Air Quality Division
May 1993 Monthly Report

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PERMIT REVIEW AND TECHNICAL SUPPORT

During May the Policy, Planning, and Permit Review Branch reviewed permit applications for the new air pollution sources listed in Table 1 which are proposed near National Park Service (NPS) or U.S. Fish and Wildlife Service (FWS) areas. Please contact the staff person identified for more specific information regarding these projects.

STATE ACTIVITIES

WESTAR: The cooperative agreement between the NPS and WESTAR was amended to reflect a revised work schedule for a new project due to a delay in transfer of funds from NPS to WESTAR. The study to develop a PSD tracking system for increment consumption and cumulative impacts on federally managed lands has now been initiated and is slated for completion by next May. (Brian Mitchell)

Pinal County, Arizona New Source Permitting Regulations: Preliminary review of the Pinal County, AZ, proposed prevention of significant deterioration regulations revealed several areas of concern regarding potential impacts of air pollution sources on nearby Federal Class I lands outside Pinal County (e.g., Saguaro NM) and the Federal Land Manager's ability to participate in the county's permitting process. Given insufficient time for submitting comments for the record, the NPS consulted with the Pinal County Air Director and learned that although a June 24 public hearing will be conducted on the proposal, NPS comments on the regulations will still be accepted for consideration following the hearing. The Air Quality Division (AQD) will coordinate the review with Saguaro NM staff and the Western Region air quality coordinator. (Mitchell)

GASEOUS POLLUTANT MONITORING

Annual Data Summary Reports: Annual gaseous pollutant summary reports for 1991 have been prepared for Haleakala National Park and the Big Meadows, Dickey Ridge, and Sawmill Run Sites at Shenandoah National Park. Final ozone, sulfur dioxide and/or meteorological data are included, as well as graphs and summaries of the data. These reports were sent to the parks and the respective regional air quality coordinators.

Calibration and Maintenance Visits: Tables 2 and 3 list the semi-annual calibration and maintenance visits conducted during May 1993 and those to be performed June through September 1993. This is a proposed schedule. Visits by monitoring support personnel will be scheduled with the site operators by the visitor. Site operators, park superintendents, and regional air quality coordinators will be given a 2-week written notice of the site visit once arrangements for the visit are finalized. (Ron Lawler Heavner)

NAAQS Exceedances: The raw data for May 1993 indicated that all NPS areas with monitoring sites were below the ozone and sulfur dioxide National Ambient Air Quality Standards (NAAQS) during the month.

The raw data for May 1993 indicates that the maximum ozone concentration for the gaseous pollutant monitoring network was 0.099 ppm measured at 1900 hours on May 7, 1993, in Joshua Tree National Monument. The second highest concentration was 0.097 ppm measured at 1800 hours on May 6, 1993, also at Joshua Tree National Monument.

The maximum sulfur dioxide concentration was 0.132 ppm measured at 0700 hours on May 7, 1993, in Olympic National Park. (Bob Carson)

BIOLOGICAL EFFECTS PROGRAM

Reports Available on Sulfur Chemistry Baseline for Southwestern National Parks: Researchers from Los Alamos National Laboratory delivered final reports of projects performed in Mesa Verde National Park, Canyonlands National Park, Arches National Park, Petrified Forest National Park, Bandelier National Monument, and Chaco Culture National Historic Park. The researchers report nominal levels of sulfur in soils and vegetation at these locations. Copies of the reports are available from Dale Breitenfeld at (303) 987-6694.

