NATIONAL ATMOSPHERIC DEPOSITION PROGRAM (IR-7)

1983 TECHNICAL COMMITTEE MEETING MINUTES

FIRST SESSION

Tuesday, November 8, 1983

The opening session of the 1983 NADP (IR-7) Technical Committee meeting convened in Knoxville, Tennessee, with Ellis Cowling, Chairman, presiding. A list of attendees is attached.

Al Wood, Administrative Advisor from the State Agricultural Experiment Station (SAES), Southern Region; Maury Wiese, representative for the Administrative Advisor from the SAES/Western Region; Dudley Raynal, State University of New York, Syracuse; Jim Perry, University of Minnesota; and Mike Kelly, TVA, were asked to serve as a nominating committee for the new slate of Technical Committee officers.

Keith Huston, North Central Director at Large and Administrative Advisor to NADP (IR-7) from the North Central Region of SAES, commented to the group on the structure of the State Agricultural Experiment Stations and the interaction with the federal agencies. He emphasized the importance of getting data out in a trustworthy form, and of explaining the accomplishments of NADP (IR-7) in broad terms. He feels there is a need to sharpen NADP (IR-7) roles. Keith announced he is passing his responsibilities as principal Administrative Advisor to NADP (IR-7) to Al Wood from the University of Florida.

Jack Barnes, representative from USDA CSRS, announced that he has been appointed the Administrative Assistant on acid rain to Secretary Bentley. He talked about support for regional research. The Department of Agriculture wants to solidify its relationship with the technical committees of the regional and interregional projects. He discussed the technical committee structure and importance. Jack commented briefly on USDA's interface with the Interagency Task Force on Acid Precipitation.

Jack Pickering, representative of the U.S. Geological Survey, which is the lead agency for deposition monitoring in the Interagency Task Force, commented on the activities of Task Group D (Deposition Monitoring) over the past year. The main activity of the Task Group has been the completion of the National Trends Network (NTN) called for in the National Acid Precipitation Assessment Plan (NAPAP). This required designing a network, nationwide, to measure both wet and dry deposition. One hundred fifty sites were designated as the minimum required. There are now 98 NTN sites, most of these existing NADP sites, and an additional 32 NTN sites have been selected, of which 28 are now being implemented. The remaining 20 are being finalized. Paul Kapinos, USGS, has primary responsibility within the Task Group for implementing NTN network design and development. They hope to have all sites operational by the end of this fiscal year. During this planning, they have been in continual contact with Jim Gibson as Coordinator of the NADP/NTN networks. In addition, a sub-group has been organized within the Task Group, "Ad Hoc Committee on Dry Deposition". They plan to move quickly to look at several methods of measuring dry deposition.

Jim Gibson reported on activities of the Coordinator's Office. He talked about the relationship of NADP/NTN and the coordination of NTN as part of the NADP effort. He briefly discussed the differences between NADP and NTN sites. It appears at this time that there will be a total of approximately 200 sites within the NADP network, with 150 of these sites carrying NTN designation. Jim emphasized that lack of NTN designation does not reflect on the quality of a site. In some areas of the country, the density of NADP sites exceeded that required under the NTN plan. The sites identified as NTN designated sites will be receiving a letter formalizing this designation in the near future. Operation of the NADP and the NTN sites will be identical. He discussed briefly the existing state networks (VA, CA, FL, SD, MN, MA, PA, CO).

Jim stated site descriptions have been deleted from the recent data publications as there will be a separate, detailed site description notebook published and distributed sometime within the next year. He mentioned the need for increase in staffing in the Coordinator s Office. An Assistant Coordinator will be

added within the next few months which will allow, among other things, more prompt reporting. He stated that the final 1981 data will be out next week, with the four quarters of 1982 data being published by springor early summer. Thereafter, the intention is to shorten the lag time to nine months. Jim commented on his involvement with UNESCO and UNEP in development of monitoring sites throughout the world. The emphasis in the last 18 months has been the selection of sites in the USSR and Chile. He also discussed the Mexico air quality experiment, with PEMCO reducing its SO_2 emissions by about 80% through a switch in fuel types (Mexico City).

