variations in demand while complying with the 1990 CAAA and other federal, state, and local legal requirements, (b) incur costs to make their response, and (c) alter its contribution to the regional emission distributions.
15. Estimating how the emissions from each subcategory will vary over time and how much economic, energy, environmental, and other resources will need to be devoted to emission management.
16. Coordinating with the various state and federal air quality, economic, and energy supply agencies to acquire any emission forecasts that may exist and to respond to any comments that they may have on any draft emission forecasts prior to finalizing forecast methodology or forecasts.

## **Appendix I - SAMI Modeling Subcommittee Workplan**

### **Mission Statement:**

The Modeling Subcommittee will support SAMI activities consistent with the objectives and structure of the Technical Oversight Committee (TOC) Work Plan. The Modeling Subcommittee will provide technical oversight and direction in establishing an acceptable protocol and conducting modeling in support of SAMI's mission by assessing the impacts of air pollution on air quality.

### **Objectives and Tasks:**

The Modeling Subcommittee will support the coordination of TOC activities with the Public Advisory Committee (PAC) and the Policy Committee (PC). The Modeling Subcommittee will also work with the TOC and other technical subcommittees to assure that the TOC will achieve its stated objectives. Specifically, the Modeling Subcommittee will help resolve the assignment of technical responsibilities and delivery dates, define information dependencies between subcommittees, and assure consistent presentation of work plan components and deliverables. The Modeling Subcommittee will recommend to the TOC and other committees the means to accomplish the assessment (e.g., requests for proposal, in-kind services, cooperative agreements, etc.). In an ongoing process the Modeling Subcommittee will coordinate with SAMI's other organizations as follows:

1. With the Emission Inventory Subcommittee --
  - a. To learn from the Emission Inventory Subcommittee what types of emission inventory data might be available to support modeling analyses, and
  - b. To explain to the Emission Inventory Subcommittee the likely inventory needs of alternative modeling systems.
2. With the Effects Subcommittee --
  - a. To learn from the Effects Subcommittee the types of exposure indices that might be needed to drive stimulus-response relationships, and
  - b. To explain to the Effects Subcommittee the type of exposure indices that available air quality models might be available to quantify.
3. With the Monitoring Subcommittee --
  - a. To learn from the Monitoring Subcommittee about the types of air quality, meteorological, and other data that might be available to use as input to the models and as a basis for the testing of modeling output, and

- b. To alert the Monitoring Subcommittee to the types of data that would be most useful for model input and for the evaluation of modeling performance.
- 4. With the Socio-Economic Response Effort --
  - a. To learn from the Socio-Economic response effort about the types of indicators that are relevant, and
  - b. To alert the Socio-Economic response effort to the output capabilities of the air quality modeling.

The Modeling Subcommittee will implement peer review of all existing and generated modeling information, either internally or externally, as deemed appropriate and consistent with TOC guidance.

The Modeling Subcommittee will operate under the schedules developed by the TOC to meet SAMI target objectives as contained in the TOC Workplan. Modeling Subcommittee representation will take part in conference call, meetings, and all SAMI related activities in support of the TOC's role.

In support of its mission, the Modeling Subcommittees will work to achieve the following objectives by conducting the tasks or actions identified. The time frames indicated are to be measured from the point of work plan approval and task initiation and are meant to represent guidelines for completing the initial outputs for each task, recognizing the iterative nature of the work. The majority of the work will most likely be carried out through contractors and/or in-kind services of SAMI members with oversight by the committee and subcommittee members. All work products from the Modeling Subcommittee will undergo either external or internal peer review, as appropriate.

All objectives of the Modeling Subcommittee will address the following areas:

- a.) effects of acidic deposition to aquatic ecosystems
- b) effects of acidic deposition to forest ecosystems
- c) effects of ozone to terrestrial ecosystems
- d) effects of visibility impairment

**Objective 1- Evaluate Existing Information:**

The Modeling Subcommittee will identify and evaluate existing information (i.e., new and existing models, studies conducted, etc.) for the purpose of establishing a foundation from which to describe current knowledge, identify and fill critical gaps in that knowledge, and build an integrated assessment framework for assessing selected emission management options (EMOs).