AQD Staff Attends Meeting of Environmental Assessment in the SouthEast (EASE) Group: On May 12-13, Kathy Tonnessen met with a group of research managers concerned with the effects of air pollution and global change on resources in the southern United States. The group agreed to form an organization known as EASE to coordinate the preparation of environmental risk assessments to evaluate the effects of anthropogenic stresses on natural resources. Representatives from government (Environmental Protection Agency, Fish and Wildlife Service, Department of Energy, National Science Foundation, U.S. Forest Service (USFS) and NPS) agreed to work with research managers from industry (Electric Power Research Institute, National Council for Air and Stream Improvement (NCASI), Tennessee Valley Authority) to identify gaps in the data bases on stresses and resource impacts in the southeast. The risk assessments would be prepared to answer policy makers questions about the levels of resource impacts under future scenarios of climate change and air pollution. This group is headed by Susan Fox of the USFS Southern Global Change Program and Eric Vance of the NCASI. Consultants from Science and Policy Associates will coordinate the group's correspondence and will organize workshops for regional policy makers (e.g.,state representatives working with the Southern Appalachian Mountain Initiative) to define the policy questions that should guide the assessment. (Tonnessen)

Kick-off Meeting for Pacific Northwest Region Biological Effects Review: The AQD Biological Effects Program has contracted with the USFS, Pacific Northwest Research Station, to perform a regional review of air quality data and air quality-related biological effects research in Washington, Oregon, and Idaho. The final report will provide a regional assessment of air quality, in addition to discussing available air quality related values information and research needs specific to each of the 5 NPS Class I areas in the PNR. Dave Joseph, Tonnie Maniero, and Kathy Tonnessen attended the May 6 kick-off meeting with the contractors in Seattle. Regional office staff and resource managers from Crater Lake, Mount Rainier, North Cascades, and Olympic NPs participated in the meeting. The contractors, Joe Eilers, Cathy Rose, and Tim Sullivan, outlined the process they propose to use for the review. This was followed by a group discussion of the types of information park, regional, and AQD staff can provide, and clarification of the project schedule and deliverables. The contractors will visit each of the Class I areas and Cooperative Park Studies Units in the region in June to peruse reports and data bases and familiarize themselves with the types of resources found in each park/monument. There will be an interim meeting in Denver in late July to evaluate identified data sources and finalize the project approach. The final report should be available in June 1994. It is the AQD's intention to fund similar reviews for each of the NPS Class I areas over the next several years. (Maniero)

AQD Staff Attend an International Symposium, "Environmental Information Management and Analysis: Ecosystem to Global Scales": Bruce Nash attended this interdisciplinary meeting of experts from the fields of ecology, statistics, data base management, high-performance computers, and information management. The participants discussed current efforts and future needs in the area of environmental information management and analysis. The enormous data bases generated by multi-disciplinary research efforts have created significant challenges to scientists attempting to

interpret and analyze ecological studies. Technical topics on the meeting program included: Design, Development, and Management of Geographic Information Systems (GIS), Quality Assurance/Quality Control Issues, Data Transfer and Standardization, Spatial Pattern Detection, Linking GIS to Simulation Models, Expressing Uncertainty, and Integration of Expert Systems in Data Bases. Papers presented at this meeting demonstrated progress in many of these fields, however, new data base formats, innovative statistical approaches, efficient integration of GIS and Expert Systems as data base "filters," and improved data visualization software will be required to prevent data bases from becoming "Write Once, Read Never." (Nash)

Project FOREST Research Funded: Project FOREST (Forest Ozone Response Study) is a multi-agency research and monitoring program located in the California Sierra Nevada. The purpose of the program is to investigate the effects of ozone on ponderosa and Jeffrey pines in six National Forests and four National Parks. The Biological Effects Program will provide funding for 1993 research in Sequoia, Kings Canyon, Lassen Volcanic, and Yosemite National Parks. Field crews will collect foliar samples, evaluate the extent of foliar injury, and prepare plot summaries of foliar condition. This is the third year of this study, which includes the collection of ambient ozone data [by the Monitoring and Data Analysis Branch (MDAB) in the parks] and foliar injury data (by park staff). These data will be incorporated into the larger Project FOREST data base to document potential regional impacts. (Nash)

