

**SCOPING REPORT FOR AN
ENVIRONMENTAL ASSESSMENT OF
INFRASTRUCTURE UPGRADES TO THE ASPEN FREE-AIR CARBON DIOXIDE
AND OZONE ENRICHMENT USER FACILITY**

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For

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U.S. Department of Agriculture Forest Service**

August 2005

INTRODUCTION

The Aspen Free-Air Carbon Dioxide and Ozone Enrichment (FACE) User Facility is located near Harshaw, Oneida County, Wisconsin on an 80-acre site managed by the North Central Research Station of the U.S. Department of Agriculture Forest Service (USFS). The facility was constructed in 1996 and began full operation in 1998 to evaluate the effects of increased atmospheric concentrations of carbon dioxide (CO₂) and ozone (O₃), alone and in combination, on trees and other ecosystem components typical of northern hardwood forests.

The FACE facility uses a series of 12, 30-m diameter experimental ring structures that surround representative northern hardwood tree species (aspen, sugar maple, and paper birch). Carbon dioxide and/or ozone are released from the ring structures to achieve elevated concentrations within the rings. Since original construction, trees in some of the experimental rings have grown to the full height of the existing structures. The upgrade proposed by the USFS is a 10-m increase in the height of these ring structures to accommodate the additional growth of the trees over the next ten years. The upgrade consists of a replacement of existing components, and no ground disturbance is anticipated outside of the original footprint of the structures.

The USFS will prepare an environmental assessment (EA) in compliance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with construction of infrastructure upgrades, as well as continued operation of the facility.

SCOPING PROCESS

To support preparation of the EA, the USFS solicited input from the public to help identify concerns and issues that should be addressed in the EA. As part of this scoping process, the USFS held site tours and public meetings at the facility to provide members of the public with information on the facility and the proposed action and to solicit comments on issues related to the EA. More than 90 people participated in the scoping process through attendance at the public meetings or by providing written comments. Also, during the scoping period, a total of

205 visits were made by individuals accessing the Aspen FACE Experiment project web site (http://www.ncrs.fs.fed.us/projects/face_ea/).

Public notices of the scoping process and opportunities to participate were provided through two advertisements in *The Rhinelander Daily News*, one advertisement in the weekly *Vilas County News*, and one advertisement in the *Lakeland Times*. These advertisements invited all interested individuals and organizations to participate in site tours and public meetings on June 15, 2005 at the Aspen FACE User Facility. Similar announcements were posted on the project web site, and letters of invitation to participate were mailed to interested parties and nearby land owners.

During the scoping period, the public was invited to submit comments to the USFS. Public comments were provided to the USFS in several ways:

- Verbal comments during the open house and public meetings held on June 15, 2005 at the facility;
- Postal mail delivery;
- Toll-free facsimile transmission;
- Electronic mail; and
- Electronic submittal using a form available on the project internet web site.

Regardless of how they were submitted, all public comments were given equal consideration.

In addition to comments from the public, the Wisconsin Department of Natural Resources (WDNR) provided comments during the scoping period. These comments also are considered in this scoping report.

SUMMARY OF SCOPING COMMENTS

Each comment received during the scoping period was sorted into issue areas that captured key concerns, questions, and information. Comment summaries were then developed

for each issue area, and are included in this report. The order in which the issues are presented in this document does not reflect relative importance or significance in terms of preparing the EA or USFS policies and procedures. Also, the comment summaries presented here report what was provided to the USFS during the scoping period; the summaries do not provide an evaluation of the comments or attempt to depict any major opinions or trends.

Air Quality

A number of individuals expressed concern about ozone transport from the Aspen FACE experimental rings to off-site locations. It was suggested by some members of the public that ozone emitted at the facility could lead to elevated levels outside the boundaries of the facility. It was stated that an analysis of ozone transport and associated concentration levels beyond the facility boundary should be conducted for the EA. It was also suggested that air quality modeling should be conducted to evaluate the transport and fate of ozone emitted from the experimental facility rings. Individuals requested a more thorough explanation of how state and federal air regulatory agencies oversee the facility. The WDNR recommended that monitoring done to assess dissipation of ozone off of the study site should be continued, and that data from monitoring should continue to be shared with the WDNR and be made available to the public online.

Questions raised by the public on air quality issues included:

- What are the carbon dioxide and ozone levels within and outside the rings?
- What are key components of ozone chemistry and transport behavior?
- What are the characteristics of long-distance transport of air pollutants from metropolitan locations to the facility?
- What is the persistence of ozone in the atmosphere?
- What are typical background ozone levels for urban and rural locations?
- What levels of carbon dioxide and ozone could lead to shutdown of the facility?
- How were fumigation levels of ozone and carbon dioxide determined for the facility experimental rings?

Human Health

Several individuals expressed concern about the concentrations of ozone that may be drifting beyond the facility boundaries and whether this drift could affect the health of nearby residents. Local residents requested that an analysis of offsite ozone levels and their effects on human health be included in the EA. A suggestion was made that a human health survey of local residents should be conducted for the EA. Some individuals indicated that they had respiratory problems and wanted to know if emissions from the facility could be a contributing factor.

