

MEMORANDUM FOR:	Matthew M. Kuzemchak, NWS NEPA Coordinator
FROM:	Jessica Schultz, Radar Program Manager, National Weather Service
SUBJECT:	Finding of No Significant Impact for Lowering the Minimum Scan Angle of the KICX Weather Service Radar - Model 1988 Doppler (WSR-88D) serving the Cedar City, UT, area – DECISION MEMORANDUM

Based on the subject environmental assessment, I have determined that no significant environmental impacts will result from the proposed action. I request your concurrence in this determination by signing below. Please return the memorandum for our files.

1. I concur __//signed 9/11/2017//_____ Date

2. I do not concur _____ Date

Attachment

MEMORANDUM

TO: All Interested Government Agencies and Public Groups

Under the National Environmental Policy Act, an environmental review has been performed on the following action.

TITLE: Lowering the Minimum Scan Angle of the KICX Weather Service Radar - Model 1988 Doppler (WSR-88D) serving the Cedar City, UT, area

LOCATION: Blowhard Mountain, Iron County, Utah

SUMMARY:

The National Weather Service (NWS) owns and operates the existing Weather Service Radar, Model 1988 Doppler (WSR-88D) serving the Cedar City, UT, area. The radio call letters of the radar are KICX and the radar is located atop Blowhard Mountain, about 14 miles southeast of Cedar City in Iron County, UT. The KICX WSR-88D was commissioned in 1997 and is one of 155 WSR-88Ds in the nationwide network.

The KICX WSR-88D antenna transmits a narrow focused main beam with a width of 1 degree. In normal operation, the WSR-88D antenna rotates horizontally to cover all directions (i.e. azimuths). The radar antenna also varies the scan angle at which it points with respect to the horizon. The scan angle is measured along the axis of the main beam and can be changed in 0.1 deg increments. Currently, the KICX radar operates at a minimum of scan angle of +0.5 degrees (deg) above the horizon. NWS proposes to reduce the minimum scan angle of the KICX WSR-88D from the current minimum of +0.5 deg to +0.2 deg (the proposed action). Lowering the minimum scan angle would provide enhanced coverage of the lower portions of the atmosphere. No construction activities or physical modification of the KICX WSR-88D would be required to implement the proposed action; the only change would be to the radar's operating software.

RESPONSIBLE OFFICIAL: Jessica Schultz, Radar Program Manager, National Weather Service, 1200 Westheimer Drive, Norman, OK 73069, Tel. (405) 573-8808, email: Jessica.a.schultz@noaa.gov

The environmental review process led us to conclude that this action will not have a significant effect on the human environment. A copy of the finding of no significant impact, including the supporting environmental assessment is enclosed for your information. Please submit any comments to the responsible official named above by September 30, 2017.

Also, please send one copy of your comments to me in 1325 East-West Highway, Room 3353, Silver Spring, MD 20910.

Sincerely

Matthew M. Kuzemchak
NWS NEPA Coordinator

Enclosure

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
LOWERING THE MINIMUM SCAN ANGLE OF THE WEATHER
SERVICE RADAR-MODEL 1988, DOPPLER (WSR-88D) SERVING
THE CEDAR CITY, UT, AREA

ENVIRONMENTAL ASSESSMENT SUMMARY

Purpose and Need

NWS is part of the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce. NWS operates a nationwide network of Doppler weather radars, which collect data on atmospheric conditions, and include precipitation type and intensity, wind speed and direction, and storms, from near ground level to above 10,000 ft in elevation above the ground. NWS staff uses these data to prepare daily forecasts and issue severe weather watches and warnings, and to further NWS's mission to protect and enhance life and property and the nation's economy. Operating this radar at lower scan angles would increase the area of radar coverage, providing additional data on atmospheric conditions to NWS forecasters and other data users. The change in area covered at 2,000 ft above site level (ASL) and 10,000 ft ASL would increase by 234% and 45.3%, respectively.

Description of Proposed Action

The KICX WSR-88D is an S-band Doppler, dual polarized weather radar, which NWS uses to collect meteorological data to support weather forecasts and severe weather warnings for Southern Utah and nearby areas. The KICX WSR-88D antenna transmits a narrow focused main beam with a width of 1 degree. In normal operation, the WSR-88D antenna rotates horizontally to cover all directions (i.e. azimuths). The radar antenna also varies the scan angle at which it points with respect to the horizon. The scan angle is measured along the axis of the main beam and can be changed in 0.1 deg increments. Currently, the KICX radar operates at a minimum of scan angle of +0.5 degrees (deg) above the horizon. NWS proposes to reduce the minimum scan angle of the KICX WSR-88D from the current minimum of +0.5 deg to +0.2 deg (the proposed action). Lowering the minimum scan angle would provide enhanced coverage of the lower portions of the atmosphere. No construction activities or physical modification of the KICX WSR-88D would be required to implement the proposed action; the only change would be to the radar's operating software.