Effects of Ozone on Native Vegetation Research Funded at Acadia National Park: The Biological Effects Program has approved funding for another year of ozone effects research at Acadia National Park. The objectives of the 1993 program are to: determine the relative ozone sensitivities (based on foliar injury) of native plant species, investigate response to ozone by different clones of eastern white pine and trembling aspen, and establish ozone injury monitoring points near the ozone monitor at park headquarters. The Principal Investigators on this project are Dr. Robert Eckert and Dr. Thomas Lee (University of New Hampshire) and Dr. Robert Kohut (Boyce Thompson Institute for Plant Research). Supplemental funding for this project is provided by the North Atlantic Regional Office. (Nash)

AQD Staff Attend "An Introduction to the Global Internet": The Internet is a world-wide electronic network that can provide access to: data bases, electronic books and journals, electronic mail, news reports, libraries, technical papers, public domain software, and technical discussion groups. Six members of the AQD attended a one-day course on the Internet presented by XOR Network Engineering, Inc., in Boulder, Colorado. The techniques and information sources discussed at the course will enhance the Division's ability to utilize the Internet. (Dotts, Ferrin, Harvey, Maniero, Nash, Tonnessen)

USFS Symposium on Air Resource Management: AQD staff attended the USFS Air Resources Management Symposium May 12-14 in Fort Collins, Colorado. The symposium covered numerous topics including effects of ozone and other gaseous pollutants on ecosystems, visibility, fire and smoke management, deposition effects to aquatic and terrestrial ecosystems, effects on wildlife, air toxics, and UV-b effects. The USFS expects to have the proceedings of the symposium out for review in the near future. Several presentations were of particular interest to the Biological Effects Program. Ken Stolte, USFS Forest Health Monitoring, gave an overview of the effects of oxidants on vegetation. Anna Schoettle, USFS Rocky Mountain Station, discussed her efforts at determining the sensitivity of alpine plants to ozone. Paul Berrang, USFS Center for Forest Environmental Studies, warned of the complexities of predicting the effects of ozone on vegetation and gave examples using several studies with hardwoods. Trent Proctor, USFS Pacific Southwest Region, discussed Project FOREST's examination of the effects of ozone on various softwoods in National Parks and Forests in California. Peter Murdoch, U.S. Geological Survey (USGS), described his project characterizing episodic acidification in streams of the Catskill Mountains. Jill Baron, NPS-Water

Resources Division, gave an overview of her work at Loch Vale, Rocky Mountain National Park. Mark Story, USFS Northern Region, explained their three-phased lake monitoring program. John Turk, USGS, compared intensive studies to regional surveys in approaching acidic deposition research. Paul Hanson, Oak Ridge National Laboratory, discussed nitrogen deposition and its effects on terrestrial systems. Ellen Porter, FWS, gave an overview of the direct and indirect effects of air pollutants on wildlife. Sally Liu, Tetra Tech Corporation, gave a demonstration of a mercury cycling model and the ILWAS (Integrated Lake Watershed Acidification Study) model. Jesse Ford, EPA, addressed air toxics and their effects on ecosystems. Linda Geiser, USFS, described her project inventorying the lichens of the Tongass National Forest in Alaska. (Ferrin)

Biological Effects Staff Meets with Monitoring and Data Analysis Branch: On May 24, an interbranch meeting was held to coordinate activities of the Biological Effects Program (BEP) and the MDAB. A number of collaborative projects are planned for this summer, including ozone monitoring and effects work at Acadia, Great Smoky Mountains, and Shenandoah National Parks. In the western U.S., the AQD will work with park staff on Project FOREST, to evaluate the effects of ozone on Sierran pines. MDAB statistician, Chip Harvey, will assist BEP staff in the design and analysis of field surveys of hardwood injury in eastern parks. Dave Joseph will be assisting contractors working on the Pacific Northwest Regional Review by providing air quality, deposition, and emissions data. John Ray will call on BEP and park staff to assist with a planned passive ozone monitoring field experiment.

