

United States Government

File PFMD-4
Department of Energy

memorandum

6/16
Jerry N

DATE: JUN 09 1992

REPLY TO

ATTN OF: ER-8.2

4 SUBJECT: Approval of the Atmospheric Radiation Measurement Program Environmental Assessment and Completion of the NEPA Process

TO: Jerry Nelsen, NEPA Compliance Officer, DOE Chicago Field Office

On June 5, 1992, the Office of Environment, Safety and Health (EH) approved the EA (DOE/EA-0680) and signed the FONSI for the ARM Program Southern Great Plains Cloud and Radiation Testbed Site. The EH memo transmitting the FONSI is attached. Since the EA that was transmitted to the host states for pre-approval review was not changed by EH during the final approval process, it is the final EA.

As stated in the EH June 5, 1992, memo, the availability of the EA and FONSI should be made known to the local public in the vicinity of the Kansas and Oklahoma site. Please provide the record of distribution of the EA and FONSI and copies of any local notices to both my office and to EH.

If there are questions, call me (301-903-2314) or Clarence Hickey (ext. 4930).

CR Hickey for

James K. Farley
NEPA Compliance Officer
Office of Energy Research

Attachment

EP

memorandum

PFMD-4

DATE: 5 June 1992

REPLY TO: EH-25
ATTN OF:

4 SUBJECT: National Environmental Policy Act (NEPA) Determination for the Atmospheric Radiation Measurement (ARM) Program Southern Great Plains Cloud and Radiation Testbed (CART) Site (DOE/EA-0680)

TO:

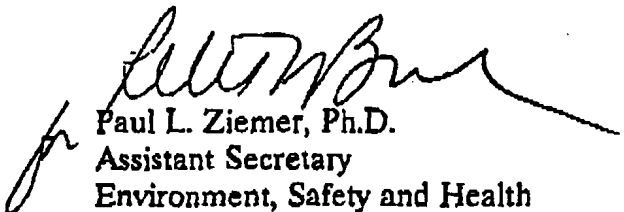
William Happer, Jr.
Director
Office of Energy Research

This is in response to a May 15, 1992, memorandum from James K. Farley, ER NEPA Compliance Officer, requesting approval of the subject EA. The subject EA was originally transmitted to my office by your memorandum of February 24, 1992. EH-25 authorized State pre-approval review on March 27, 1992, and copies were provided to the States of Kansas and Oklahoma on April 7, 1992. We note that the comments provided by the State of Kansas on May 7, 1992, and comments provided by the State of Oklahoma on May 14, 1992, have been adequately addressed.

Based on my staff's review and their recommendation, and after consultation with the Office of General Counsel, I have determined that the proposed action will not have a significant effect on the quality of the human environment within the meaning of the National Environmental Policy Act (NEPA) and its implementing regulations (40 CFR 1500-1508).

Accordingly, the EA is approved and I have signed the accompanying Finding of No Significant Impact (FONSI). The FONSI does not need to be published in the Federal Register since this is not an action with effects of national concern. However, the local public should be notified of the availability of the EA and FONSI in accordance with 40 CFR 1506.6(b) and DOE Order 5440.1D.

Please provide the Office of NEPA Oversight with five copies of the EA and a record of distribution of the EA and FONSI.


Paul L. Ziemer, Ph.D.
Assistant Secretary
Environment, Safety and Health

Attachments

cc: James K. Farley, ER-8.2
NEPA Compliance Officer

64

U.S. Department of Energy**Finding of No Significant Impact****Atmospheric Radiation Measurement Program -- Southern Great
Plains Cloud and Radiation Testbed Site****at****Kansas and Oklahoma****AGENCY:** U.S. Department of Energy**ACTION:** Finding of No Significant Impact (FONSI)

SUMMARY: The Department of Energy (DOE) has prepared an environmental assessment (EA), DOE/EA-0680, for placement and operation of meteorological and solar radiation measurement research facilities within a 325 km x 275 km area in south central Kansas and north central Oklahoma. This large area is denoted as the southern Great Plains Cloud and Radiation Testbed (CART) site. Within that large area, there are planned to be 1 central facility, up to 6 boundary facilities, 6 auxiliary facilities, and approximately 25 extended sites.