Alternatives Considered

NWS evaluated the benefits and potential impacts of lowering the minimum scan angle of the KICX WSR-88D to each angle between +0.4 and -0.2 deg in 0.1 degree increments. That analysis found that a minimum scan angle of +0.2 deg would result in improvement of radar coverage while not causing significant environmental impacts. Operating the KICX WSR-88D at

center of beam minimum scan angles at or below +0.1 deg (i.e. between +0.1 and -0.2 deg) would cause direct main beam exposure of the elevated ground near the Federal Aviation Administration (FAA) Common Air Route Surveillance Radar (CARSR), located north of the WSR-88D. That ground is within the setback distances for RF exposure of implantable medical devices and EEDs and direct illumination by the WSR-88D main beam could potentially result in RF exposure hazards. Based on this information, NWS selected a minimum scan angle of +0.2 deg (which would avoid direct illumination of nearby terrain) as the proposed action analyzed in this EA.

The no action alternative consists of continued operation of the KICX WSR-88D at the existing minimum scan angle of +0.5 dg. The improvements in radar coverage would not be achieved and the project objectives would not be met. The proposed action would result in increased RF exposure at certain portions of the atmosphere while the no-action alternative would not change RF exposure levels from existing levels. Under both the proposed action and the no action alternative, RF exposure during normal WSR-88D operations would conform to safety standards established by ANSI/IEEE, OSHA, and FCC. In current operation, the WSR-88D main beam directly illuminates the upper portion (but not the base) of the FAA CARSR structure on Blowhard Mountain. During infrequent stationary antenna operation, exposure of workers at the upper portion of the CARSR tower and radome could exceed occupational safety standards, which could be avoided by pointing the main beam at least 1.5 deg away from the CARSR (Mitigation Measure 1). Compared to the proposed action, the no-action alternative would decrease the portion of the CARSR tower directly affected, but would not eliminate this effect. Mitigation measure 1 would apply to both the proposed action and no-action alternative, and would reduce this impact to a less than significant level.

Environmental Consequences

NWS prepared an Environmental Assessment (EA) analyzing the potential environmental consequences of the implementing the proposed action in compliance with the President's Council on Environmental Quality (CEQ) National Environmental Policy Act implementing regulations (40 Code of Federal Regulations Parts 1500 – 1508) and NOAA Administrative Order (NOA) 216-6, *Environmental Review Procedures for Implementing the National Environmental Policy Act*.

Lowering the minimum scan angle of the KICX WSR-88D would not require physical changes to the radar, vegetation removal, or ground disturbance. The proposed action would not result in significant effects in the following subject areas:

- Land Use and Coastal Zone Management
- Geology, Soils, and Seismic Hazards
- Drainage and Water Quality
- Transportation

- Air Quality
- Flood Hazards
- Wetlands
- Biological Resources / Protected Species
- Cultural and Historic Resources
- Environmental Justice Socioeconomic Impacts
- Farmlands
- Energy Consumption
- Visual Quality/ Light Emissions
- Solid and Hazardous Waste
- Wild and Scenic Rivers

The lower minimum scan angle would not result in the KICX WSR-88D main beam impinging on the ground in the vicinity of the WSR-88D site. The proposed action would slightly increase RF exposure levels in the vicinity of the KICX WSR-88D. During normal operation of the radar with rotating antenna, RF exposure would comply with the national safety standards developed by the Institute of Electrical and Electronic Engineers (IEEE) and the adopted by the American National Standards Institute (ANSI). RF emissions during normal operation would also comply with Federal Communications Commission and Occupational Safety and Health Administration safety standards for RF exposure of the general public and workers. RF exposure at the nearby FAA CARSR and all ground-level activities in the vicinity of the WSR-88D would comply with all safety standards.

NWS may infrequently operate the WSR-88D with a stationary antenna for testing purposes. Operation with a stationary antenna would result in RF exposure levels at the radome of the nearby FAA CARSR exceeding RF exposure standards for the general public. Mitigation Measure 1 requires that the WSR-88D main beam be pointed at least 1.5 degree in azimuth from the FAA CARSR during stationary antenna operation, which would lower RF exposure sufficiently to comply with all safety standards.

Because the KICX WSR-88D operates in a frequency band dedicated to government relocation services and the main beam would not impinge on the ground surface in the radar vicinity, the proposed action would have low potential to cause radio interference with television, radio, cellular telephone, personal communications devices (PCDs), electro-explosive devices, fuel handling, active implantable medical devices, or astronomical observatories.

Mitigation Measure

When operating with stationary antenna, the NWS would point the KICX WSR-88D antenna at least 1.5 degree in azimuth away from the FAA CARSR.

Public and Agency review of the Draft EA

The NWS distributed the Draft EA to interested members of the public and government agencies for review and comment. Comments on the Draft EA were accepted by NWS during a 30-day comment period ending on July 30, 2017. The NWS distributed the Draft EA to interested members of the public and government agencies for review and comment. Comments on the Draft EA were accepted by NWS during a 30-day comment period ending on July 30, 2017. One email commenting in the Draft EA was received. Mr. Matthew Kuzemchak, NWS Environmental Safety Team, requested a number of changes to correct misspellings and typographical errors and to clarify the report. Those changes have been incorporated into the Final EA.