Ann Bartuska of the North Carolina State University Acid Deposition Program commented that their funding base has increased. The structure of this program has changed somewhat. The Director is Ellis B. Cowling, with Ann serving as Coordinator, and Joan P. Baker acting as Aquatic Manager. The program is divided into three funding components: EPA, CP&L, and CSRS-SGP. She presented material describing the objectives and funding levels of each component and summarized the regional activities of the program over the past year.

Don Bogen, DOE and Vice Chairman of Subcommittee #2, Methods Development and Quality Assurance, presented a brief report on the Committee's activities over the past year. He mentioned that Chairnan Gerry Aubertin is on sabbatical in British Columbia. The Committee performed a review and audit of the Illinois State Water Survey Central Analytical Laboratory. The review team consisted of Leo Topol, Rockwell International; Bernie Malo, USGS; Don Bogen, DOE; and Gerry Aubertin of Southern Illinois University. They found a few minor concerns which have now been corrected. In addition, the Committee held a meeting to discuss the development of a quality assurance document. The Committee also discussed the development of a snow catch study to look at snow chemistry and the changes thereof. Howard Taylor of the U.S. Geological Survey in Denver was invited to make a presentation Tuesday afternoon to a joint meeting of Subcommittees No.1 and No. 2 on snow catch. The Committee plans to make recommendations to the Technical Committee regarding snow chemistry.

Peter Finkelstein, Chairman of the Quality Assurance Steering Committee, commented that their purpose is to ensure and document the quality of the data, and to ensure that levels of accuracy and precision are maintained and improved. Members of the Quality Assurance Steering Committee are Gerry Aubertin, Southern Illinois University, in his capacity as Chairman of Subcommittee #2; Dave Bigelow from the NADP Coordinator's Office, Colorado State University; Don Bogen, DOE and Vice-Chairman of Subcommittee #2; Jay Jacobson, Boyce Thompson Institute and Past Chairman of the Effects Research Subcommittee; Warren Knapp, Cornell University and Chairman of the Data Analysis Subcommittee; John Lawrence, Director of the Division for Quality Assurance at the Canadian Center for Inland Waters; Bernie Malo of USGS; John Robertson, U.S. Military Academy and Chairman of the Network Site Criteria and Standards Subcommittee; Gary Stensland, Illinois State Water Survey in his capacity as Director of the Central Analytical Laboratory; and Peter Finkelstein, Environmental Protection Agency. Peter summarized the past year's activities. It was decided that an integrated plan for quality assurance was needed for the network and the program. This plan includes site activities laboratory activities, Coordinator's Office activities and the data bank, and provides a cohesive framework for activities within the program. Most of the past year's activities have centered around documenting and designing this plan.

Tony Olsen from the Battelle Northwest Laboratories presented slides describing the EPA ADS data bank. The system is designed to receive flexible input from the various monitoring networks. The data base includes sample chemistry, precipitation, and site descriptions. They are then able to provide flexible output for data requests. Networks currently providing data to the EPA ADS data base are NADP, CANSAP, APN, MAP3S/PCN, APIOS, EPRI-SURE, UAPSP, EPA regional office, TVA, and the Wisconsin network. Interested networks or individuals should contact either Chuck Watson at 509 376-2227 or Tony Olsen at 509 376-4265. Either of these individuals may be addressed by writing Statistics Section, Battelle Northwest Laboratories, P.O. Box 999, Richland, WA 99352. At the present tine, there is no cost for standard data requests.

John Robertson, U.S. Military Academy, talked about the site visitation program which has recently been concluded. He reviewed how the program originated and was initially designed. The team looked at three questions: (1) siting, (2) how the sites were set up, and (3) how well the operators performed at existing

sites, including documentation, calibration of equipment, and operator training. The program was implemented in September 1982. The results indicate that there are:

(1) Some problems in the way the network is running.
(2) Existing errant procedures.
(3) Sites which do not have approved equipment.