### **Task 1.1 Establish Dimensions of Evaluation:**

The modeling subcommittee will meet with the TOC and its other subcommittees to establish the dimensions (i.e., emissions, air pollutants, resources, socioeconomic parameters, geographical area, and time frame(s) of concern) of the evaluation of existing information.

In light of the AQRVs on which the Effects Subcommittee has tentatively focused attention, the tentative list of air quality indices to be addressed in this scoping study includes:

- a. SO<sub>2</sub> air concentrations and sulfur/SO<sub>4</sub> depositions (short- and long-term)
- b. NO<sub>2</sub> air concentrations and nitrogen/NO<sub>3</sub> deposition (long-term)
- c. O<sub>3</sub> air concentrations (short-term and seasonal)
- d. The gases and fine particles related to regional visibility (short- and long-term)
- e. Acid deposition/stream acidification (episodic and long-term)

Similarly, the tentative list of emissions that the TOC will need to address include:

- 1) SO<sub>2</sub> and primary SO<sub>4</sub>
- 2) NO<sub>x</sub> and primary nitrate
- 3) EC, OC, and VOCs
- 4) PM-2.5, PM-10, and TSP

The initial identification of dimensions by the TOC will be completed by 7/15 and will be revisited and modifications implemented, as necessary.

### **Task 1.2 Development of Scopes of Work:**

Within the dimensions established under Task 1.1, the Modeling Subcommittee will develop a series of "Scopes of Work (SOWs)" that will form the basis for guiding the work under this objective.

Given the issues and pollutants in Task 1.1, the contractor would provide a list of the appropriate models and describe alternative modeling approaches for addressing these issues. A description would be included of each model/modeling approach outlining the following information for each:

1. Treatment of physical and chemical processes such as deposition, winds, layering, vertical mixing, and chemical transformation of pollutants;
2. Applicable space/time scales that may be examined with each approach and its ability to address the time and space scales of importance to transport for the SAMI region;
3. The model's ability to simulate source configurations ranging from close-in individual point sources to distant sources with the need to discriminate the impacts of different sources;
4. Source emission, meteorological, terrain and other types of input data required and the type of output data available from each;
5. Data storage requirements;
6. Computational/computer hardware requirements including cost estimates;
7. Previous applications and evaluations of each model;
8. Whether each model is proprietary;
9. How each model could be applied to the issues of concern to SAMI (e.g., what scenarios could practically be simulated); and
10. The strengths and weaknesses of each model relative to addressing the strategic issues.

This SOW will be completed by July 31, 1994.

### **Task 1.3 SOW Approval, Implementation , and Management:**

The modeling Subcommittee will pass along recommendations concerning the modeling SOW to the TOC who will then develop recommendations for approval by the OC and GB on who will do the work and how it should be managed. The modeling subcommittee will balance quality, timeliness, cost, and administrative efficiency in making its recommendations. The modeling subcommittee will look broadly at existing activities in the region (e.g., ongoing studies and existing organizations) for opportunities.

The selection process and implementation of work will be completed by September 1994.

Following approval by the OC and GB, the Modeling Subcommittee and the TOC will assist the SAMI Technical Coordinator in managing the conduct of these



on who will do the work and how it should be managed. These recommendations will be forwarded to the OC/GB for their approval. The TOC will balance quality, timeliness, cost, and administrative efficiency in making its recommendations. The Modeling Subcommittee will evaluate the results of its scoping study to determine what tools and procedures, if any, are available to support SAMI's assessment. In the event that there are no existing models of the proper level of sophistication and with the proper capabilities, the Modeling Subcommittee would recommend that the TOC consider developing the algorithm that SAMI needs, if time considerations permit. The TOC will consider a wide variety of mechanisms for getting the job done including, but not limited to, sole-source procurement, requests for proposals (RFP), in-kind services from SAMI members, level-of-effort contractors, etc. The TOC will be guided in its deliberations by policies established by the OC and GB dealing with conflict of interest, peer review, policy review, and/or in-kind services.

Following approval by the OC and GB, the Modeling Subcommittee will assist the TOC and the SAMI Technical Coordinator in managing the conduct of these SOW. Such assistance will include providing guidance on day-to-day management issues that arise, monitoring the technical progress of each project, and reviewing the interim and final products of each project. This task, with reference to Task 2.2 below, will be completed by September 1994. This task, with reference to Task 2.3 below, will be completed by January 1995.