The Atmospheric Radiation Measurement (ARM) Program is being developed to allow an improved predictive capability of climate change, particularly as it relates to cloud-climate feedback dynamics. The ARM Program is a research activity, sanctioned by the DOE in support of the National Energy Strategy and by the White House (Office of Science and Technology Policy's Committee on Earth and Environmental Sciences) as part of the U.S. Global Change Research Program. The proposed southern Great Plains CART site is the first of five such sites planned

world-wide. The design of each of the remaining four sites around the world is not well-defined at this time, and operation of those sites would occur in sequence in the future. Separate assessments of the potential environmental impacts associated with each of those sites would be prepared as design of those sites becomes available.

Based on the information and analyses in the EA, the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act (NEPA) of 1969. Therefore, the preparation of an environmental impact statement is not required and the Department is issuing this Finding of No Significant Impact (FONSI).

DESCRIPTION OF PROPOSED ACTION:

The proposed action is to construct and operate a CART research site in the southern Great Plains as part of DOE's ARM Program whose objective is to develop an improved predictive capability of global climate change. The purpose of this CART research site in southern Kansas and northern Oklahoma would be to collect meteorological and other scientific information to better characterize the processes controlling radiation transfer on a global scale, thereby expanding DOE's knowledge of the suspected enhanced greenhouse effect and any associated global warming.

The CART site proposed for the southern Great Plains covers an area 325 km X 275 km. However, due to the dispersed nature of the instrumentation located on the

CART site, it would be necessary to lease only a small portion of this area in order to implement the proposed action. The proposed CART site would involve a single central facility (160 acres), six auxiliary facilities (50-100 acres each), approximately 25 extended facilities (50-100 acres each), and up to six boundary facilities (50-100 acres each). Thus, of the nearly 22 million acres within the proposed CART site area, only a maximum of 3,860 acres would need to be leased for these widely dispersed data collection facilities. Of the total leased acreage, about 21 acres would be secured by fence. Approximately 12 acres within the fenced area would be disturbed by placement of instruments and associated facilities; e.g., trailers, storage facilities, and housing facilities. It is proposed to operate the CART site around-the-clock for up to 10 years with up to 15 technical staff persons. At the close of the 10-year operating period, all facilities and equipment would be removed and the land returned to its previous use.

The research activity would involve both ground-based instrumentation and the use of airborne sensors. Aircraft carrying sensors would make low level flights (1000 feet and higher) of approximately 4-6 hours, 2 to 3 days per month.

ALTERNATIVES:

Alternative Siting of Facilities:

Alternative sites were considered for the central and boundary facilities, but no sites were found that offered environmental advantages over the proposed sites.

No Action Alternative:

Under the no action alternative, construction and operation of the Great Plains CART site would not occur and there would be no change to the existing environment resulting from the action as proposed. However, the loss of the U.S. site would severely limit DOE's objective of improving air circulation models used for predicting climate change.

ENVIRONMENTAL IMPACTS:

Impacts of the Construction of the Facilities:

Due to the limited amount of land affected during construction, only minor impacts to the area soil, water quality, or biotic resources would be expected. Since no construction activities would be conducted in wetland and floodplain areas, no impacts to these resources would be expected. Noise impacts during construction are projected to be minor and related construction equipment (one tractor and one gravel dump truck). No threatened or endangered species, or their critical habitat are known within the area affected by the proposed action. Any impact to visual resources is expected to be minimal since the only structure in the entire project that would be visible from a vantage point of approximately two miles (location of nearest residence) would be the central facility's 60-meter meteorological tower. No archaeological sites have been identified within any of the areas proposed for construction. However, should such resources be encountered, the cognizant state historical office would be contacted and a determination made as to the significance

of the resources prior to resuming construction. Some minor economic benefits would occur in the vicinity of each proposed site, but these would consist of brief employment (30 days maximum during construction) for only a few workers and the local purchase of support materials.