Monitoring

Some individuals questioned the adequacy of ozone monitoring at the facility and surrounding areas. Concerns were raised about the location of the monitors and the quality of the information collected by the monitors at the facility. Some individuals requested that an independent group verify current monitoring and set up off-site ozone monitors to measure ozone levels in areas adjacent to the facility. Individuals asked if the USFS was considering installing additional off-site ozone monitoring stations. Off-site monitoring was recommended to ensure that residents were not being exposed to emissions originating from the facility. One individual provided an analysis of monitoring results that he had developed using publicly available monitoring data.

NEPA Process

Individuals wanted to know the difference between an EA and an environmental impact statement (EIS), and when they would have opportunities for public involvement after the scoping period. Comments addressed the USFS decision-making process, including questions as to who in the USFS would approve or disapprove the proposed infrastructure upgrades. An individual asked why Argonne National Laboratory was chosen to prepare the EA. A request was made to see an outline for the EA and an individual inquired as to whether the EA would be

more extensive than the checklist used in the evaluation of the original construction. Another individual expressed their opinion that the USFS should produce an EIS, rather than an EA.

Operation of the Aspen FACE User Facility

Comments on facility operations pertained to time of day that fumigation was conducted, the volume and concentrations of carbon dioxide and ozone released by the vertical fumigation pipes, size of the rings, the length of a typical growing season, facility operation during periods of wind and rain, and tree species used in the experiments.

Ozone Effects on Vegetation

Several comments addressed the potential effects of ozone to off-site vegetation. Local residents expressed concern about ozone effects on potato crops, including crop yield reductions in a portion of a field near the facility boundary. One individual submitted data from a study by a local school student on the effects of ozone on milkweed near the facility. Another individual stated that agricultural crops, such as potatoes and tomatoes are sensitive to ozone, and asked if crop sensitivity would be addressed in the EA.

One person wanted to know why evergreen trees were not used in the experimental plots and another was interested in the sensitivity of oak trees to carbon dioxide and ozone. Individuals were also interested in why trees north of the facility were dead. Aspen FACE researchers were asked how the effects of carbon dioxide and ozone on trees could be separated from other stresses, such as disease and drought that occur during the experimental period.

Roads

A comment was raised about truck deliveries and truck weights during periods of weight restrictions on local roads. Some individuals believed that tanker trucks delivering supplies to the

facility had damaged local road surfaces. Several individuals requested that funds be made available to assist in paying for re-surfacing of the township road that serves the facility. It was noted by several individuals that Federal payments in lieu of taxes would not be satisfactory as compensation for damaged roads. It was recommended that the EA evaluate noise generated by trucks serving the facility, as well as by on-site compressor engines.

Safety

Concerns were raised about safety during routine operations of the facility. These concerns included:

- The potential rupture of carbon dioxide or oxygen storage tanks,
- Potential areas affected by a tank rupture,
- A lack of buffers around the facility,
- Other chemicals used at the facility that may be potentially hazardous, and
- Existing site security measures and the need for additional security.

Ecology

An individual asked if the EA would evaluate the potential effects of the facility on threatened and endangered species in the area. A question was raised about the effects of the experiments on birds and if birds avoided the rings. The WDNR indicated that the EA should include a description of the plant species or communities that will be included with the experimental rings, as well as a list of invasive species that may be present in the area and plans to prevent their spread. In addition, the WDNR mentioned that the area has been identified as habitat for two State-listed species of special concern (large roundleaf orchid and large-flowered ground cherry).

SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The EA will examine the effects of the proposed action on key environmental attributes as presented in the EA outline provided in the Appendix. Topics included in the outline are those that arose during the scoping process, and are limited to those attributes that are potentially affected by the proposed action. Although there is not a one-to-one correspondence between issue areas identified by the public and the topical headings in the EA outline, those issues will receive full consideration in the EA. Topics to be evaluated in the EA include (1) air quality and noise, (2) ecology (including threatened and endangered species, wildlife, vegetation, and agricultural crops); (3) human health (including worker safety); (4) visual resources; and (5) socioeconomics (including effects on tourism, property values, and transportation). Alternatives to be considered in the EA will be limited to a no-action alternative that would consider the environmental consequences of not making the proposed infrastructure upgrade.

APPENDIX

Draft Outline

Environmental Assessment for Infrastructure Upgrades to the Aspen Free-Air Carbon Dioxide and Ozone Enrichment User Facility

Summary

1. Introduction
 - 1.1. Purpose and Need
 - 1.2. Description of Proposed Action
 - 1.3. Public Scoping, Identification of Key Issues, and Scope of Analysis
 - 1.4. Public Review and Comments on the Draft EA

2. Alternatives
 - 2.1. Alternatives Analyzed in the EA
 - 2.2. Alternatives not Considered for Further Analysis
 - 2.3. Comparison of Alternatives

3. Environmental Setting
 - 3.1. Hydrology
 - 3.2. Soils and Geology
 - 3.3. Land Use and Cultural Resources
 - 3.4. Ecology
 - 3.5. Air Quality and Noise
 - 3.6. Socioeconomics

4. Environmental Impacts
 - 4.1. Air Quality and Noise
 - 4.2. Ecology

4.3. Human Health

4.4. Visual Resources

4.5. Socioeconomics

5. Cumulative Impacts

Appendices of Supporting Information