MODELING

The Interagency Workgroup on Air Quality Modeling (IWAQM) has published their Phase 1 report through the EPA. It has been substantially completed for several months, but has been slow getting through the EPA publication process. The report outlines methods for assessing air pollution concentrations and atmospheric deposition from sources located more than 50 kilometers from Class I areas. It also outlines methods for assessing the effect of sources on regional haze. Having the recommendations published by EPA will enhance their acceptance by the air pollution assessment community. These recommendations will help to assess whether new sources will cause or contribute to adverse air quality impacts in the parks.

Materials Effects Study: Mark Scruggs served on a panel to review the progress of the building deposition study sponsored by the Preservation Assistance Division (NPS) and conducted by Carnegie Mellon University. The review including conducting an assessment of monitoring protocols, evaluation of preliminary results, and making recommendations on future monitoring and research plans.

TABLE 1

PROJECT	LOCATION	MAJOR COMMENTS	CONTACT
Willamette Industries, Inc. (pulp mill modification)	79 km NE of MACA	Significant NO_x and SO_2 increases; reminded State of FLM notification requirements; recommended lower emission rates; clarified dispersion modeling requirements; and expressed concern with potential ozone and acid deposition impacts at the park.	Morse
Florida Gas Transmission Co. (compressor station modification)	36 km E of Chassahowitzka Wilderness Area	Significant NO_x increase, but no significant impacts expected at the wilderness area.	Porter
Florida Gas Transmission Co. (compressor station modification)	135 km N of EVER	Significant NO_x increase, but no significant impacts expected at the park.	Morse
Seminole Kraft Corporation (pulp mill expansion)	55 km SE of Okefenokee Wilderness Area	Overall net decrease in emissions in conjunction with adjacent facility. Should result in net environmental benefit.	Maniero

TABLE 2
CALIBRATION AND MAINTENANCE VISITS

SITE LOCATION	VISITED BY	DATE
Joshua Tree NM	Mark Tigges (ARS)	May 4,5,7
Death Valley NM**	Mark Tigges (ARS)	May 6
Yosemite NP	John Faust (ARS)	May 14-18
Great Basin NP**	Bobby Carson (AQD-DEN)	May 18-19
Denali NP&Pres	Mark Tigges (ARS)	May 18-21
Voyageurs NP	Robert Lehman (ARS)	May 24-28
Mammoth Cave NP	Mike Bagby (ARS)	May 24-28

** Trends Site Selection Trip

TABLE 3
SCHEDULED CALIBRATION AND MAINTENANCE VISITS

SITE LOCATION	TO BE VISITED BY	DATE
June Site Visits		
Saguaro NM	Robert Lehman (ARS)	June 7-10
Craters of the Moon NM	Mike Bagby (ARS)	June 8-11
Acadia NP	Mitch Walker (ARS)	June 8-11
Isle Royale NP	Ron Lawler Heavner (AQD)	June 11-12
Redwood NP	Mark Tigges (ARS)	June 14-16
Lassen Volcanic NP	Mark Tigges (ARS)	June 16-18
Yellowstone NP	Mike Bagby (ARS)	June 21-24
Great Smoky Mtns. NP	Mitch Walker (ARS)	June 21-24
Grand Canyon NP	John Faust (ARS)	June 28-30
July Site Visits		
Canyonlands NP	Robert Lehman (ARS)	July 7-10
Sequoia NP	Mark Tigges (ARS)	July 12-16
Olympic NP and Mount Rainier NP	John Faust (ARS)	July 12-17
Everglades NP	Mike Bagby (ARS)	July 20-23
August Site Visits		
Haleakala NP and Hawaii Volcanoes NP	Mark Tigges (ARS)	August 16-21
Great Basin NP*	Mike Bagby and Dave Meisters (ARS)	August 23-27

* Trends Site Installation