As a result:

(1) Letters will be sent to each site from the Coordinator's Office suggesting how that site can be improved.
(2) Five sites have closed. Some sites have been or will be moved. Many sites will be asked to upgrade.
(3) Several sites were considered questionable. There will now be an incercomparison of questionable sites; four such sites have been designated.

The team has been consolidating the information obtained into paper files. Much of the information is also now on computerized data base. The biggest task has been the preparation of an 800-page booklet describing all sites. This will consist of a four-page per site format with a summary of all 217 sites considered in the review. He indicated how sites were selected for inclusion in the NTN network. These selections were based primarily on ecoregion location.

Bruce Hicks of ATDL/NOAA commented on the status of the dry deposition question. Bruce reminded the group that at last year's meeting he presented and demonstrated the Swedish sampler. This sampler has not been wholeheartedly endorsed. The filter pack technique, which is presently being used in Canada, is being looked on more favorably since last year. ATDL.. has now started making three devices which are being funded by NOAA. These devices will be run in parallel with devices presently being used by NOAA and EPA. There will be some concentration monitoring devices of several different kinds deployed in the future. The people involved in looking at this study have been Jack Pickering, Keith Brown, Peter Finkelstein, John Robertson, and people at CAL, Argonne, Oak Ridge and Penn State.

Gary Stensland reported for the Central Analytical Laboratory and talked briefly about the expansion of the network and CAL's response. CAL has maintained its quick turnaround on the measurement of rain samples. The delay has been in working with the data in screening and validation. They are now caught up and think this level can be maintained by adding staff. In addition, they will be moving into new facilities. CAL has conducted eight training courses for site operators with the last one being held in September.

Ninety-seven sites have been represented at these training sessions. Gary then touched briefly on several items. He felt the documentation of what the laboratory was doing, resulting from the audit, was extremely useful. The lab has made extensive use of the site visitation information produced by John Robertson's program. Individual sites may now, when needed, make collect phone calls to the Laboratory. It is hoped that this will allow sites which have been constrained from doing so in the past to contact the Laboratory when problems arise.

LeRoy Schroder of the U.S. Geological Survey presented slides depicting the results of the Quality Assurance Program over the past year.

Malcolm Still of the Canadian Atmospheric Environment Service gave a slide presentation updating the Canadian Air and Precipitation Monitoring Network (CAPMoN). This network encompasses the former Canadian networks--CANSAP, BAPMoN, APN, and CAASN. He described the network review recommendation, CAPM0N siting criteria, siting review, sampling period, instrumentation, sampling protocols, laboratory analysis, data publication, quality assurance, and future aspects of the program. He also presented a map indicating the location of the CAPMoN sites.

The meeting adjourned for a formal luncheon. Immediately following the luncheon, Ellis Cowling and Steve

Lindberg presented slides and discussion of German forests and possible acid deposition effects.

SECOND SESSION

Tuesday, November 8, 1983, 1:30 p.m.

The large group convened for an invited presentation, "State-of-the-Art Dry Deposition Measurements," by Dr. Cliff Davidson of Carnegie-Mellon University. Following Dr. Davidson's presentation, participants adjourned to attend individual subcommittee meetings.

A poster session was held Tuesday evening. A listing of these posters and authors is attached.

THIRD AND FOURTH SESSIONS

Wednesday, November 9, 1983

The third and fourth sessions of the NADP (IR-7) Technical Committee Meeting were comprised of technical reports. The morning session was chaired by David Shriner of Oak Ridge National Laboratory. A listing of speakers and topics is attached.

The afternoon session convened at 1 p.m. with Warren Knapp, Cornell University, presiding. A listing of speakers and topics is attached.

Following presentation of the technical reports, meetings of the Effects Research Subcommittee Working Groups on Materials, Aquatics, Forestry, and Field and Horticultural Crops were held.

FIFTH SESSION

Thursday, November 10, 1983, 8 a.m.

The morning session convened with Jay Jacobson, Boyce Thompson Institute, presiding. A listing of speakers and topics is attached.

Following presentation of the technical reports, Lynn Barry, Atmospheric Environment Service; Peter Finkelstein, Environmental Protection Agency; and Tony Olsen, Battelle Northwest Laboratories, participated in a panel discussion on spatial and temporal analysis of acid precipitation.