#### **Task 2.2 Design the Assessment Framework:**

After evaluating the results of its scoping study to determine what tools and procedures, if any, are available to support SAMI's assessment, the Modeling Subcommittee will consider the various modeling options to use in the assessment. For each model or modeling approach that the Modeling Subcommittee recommends, the Modeling Subcommittee will work with the Monitoring and Emission Inventory Subcommittees to prepare the data base needed to perform the modeling and to evaluate its output. For the modeling, wind fields and emission distributions will be the principal inputs. For the modeling performance evaluation, the Monitoring Subcommittee will need to produce measures of ambient air quality to compare with the modeling output. Air quality measures that are consistent with the exposure indices of interest to the Effects Subcommittee will be the most useful.

In the event that there are disconnects between (1) any of the modeling inputs and the modeling and (2) the modeling outputs and the needs of the Effects Subcommittee, the Modeling Subcommittee will coordinate with the appropriate subcommittees under the leadership of the TOC. This process will be pursued to reach a consensus accommodation for continuation of the assessment.

As part of its contribution to the assessment process, the Modeling Subcommittee will also summarize (1) deficiency areas in modeling procedures and databases recommended for use and (2) the additional research that may be needed to

alleviate these deficiencies or improve the quality of the available data bases. As part of its effort to conserve SAMI's resources, this work will also explore possible opportunities for using or expanding existing research efforts sponsored by others to address issues of concern to SAMI.

The Modeling Subcommittee will then make recommendations on modeling options to the TOC and possible ways to accomplish the analysis. Once consensus is developed, the Modeling Subcommittee would contract out protocol development (see Task 2.1) specifying milestones and specific deliverables in consultation with all the committees concerning their needs. This task will be completed by June 1995.

### **Task 2.3 Build the Assessment Framework:**

Following the design of the framework the Modeling Subcommittee will assist the TOC and its subcommittees in building, testing and readying the framework for application. At a minimum, the SOW will call for the development and effective linkage (i.e., outputs from one model provide compatible inputs to next model) between the analytical structures (i.e., models and data bases) that, in response to each EMO, will a) project emissions at selected time intervals including desegregating those emissions temporally and spatially, b) project the resulting changes in air quality c) project the resulting changes in the environmental resources, d) project economic and social responses, and e) estimate, qualitatively or quantitatively, the certainty/ uncertainty of each projection. In addition, this task will provide for the gathering of resources necessary to implement the assessment framework including any model or model interface development work required for application.

The Modeling Subcommittee will oversee the integration of the modeling module into the integrated assessment framework by the analyst selected by the TOC to prepare the framework. The Modeling Subcommittee will also monitor the application of the modeling module in the integrated assessment framework to assure that it is performing properly under the various situations under which it is asked to perform. The framework will be functionally established for a base year (e.g. 1990) and tested against the 1990 CAAA to establish its feasibility. The base year case is needed to evaluate the uncertainty associated with each model/modeling analysis. During this process, the Modeling Subcommittee will ensure that there is a valid quantification of the changes to the exposure indices as emission distributions vary under implementation of the 1990 CAAA. As noted above, it is assumed that projected emission distributions under the 1990 CAAA will be generated by earlier parts of the integrated assessment framework based on modules being supplied by the Emission Inventory Subcommittee.

The Modeling Subcommittee will seek advice and approval from the TOC and its subcommittees, as necessary. This task will be completed by June 1, 1996.

#### **Task 2.4 Reporting:**

The Modeling Subcommittee will provide the TOC with semiannual verbal and/or written progress reports on its activities related to this objective. The subcommittee will provide a report that describes the IA methodology and its application to the CAAA. The reports will be provided to all SAMI committees. This task will be completed by 6/96.

#### **Objective 3 Assessment of Emission Management Options:**

Apply the integrated assessment framework developed under Objective 2 to each EMO recommended for technical assessment and report the corresponding projections of environmental, social, and economic responses to changes in emissions.