Impacts of the Continuous Operation of the Facilities/Instruments:

The only source of air emissions would be from the exhaust of vehicles of workers. Operational activities, including the maintenance of a small septic tank at the central facility, would be carefully planned and controlled and are not expected to impact either soil, water quality, or biotic resources. Noise would be produced by the 50- and 915-MHz radar wind profilers/Radio Acoustic Sounding Systems (RASSs). The 50-MHz radar wind profiler/RASSs emits a continuous foghorn-like tone in the 100 Hz frequency band for a period of 5 minutes once every half hour. The 915-MHz radar wind profiler/RASSs emits a continuous tonal sound in the 2,000 Hz frequency band for 5 to 6 minutes every 30 or 60 minutes. Unbaffled versions of these radar wind profilers/RASSs would be used only at the central facility (nearest residence is approximately 2.0 miles away). While the noise levels at the base of the 50-MHz and 915-MHz instruments would be 131 dB and 104 dB, respectively, these sound power levels would be reduced by distance to approximately 35 dB and 45 dB, respectively, at the nearest residence. A baffled version of the 50-MHz profiler/RASS would be used at the boundary facilities to keep the power sound level down to 55 dB at the nearest residence (approximately 0.54 miles away). The noise produced by the

915-MHz profiler/RASS would be approximately 25 dB, indistinguishable from background. Thus, through the application of baffling and careful siting, noise impacts to nearby residents during the operation of the facilities/instruments would be maintained well within acceptable limits.

Project structures may pose a hazard for birds (collisions). However, fluorescent guy wire sleeves will be installed to make the structures more visible to birds and to reduce the potential for collisions between birds and structures. Land use in those areas surrounding the various facilities would not be impacted by operations. No significant impacts are expected during the operation of the facilities/instruments.

Impacts of the Routine Aircraft Overflights:

Air emissions from the exhaust of aircraft (airborne sensors) would be minor and would have little effect on the overall air quality of the project area. Similarly, the aircraft noise would temporary and only a minor impact.

Cumulative Impacts:

There would be a slight incremental increase in the amount of pollutants emitted to the air as a result of this action. However, because of the small number of sources involved (construction equipment and worker vehicles) no measurable change to air quality is expected. Noise from 50- and 915-MHz radar wind profilers/RASSs would be noticeable and above background noise levels in the vicinity of the equipment.

However, noise levels at the nearest offsite residence would be well within acceptable limits and no cumulative impact from noise would be expected.

PUBLIC AVAILABILITY: Copies of this EA (DOE/EA-0680) are available from:

Norman Swift
U.S. Department of Energy
Chicago Field Office
9800 South Cass Avenue
Argonne, Illinois 60439
(708) 252-6028

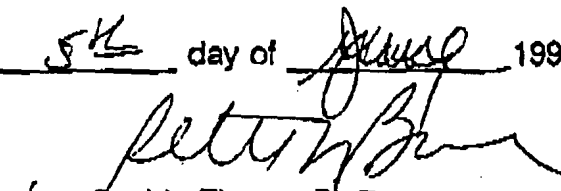
For further information regarding the DOE NEPA process contact:

Carol M. Borgstrom, Director
Office of NEPA Oversight
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585
(202) 586-4600 or (800) 472-2756

DETERMINATION:

Based on the information and analysis in the EA, DOE has determined that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, an environmental impact statement is not required.

Issued in Washington, D.C., this 5th day of August 1992

for 
Paul L. Ziemer, Ph.D.
Assistant Secretary
Environment, Safety and Health