SIXTH SESSION

Thursday, November 10, 1983, 1 p.m.

Bill McFee, Purdue University and Vice-Chairman of the NADP (IR-7) Technical Committee, convened the final session. The first item of business concerned the proposed letter to Dr. Ruckleshaus, Environmental Protection Agency, raising questions from the NADP Technical Committee regarding the proposed Environmental Protection Agency National Lake Sampling Program. The first item for discussion was, Should a letter be sent at all? Steve Norton moved that the letter be sent to express concern over some aspects of the proposal. John Robertson seconded. Discussion followed regarding to whom the letter snould actually be sent, whether it should go to Ray Wilhour or William Ruckleshaus. Suggestions for clarification of wording the letter were also made. Additional questions were raised over the need for urgency and who should appropriately sign the letter. Jack Pickering moved to amend the motion that the letter be signed by the Chairman of the Technical Committee, the Chairman of the Effects Research Subcommittee, and the Chairman of the Aquatics Effects Working Group. The amendment was seconded

and carried. It was agreed to leave the decision regarding to whom the letter should be addressed to Ellis Cowling. Motion then carried.

John Robertson presented the report for Subcommittee #1, Network Site Criteria and Standards. New officers for the 83-84 year are:

Chairman - John Robertson, U.S. Military Academy
Vice-Chairman - Jerry Walker, University of Georgia
Secretary- Malcolm Still, Canadian Atmospheric Environment Service

The Committee discussed three items.

1. Rain gage-collector distance. New sites should establish this distance at more than 5 and less than 30 meters. For existing sites, any rain gage which is less than 4 feet from the collector must be moved out to 5 meters. For existing sites at which the distance is between 4 feet and 5 meters, any additional move will be grandfathered until such time as the data indicates a problem. This recommendation was taken as a motion, seconded, and passed.

2. Site relocation. The Committee recommended that there be no code change or redesignation for an existing site which is moved less than 10 kilometers, provided there is no major change in terrain. Any relocation must be flagged to indicate to data users that a relocation of a site has occurred. The Site Coordinator and Quality Assurance Coordinator shall confer on any site moved beyond 10 kilometers to ascertain if a new designation, site description, etc., is required, and a recommendation will be made to Subcommittee #1. This recommendation was taken as a motion for approval and carried.

3. Site equipment.

   (a) Wind shield. It is recommended that an alter wind shield be installed on the rain gage for those sites receiving 20% or more of their annual precipitation as snow. For sites not in this category, installation of the alter wind shield shall be optional.

   (b) Dipsticks. Sites may continue to use the U.S. Standard rain gage with dipstick as a backup to the weighing rain gage, and continue to report those readings as dipstick readings.

   (c) Battery system. It was recommended that battery power as backup power should be installed at all sites by November 1984. This will be accomplished on existing samplers by retrofit through Aerochem Metrics. There was discussion of the recommendation. Steve Lindberg moved to amend the recommendation that the Subcommittee spend the next year looking into the problem of acid vapor, and what sites should be required to make this change. The amendment passed and the recommendation was approved.

Don Bogen reported for Subcommittee #2, Methods Development and Quality Assurance. The new officers for 1983-84 will be:

Chairman - Donald C. Bogen, Department of Energy
Vice-Chairman - Gerald Aubertin, Southern Illinois University

Prior to the formal Subcommittee meetings, a joint meeting of Subcommittees #1 and #2 was held at which an overview of various snow collection devices used in North America was presented by Howard Taylor of the U.S. Geological Survey.