#### **Task 3.1 Selection of EMO for Technical Assessment:**

The TOC will receive, review, and respond to input provided by the PC and PAC on EMO to be considered for technical assessment using the integrated framework developed under objective 3. The Modeling Subcommittee will offer its opinion to the TOC on the scope of the work necessary to perform the assessment. The TOC will work cooperatively with the PC and PAC to finalize which EMO to recommend for assessment. The concurrence of the OC and GB will be obtained on these recommendations before proceeding. This task will be revisited and modifications implemented, as necessary. This task will be completed by 1/95

#### **Task 3.2 EMO Assessment:**

For each EMO selected, the TOC and its subcommittees will apply the integrated assessment framework from Objective 3. The TOC will assist the SAMI Technical Coordinator in managing the conduct of these SOWs.

The Modeling Subcommittee will monitor the application of the modeling module in the integrated assessment framework to the EMOs being studied. The subcommittee will also integrate the results from the modeling assessments into the report from the TOC that will be peer reviewed and revised in response to reviewers comments prior to decisions regarding the benefits of the EMOs. This task will take place from June 1996 to February 1997.

#### **Task 3.3 Review:**

Periodically throughout and following completion, the TOC will seek the review of the PC, PAC, OC, and GB. The TOC will respond, as necessary, to the comments provided.

### **Task 3.4 Reporting:**

The Modeling Subcommittee will provide the TOC with semi-annual verbal and/or written progress reports on its activities related to this objective. The Modeling Subcommittee will also prepare a written report for the modeling portion of each completed EMO that is assessed under this objective. The certainty/uncertainty of the modeling results will be described. The reports will also explicitly address the portions of the criteria, relating to the modeling analyses, established by the PC for evaluating each EMO. The reports will be provided to all SAMI committees.

### **Objective 4 Development of New Information :**

Prioritize, recommend, and implement projects whose purpose will be to provide new information in areas critical to achieving SAMI's purposes and to evaluate the effectiveness of EMOs implemented.

#### **Task 4.1 Prioritize, Evaluate :**

The TOC and its subcommittees will prioritize new information needed to fill critical gaps and to evaluate the effectiveness of EMOs implemented. The Modeling Subcommittee will define information gaps that need to be filled to define the source-receptor relationships needed to convert emission distributions into exposure indices to facilitate the prediction of future trends in AQRVs. The subcommittee will assist the TOC with developing a rationale for each recommendation including how the information developed would enhance the certainty of the EMO assessment results, and an estimate of time and resource needed for completion. The TOC will seek the advice of the PC and PAC on its list of recommended projects. The TOC will then report the results to the OC and GB and seek their concurrence on which, if any to implement.

#### **Task 4.2 Development, Approval, Implementation, and Management of Scopes of Work:**

For each approved project, the Modeling Subcommittee will assist the TOC and its subcommittees will develop a SOW for the conduct of the project.

The TOC will then develop recommendations for the OC and GB on who will do the work and how it should be managed. These recommendations will be forwarded to the OC/GB for their approval.

Following approval by the OC and GB, the Modeling Subcommittee will assist the TOC and the SAMI Technical Coordinator in managing the conduct of these SOW. Such assistance will include reviewing the responses to any RFP, recommending an RFP "winner," providing guidance on day-to-day management issues that arise, monitoring the technical progress of each project, and reviewing the interim and final products of each project. This task will begin in June 1994

and be ongoing.

**Task 4.3 Reporting:**

The Modeling Subcommittee will prepare semi-annual verbal and/or written progress reports to the TOC on its activities related to this objective. The TOC will also prepare a written report for each project completed under this objective. The report will contain, at a minimum, a summary of the objectives, methods, and results of the project.

The report will focus on how the research will enhance SAMI's objectives and how the recommendations can further science in the future. The reports will be provided to all SAMI committees.

## **Appendix J - SAMI Monitoring Subcommittee Workplan**

Monitoring Mission Statement: The Monitoring Subcommittee will contribute to the mission and objectives of SAMI's Technical Oversight Committee (TOC) by assessing ambient monitoring data describing the air quality, visibility, and meteorology. The Monitoring Subcommittee mission statement is:

To identify, prioritize, oversee, and review the activities related to the monitoring of air quality, visibility, and meteorology in the SAMI area. This group will limit their subcommittee purview to monitoring data on ambient air, visibility, and meteorology.