Items discussed at the Subcommittee meeting consisted of:

1. Dry deposition. Following thoughtful and lengthy discussion regarding scientific merit of the NADP dry deposition collection methodology, a strong concensus was established that the present NADP sampling procedure is unsatisfactory for determining fluxes and deposition of gasses and particles. The Committee recognized that dry deposition is a very important component of total deposition and that when reliable sampling techniques have been developed, NADP should reinstitute measurement of dry deposition. The committee therefore recommended termination of the analysis of eight-week dry deposition samples at the end of the present contract period (June 30, 1984) or earlier. They further recommended that a committee be formed under the auspices of NADP to evaluate alternate methods for monitoring of dry deposition and that this committee should make every effort to provide their recommendation prior to the termination of the present dry deposition program. This recommendation was unanimously approved. It was suggested and agreed that members of this committee would be Bruce Hicks, ATDL; Don Bogen, DOE; Steve Lindberg, Oak Ridge National Laboratory; Bernie Malo, U.S. Geological Survey; Steve Bromberg, EPA; and the new Chairman and Vice-Chairman of the Methods Development and Quality Assurance Subcommittee. It was further agreed that dry deposition sampling be terminated as soon as possible, and that it will be terminated at the end of the present contract period regardless of whether a recommendation for an alternate method has been made. There was brief discussion regarding the release of the existing dry deposition data. Jim Gibson stated that this data is being released on an informal basis at the present time.

2. Sampling protocol variations.

   (a) A few sites are presently taking aliquots of rain samples for purposes other than field measurements. The Subcommittee reaffirmed the NADP protocol which states, “aliquots removed for purposes other than field measurements is not permitted.” This reaffirmation will be communicated by Subcommittee #2 to the individual sites involved.

   (b) Discussion of whether present volume being taken for field measurement is adequate. The committee will conduct a survey to find out if the present 20 milliliter aliquot is of sufficient volume to perform the field measurements, and report back to the Technical Committee in 1984.

3. pH electrodes. The Subcommittee was asked by the Executive Committee to provide a recommendation for the type and manufacture of pH electrodes which will be supplied to the sites in the near future. The Subcommittee recommends the Beckman Model 34105-531 Altex electrode with a plastic/ceramic junction. The performance of this electrode will be reviewed at the 1984 Technical Committee Meeting. It was emphasized that this electrode is to be used only for NADP rain water samples. These electrodes will be provided to the sites (possibly one per site per year) by the Coordinator’s Office. Jim Gibson mentioned that the current sample price includes the cost of one electrode per year per site.

Discussion regarding field vs. laboratory measurements will be continued at the mid-year meeting of the Subcommittee, which will be held in March or April of 1984.

The Technical Committee then turned to the election of new officers. Al Wood reported for the Nominating Committee. The Nominating Committee suggested protocol for the future selection of Technical Committee officers. They suggested (1) a rotational component whereby the Secretary would rotate into the Chairmanship over a period of years, and (2) that each individual serve in each office for only one year. It was moved and seconded that these recommendations be approved. Following discussion, the motion carried. The Nominating Committee made three additional recommendations to the Executive Committee: (1) That the past

Chairman function as part of the Executive Committee; (2) that they assign a larger function to the position of secretary; and (3) that the New Initiatives position be evaluated and a determination be made regarding the function of this position. It was recommended that this position be filled by appointment of the Executive Committee.

The nominated slate of officers was presented. Nominated for the position of Secretary was Steve Norton of the University of Maine. There were no nominations from the floor, and Steve Norton was unanimously re-elected as Secretary of the Technical Committee for 1983-84.

Dave Shriner, Oak Ridge National Laboratory, was nominated for the position of Vice-Chairman. Following no floor nominations, Dave was unanimously elected Vice-Chairman of the Technical Committee for 1983-84.

Bill McFee, Purdue University, was nominated for the position of Chairman. There being no other nominations, it was moved, seconded and unanimously carried that Bill McFee be elected Chairman of the Technical Committee for 1983-84.

Ellis Cowling commented to the group on a conversation held with Ray Wilhour of EPA regarding the National Lake Sampling Program proposal, to which it was earlier agreed a letter of response be made on behalf of the NADP Technical Committee. Ray Wilhour suggested that two letters be sent, one to William Ruckleshaus, and the other, containing technical comments, to Courtney Riordan, with a carbon copy to Ray Wilhour. It was agreed that two letters would be sent. Ellis commented further that the project will be conducted during the summer of 1984, and that NADP should make available to EPA a list of persons who could participate in a Committee meeting, to be held in December, regarding the proposal. Clarification regarding the two letters was provided. It was moved and seconded that two letters be written – (1) a technical letter written to Courtney Riordan and Ray Wilhour, and (2) a shorter letter to be addressed to William Ruckleshaus. The motion carried. (NOTE: Based on discussions with EPA and members of the Aquatics Effects Working Group following the Technical Committee Meeting, which clarified portions of the proposed program, it was decided not to send a letter.)