### **Objectives and Tasks**

#### **A. Planning**

The Monitoring Subcommittee will support the coordination of the TOC with the Public Advisory Committee (PAC) and the Policy Committee (PC) to list the emissions, pollutants, environmental resources, and socioeconomic issues of concern and to list the criteria by which the 1990 Clean Air Act Amendments (CAAA) and other emission management options (EMOs) will be evaluated. The Monitoring Subcommittee will also work with the TOC and other technical subcommittees to ensure that the TOC will achieve its stated objectives. Specifically, the Monitoring Subcommittee will help resolve the assignment of technical responsibilities and delivery dates, define information dependencies between subcommittees, and assure consistent presentation of work plan components and deliverables. The Monitoring Subcommittee will recommend to the TOC and other committees the means to accomplish the assessment (e.g., requests for proposal, in-kind services, cooperative agreements, etc.). In an ongoing process, the Monitoring Subcommittee will coordinate with SAMI's other organizations as follows:

1. With the Effects Subcommittee --
  - a. To learn from the Effects Subcommittee the types of exposure indices and meteorological data that might be needed to drive exposure-response relationships so that the necessary historical and base-year monitoring data can be collected, and
  - b. To inform the Effects Subcommittee of the type of monitoring data that might be available to support assessing the exposures of the environmental resources. Available data shall be provided to the Effects Subcommittee.
2. With the Modeling Subcommittee --
  - a. To learn from the Modeling Subcommittee about the types of air quality, meteorological, and other data that might be needed to provide input for the use of alternative models and to provide data for the testing of modeling output, and

- b. To inform the Modeling Subcommittee of the types of data that might be available for model input and for the evaluation of modeling performance. Available data shall be provided to the Modeling Subcommittee.

During these interactive and ongoing processes, the Monitoring Subcommittee will help to identify the year(s) for which ambient monitoring data are needed and determine which states, or areas, should be examined for available monitoring data.

## **B. Evaluation of Data**

The Monitoring Subcommittee will evaluate all of the data regarding the air quality monitoring for its applicability to SAMI's endeavors and its acceptability for that purpose. As to applicability, the Monitoring Subcommittee will work with the TOC and the PC to identify the criteria for determining the applicability of the available data to SAMI's work. With these criteria in hand, the Monitoring Subcommittee will determine the applicability of its data.

The Monitoring Subcommittee will work with the TOC, its subcommittees, the PAC, the PC, the Operations Committee (OC), and the Governing Body (GB) to establish criteria that will be used to evaluate the quality of the monitoring data taking into account the accuracy, precision, and quality assurance associated with the applicable data. Once having selected these criteria, the Monitoring Subcommittee will apply them to the visibility, air quality, and meteorological data for the purpose of distinguishing the acceptable from the unacceptable data.

For all applicable and acceptable data, the Monitoring Subcommittee will specify the uncertainties inherent in them.

## **I. Objective 1 Evaluate Existing Information**

The principal product of the Monitoring Subcommittee's review of available data will be a catalog of existing data and information regarding visibility, air quality, and meteorology with estimated certainty.

The purpose of the Monitoring Subcommittee's gathering and evaluation of existing monitoring data is to provide the Modeling Subcommittee with input data for its models and ambient data for comparisons with the output of modeling analyses, and to provide the Effects Subcommittee with the exposures occurring to the environmental resources at risk.

Considering the environmental resources on which the Effects Subcommittee has tentatively focused attention, the tentative list of the parameters to be addressed includes:

1. SO<sub>2</sub> air concentrations and sulfur/SO<sub>4</sub> depositions (short- and long-term)
2. Oxides of nitrogen air concentrations and nitrogen/NO<sub>3</sub> deposition (long-term)
3. O<sub>3</sub> air concentrations (short-term and seasonal)

4. Regional visibility and related aerosols, gases, and fine particles (short- and long-term)
5. Acid deposition/stream acidification (episodic and long-term)
6. Meteorology

The monitoring data will be used to describe the historical (using previously published reports) and base year(s) spatial and temporal variability of exposures of the environmental resources. The Monitoring Subcommittee's review of existing data will involve identifying where data are, or have been collected for visibility; for ambient readings of SO<sub>2</sub>, sulfate, NO<sub>x</sub>, nitrate, PM (including elemental carbon, organic carbon, PM-2.5, PM-10, and TSP), ammonia, CO, VOC, and ozone; for the wet and dry deposition of sulfates and nitrates; and meteorology. The tentative years of interest are 1980 through 1993. The specific questions to be answered during this task are:

1. Where are the monitoring sites?
2. What data have been collected at each monitoring site?
3. How continuous are the records at these sites?
4. What is the completeness of the data at these sites?
5. Where does the data reside?
6. How accessible are the data?
7. What is the nature of the quality assurance performed and documented on the data?