Steve Lindberg, Vice-Chairman of Subcommittee #3, Data Management and Analysis, reported on the activities of the Committee. New Committee officers for 1983-84 are:

Chairman - Steve Lindberg, Oak Ridge National Laboratory
Vice-Chairman - Jim Lynch, University of Pennsylvania

(1) Committee role. In response to a request from the Executive Committee regarding clarification of the definition of the roles for the various subcommittees, Subcommittee #3 made the following statement: “The general role of the data analysis subcommittee is to advise the NADP Technical Committee and the Coordinator’s Office regarding the analysis and reporting of network wet and dry deposition measurements. This includes formal reports such as computer data tapes, quarterly analytical data, annual summaries, and longer-term, interpretive reports.”

(2) The Committee recommends that the Quality Assurance Steering Committee perform a review of NADP data handling procedures, including data and sample screening and data validation procedures.

(3) Annual summary reports. The major activity of the Committee was the formulation of a recommended format for NADP annual data summary. They recommended that the report contain the following major components.

I. Introduction: purpose, network info, site map

II. Data description and analysis methods (Include all pertinent caveats)

III. Network summary

Spatial trends - isopleths of number of samples collected, weighted mean concentrations, and deposition of all ions

- annual maps
- seasonal maps; cold (months 1-3, 11-12); warm (4-10)

Temporal trends - time series plots of quarterly weighted mean H^+ (or $SO_4^=$ or NO_3^-) concentrations from 1/78 to present at each site.

IV. Appendices of site statistics

Table 1 - general statistics for all ions, pH, rainfall, $SO_4^=/NO_3^-$ $(SO_4^= + NO_3^-)/H^+$ equivalent ratios, and ion balance.

Statistics: mean (simple and weighted) for concentration and simple mean for deposition; standard deviation, range, number of samples, frequency percentiles (10 classes)

Table 2 - weekly rainfall and sample type collected (e.g., W, WD, etc.)

The Committee further recommended that the order of priority is for the Coordinator's Office to complete its catch-up activities on routine quarterly reporting, then to begin processing the statistical analyses and the graphical summaries for the most recent annual data available. After review of draft data summaries by the Committee, full annual reports will be published by the Coordinator's Office, working backwards from the current data available. Future reports will be issued annually.

(4) Technical support for annual summary data analysis. The Committee strongly recommends that NADP (IR-7) provide support for a data analyst to work with the Coordinator' s Office in the preparation of the first annual data summary, and that a permanent position be established for such a person to assist in preparation of future summary and interpretive reports.

The recommendations of the Committee were approved.

Peter Finkelstein reported on the meeting of the Quality Assurance Steering Committee. Steve Lindberg has been included in the group of individuals serving on the Committee. The Committee plans to have a revised version of its report within the oext few months, and to have full discussion of the report at the next Executive Committee meeting. Following the Executive Committee meeting, a final draft of the report and recommendations will be mailed for review prior to the next Technical Committee meeting.

Dave Shriner, Oak Ridge National Laboratory, reported Subcommittee #4, Effects Research. The new officers for Subcommittee #4., which operates on a rotational basis, are:

Chairman - Mike Kelly, TVA
Chairman-Elect - Dudley Raynal, State University of New York, Syracuse
Vice-Chairman-Secretary - Jim Perry, University of Minnesota

Working Groups Chairmen are:

Aquatics - Sandy Verry, U.S. Forest Service
Field and Horticultural Crops - Wayne Banwart, University of Illinois
Forestry - Bud Hart, Michigan State University
Materials - Ray Herrmann, National Park Service

He commenced that the Effects Committee and its Working Groups feel that the Working Groups are coning into their own. He then summarized the items discussed by the groups.

1. Aquatics. This group was responsible for the letter responding to the EPA proposal discussed previously. They felt the NADP Effects Research Committee and the Aquatics Working Group should serve a role in peer review of proposals of this nature.

2. Field and Horticultural Crops. This group spent some time in developing priority areas for recommendations to the CSRS Special Grants Program. The list will be submitted to Ann Bartuska of the North Carolina State University Acid Precipitation Program. The group also discussed the idea of developing screening protocols.

3. Forestry. This group is very much interested in expanding the multi-disciplinary role of the working groups. They discussed and developed a goal to ensure that spatial and temporal trends data from the monitoring program meets the Forestry needs in research. The group agreed they should perform peer review sessions. Bob Rosenthal of EPA presented the framework for the '85 review to the group for review and comment. The group discussed zone constraints and mechanisms for research efforts in forestry. The group felt the format for the annual report was acceptable as presented. The group developed recommendations for CSRS Special Grants Program for RFP's in the forest area for '85 and possibly '84. They will develop initiatives over the next few months to identify the extent of the forest productivity data available and evaluate whether other data might be available, i.e., from private sources. The Committee feels that this might be a very valuable source.

4. Materials. A meeting was not held at this year's session.

Each working group felt a need for mid-year meetings and will try to arrange such meetings. The Effects Subcommittee recommended to the Technical Committee that the Chairman and Program Coordinator be asked to serve as a committee to develop a publication policy for NADP to establish guidelines on what sort of publications NADP wants to support and what priorities should be given to publications developed outside the subcommittee.

The report and recommendations were accepted as presented.

The 1984 Technical Committee Meeting will be held the week of October 29-November 2. A location has yet to be designated. Ellis Cowling asked for any suggestions regarding format of the meeting.

The 1983 NADP (IR-7) Technical Committee meeting was adjourned at 4 p.m.

POSTER SESSION PRESENTATIONS

November 8, 1983

NADP/NTN Site Description Book - John Robertson and a Cast of Thousands

This is NADP - J. K. Robertson, J. Wilson and R. Graham

An Evaluation of Precipitation Chemistry Data at the US/WMO Baseline Sites over the Last Ten Years - Uri Dayan and John H. Miller

CANSAP-NADP Intercomparison — D. Bigelow, V. Bowersox and M. E. Still

Analysis of Precipitation Chemistry Data — Period 1977/1981 — Lisa Lebowitz and R.G. de Pena

Status of National Trends Network (NTN) - Stations F. Paul Kapinos

Air Quality/Acid Precipitation Monitoring and Effects Research in Great Smoky Mountains National Park — Douglas G. Holland

Stratifying Wet Deposition Samples — Elon S. Verry and A. Ray Harris

Source Apportionment of Rain Water Impurities in Central Illinois — D. F. Gatz

Recent Advances in Research on Effects of Acidic Rain on Agricultural Productivity — J. S. Jacobson, J. J. Troiano and L. I. Heller

Influence of Acidification on Allochthonous Carbon Budget of Little Rock Lake — Jim Perry

A Microcosm Approach to the Evaluation of Simulated Acid Precipitation Effects on Forest Ecosystems — J. M. Kelly

Variability of Acid Rain and Runoff in North Florida — H. Riekerk

Movement of Fly Ash—Generated Pb and Cd through Soil Columns Leached with Acid Precipitation — William A. Feder and Jane S. Mika

Atmospheric Deposition and Ionic Input in Adirondack Forests — D. J. Raynal, F. S. Raleigh and A. V. Mollitor

The Virginia Acid Precipitation Network — B. I. Chevone, A. I. Buikema and P. Toczydlowski

Evaluation of Acidity and Chemical Composition of High Elevation Lakes in California — G. R. Bradford, Carl A. Fox, A. H. Page and A. A. Elseewi

TECHNICAL SESSION PAPERS

November 9, 1983, 8 a.m.