The Subcommittee will obtain, archive, and display the data in terms of the parameter measured, its location (using GIS), period of operation, continuity and completeness of record, and quality (precision, accuracy, and quality assurance). Additional summaries of the data can be prepared as the Modeling and Effects Subcommittees may need them to create their input data bases and the ground truth data against which the Modeling Subcommittee will evaluate the performance of its air quality models.

**TASK 1.** Determine temporal and spatial bounds. Work with the Modeling and Effects Subcommittees to determine which year(s) of visibility, ambient monitoring, and meteorological data will be used for the modeling and effects analysis and determine which states, or areas, should be examined for available monitoring data.

Task Duration:	6 months
Completion Date:	September 1994
Responsibility:	In-kind Service
Resource Requirements:	None

**TASK 2.** Identify where ambient monitoring data are being collected for visibility measurements, SO<sub>2</sub> and sulfate deposition, NO<sub>x</sub> and nitrates, ammonia, CO, VOC, ozone, and meteorology for the years 1980 through 1993.



Task Duration: 6 months  
Completion Date: November 1994  
Responsibility: In-kind Service  
Resource Requirements: None

**TASK 3.** Contact and track other organization's efforts to conduct on-going ambient monitoring in the SAMI area.

Task Duration: 6 months  
Completion Date: November 1994  
Responsibility: In-kind Service  
Resource Requirements: None

**TASK 4.** Archive, display (using table and GIS), and format the data needed by the Modeling and Effects subcommittees; determine the continuity of record; evaluate the quality (precision and accuracy) of the data; and describe the uncertainties associated with the data. A report will be produced for the SAMI organization.

Task Duration: 10 months  
Completion Date: June 1995  
Responsibility: Contractor or Cooperative Agreement  
Resource Requirements: unknown

## **II. Objective 2 Develop the Assessment Framework**

The entire assessment framework will have a number of components, but the Monitoring Subcommittee's contribution will be completed in Objective 1, Task 4, i.e., the preparation of the data bases needed by the Modeling and Effects Subcommittees so that they can prepare and/or test their source-receptor and exposure-response relationships, respectively.

## **III. Objective 3 Assessment of Emission Management Options**

The integrated assessment framework developed after the TOC's subcommittees provide their input will be applied to the other EMOs recommended for technical assessment. The Monitoring Subcommittee's contribution to this process will be completed in Objective 1, Task 4, but further examinations, or revisions, of the data bases may be needed after early runs of the assessment framework.

## **IV. Objective 4 Development of New Information**

The Monitoring Subcommittee may recommend additional monitoring to augment the existing data bases (1) to fill a critical gaps in support of the Subcommittee's initial assignment and/or (2) in response to longer-term data development efforts to determine if the implemented EMO's are reaching the desired ambient air concentrations. The Monitoring Subcommittee will recommend to the TOC the opportunities for enhancement of the assessment process, as they arise. Depending on the feedback of the TOC, the enhancements could be made and new

applications of the integrated assessment framework to the EMOs prepared.

In any follow-up efforts, cooperation with other research organizations will be sought to avoid duplication by taking advantage of research whose objectives overlap or correlate with those of SAMI. Known research-sponsoring organizations and SAMI participants will be polled to determine interest and opportunities for cooperation.

**TASK 1.** Prepare a report which identifies data gaps; recommend where additional monitoring would enhance the EMO assessments, contacts made with other organizations engaged in ambient monitoring in the SAMI area and keep track of their efforts.

Task Duration:	12 months
Completion Date:	February 1995
Responsibility:	unknown
Resource Requirements:	unknown

**TASK 2.** Prepare a report which recommends to the TOC (1) where ambient monitoring and meteorological data should be located to conduct future assessments, and (2) determine where ambient monitoring is needed to determine if the implemented EMO's are reaching the desired ambient air concentrations.

Task Duration:	12 months
Completion Date:	December 1997
Responsibility:	unknown
Resource Requirements:	unknown