Response of wheat, sunflower, alfalfa and corn to dilute sulphuric/nitric acid mists — Wayne S. Gardner

The effects of simulated acid rain on field—grown soybean (Glycine max, Forest) — D. T. Dubay, J. D. Elson and A. S. Heagle

Effects of temporal variiations in the acidity of rain on the response of soybeans to acidic precipitation — Patricia Irving

Dry deposition of nitrate to deciduous forest canopy — Gary Lovett and Steve Lindberg

Formation of ectomycorrhizae by Pinus Taeda L. exposed to simulated acidic rain — S. R. Shafer, L. F. Grand, R. I. Bruck and A. S. Heagle

Observations on the German forest dieback — Steve Lindberg

Atmospheric input and wet deposition of four crustal elements — G. J. Stensland, L—C. Chu and D. F. Gatz

Vulnerability to acidification of selected lakes and streams in nine middle Atlantic states — Dean £. Arnold, Robert U. Light and Eric A. Paul

Correlation of regional sulfate in surface waters to sulfur oxide emissions - George Hendrey, C.G. Hoogendyk and F. Lipfert

A look at some possible causes of high sulfate levels in precipitation during the summer — W. W. Knapp and D.J. Crowther

The chemistry of precipitation at a mid—Atlantic coastal site — Joseph Scudlark and T. M. Church

TECHNICAL SESSION PAPERS

November 9, 1983, 1 p.m.

Atmospheric deposition in Pennsylvania - 1982 — Jim Lynch

The role of organic acids in causing pH shifts in NADP samples — W. C. Keene and J. N. Galloway

Henriksen's Empirical Model:Through an historical looking glass — Alan Van Arsdale

Pollutant dry deposition monitoring and parameterization — M. L. Wesley and D. L. Sisterson

Some preliminary results of wet and dry deposition in Ontario, 1982 — Walter H. Chan and Maris A.. Lusis

Screening wet deposition samples at the Central Analytical Laboratory (CAL) of the NADP — Van 8owersox

TECHNICAL SESSION PAPERS

November 10, 1983, 8 a.iu.

Removing soil and sea salt variation from NADP samples — Elon S. Verry

Relationships of storm type and trajectory to precipitation chemistry — C. W. Martin, J. W. Hornbeck, R. M. Bloxam, R. H. Munn, G. E. Likens and B. Weisman

Precipitation pH variation during summer storms on the continental divide in central Colorado — M. M. Reddy, T. D. Liebermann and J. Jelinsk.i

Differences in ionic compositions in winter rain and snow — Leo H. Topol

Analysis of precipitation chemistry data at US/WMO/NADP regional sites — Richard Artz and John M. Miller

Participation List
Technical Committee1983

Participant	Affiliation
Nehl Aldredge	International Paper Company
Fred Allen	University of Tennessee
Dean Arnold	U.S. Fish and Wildlife Service
Richard Artz	NOAA/Air Resources Lab
Linda Bandhauer	Colorado State University
Wayne Banwart	University of Illinois
W. Richard Barchet	U.S. Environmental Protection Agency
John Barnes	U.S. Department of Agriculture
L.A. Barrie	Environment Canada
Ann Bartuska	North Carolina State University
David Bigelow	Colorado State University
Polly Blackburn	U.S. Department of Energy
Don Bogen	U.S. Department of Energy
Van Bowersox	Illinois State Water Survey
Gordon Bradford	University of California
Owen Bricker	U.S. Geological Survey
Russell Brinsfield	University of Maryland
Steven Bromberg	U.S. Environmental Protection Agency
Robert Bruck	North Carolina State University
Walter Chan	Ontario Ministry of the Environment
Boris Chevone	VPI & State University
Thomas Church	University of Delaware
Jan Coe	Oak Ridge National Laboratory
Edward Corbett	U.S. Forest Service
Ellis Cowling	North Carolina State University
Rachel Cremers	Louisiana State University
Terry Dana	Battelle-Northwest
Cliff Davidson	Carnegie-Mellon University
Katie Davis	NAPAP
Rosa de Pena	Penn State University
David Dewalle	Penn State University
Donald Dolske	Illinois State Water Survey
Thomas Dreschel	The Bionetics Corporation
Denis DuBay	North Carolina State University
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Donald Gatz	Illinois State Water Survey
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James Hart	Michigan State University

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