FINDING OF NO SIGNIFICANT IMPACT

The CEQ Regulations state that the determination of significance using an analysis of effects requires examination of both context and intensity, and lists ten criteria for intensity (40 CFR 1508.27). In addition, NAO 216-6A, Section 6.01(b) 1 – 11, provides eleven criteria, the same ten as the CEQ Regulations and one additional for determining whether the impacts of a proposed action are significant. Each criterion is discussed below with respect to the proposed action and considered individually as well as in combination with the others.

1. Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

No. The EA report analyzes the potential for implementation of the proposed action to cause environmental consequences based on established standards and criteria. The proposed action would not result construction or ground disturbance. The only environmental consequence would be a slight increase in RF power density in a small portion of the atmosphere. During normal operations, WSR-88D RF emissions would comply with national and international safety standards for human exposure.

2. Can the proposed action be expected to significantly affect public health or safety?

No. The lower minimum scan angle would not result in the KICX WSR-88D main beam impinging on the ground in the vicinity of the WSR-88D site. The proposed action would slightly increase RF exposure levels in the vicinity of the KICX WSR-88D. During normal operation of the radar with rotating antenna, RF exposure would comply with the national safety standards developed by the Institute of Electrical and Electronic Engineers (IEEE) and the

adopted by the American National Standards Institute (ANSI). RF emissions during normal operation would also comply with Federal Communications Commission and Occupational Safety and Health Administration safety standards for RF exposure of the general public and workers. This is true for the nearby FAA CARSR, where RF exposure would comply with all safety standards.

NWS may infrequently operate the WSR-88D with a stationary antenna for testing purposes. Operation with a stationary antenna would result in RF exposure levels at the upper portion of the nearby FAA CARSR exceeding RF exposure standards for the general public. Mitigation Measure 1 requires that the WSR-88D main beam be pointed at least 1.5 degree in azimuth from the CARSR tower during stationary antenna operation, which would lower RF exposure sufficiently to comply with all safety standards.

RF emissions from the WSR-88D would also comply with RF exposure standards for implantable medical devices established by the FCC and the Association for Advancement of Medical Instrumentation and would not interfere with operation of those devices.

3. Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

No. No places listed or eligible for listing on the National Register of Historic Places or are present within the proposed actions APE. No effects on historic or cultural resources would result. The KICX WSR-88D is not in proximity to prime farmlands, wetlands or wild and scenic rivers and those resources would not be affected. The project area is not within and/or does not contain critical habitat or other ecologically critical areas. The proposed action would not adversely affect or restrict outdoor recreation opportunities in the vicinity of the WSR-88D.

4. Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

No. The proposed action would not result in construction or ground disturbance and would comply with safety standards for human exposure to RF emission.

5. Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

No. The proposed action would not increase the radar's power output, but would spread those emissions over a larger portion of the atmosphere. RF power densities at the newly covered area would be the same as at existing covered portions of the atmosphere. The EA contains detailed calculations of RF exposure levels and compares projected exposure levels to safety standards for RF exposure of the general public and workers, potentially RF sensitive activities

(e.g. fuel handling, use or transport of electro-explosive devices), and active implantable medical devices. The proposed action would comply with all safety standards, provided direct illumination of the FAA CARSR is avoided during infrequent stationary antenna operation, as is required by Mitigation Measure 1. The WSR-88D main beam would also not directly illuminate any astronomical observatories. There is very little potential for unknown or uncertain impacts to result.

6. Can the proposed action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

No. The proposed action is limited to lowering the minimum scan angle of the existing WSR-88D serving the Cedar City, area, and the EA analysis is specific to that radar. If the NWS were to consider lowering the minimum scan angle of another WSR-88D in the nationwide network, they will perform a site specific analysis of potential effects for that radar in compliance with NEPA and NAO 216-6A. No precedents would result for future actions with significant effects or a decision in principle about a future consideration.

7. Is the proposed action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?

No. The Final EA report evaluates the potential for the proposed action, in conjunction with past, present, and reasonably foreseeable future actions to cause significant environmental effects. The proposed action is not reliant upon or connected to other actions, nor is it relied upon for the occurrence of other actions. Therefore, the proposed action will not result in a significant cumulative impact to the human environment.

8. Can the proposed action reasonably be expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources?

No. The KICX WSS-88D is located on the crest of a remote mountain top in southern Utah, which it shares with an FAA CARSR. No historic places listed on the National Register are located within the proposed action's Area of Potential Effect (APE).

9. Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973?

No. Based on information obtained from the U.S. Fish and Wildlife Service, the proposed action would not adversely affect threatened and endangered species or critical habitat.

10. Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?

No. The effect of the proposed action on the human environment has been analyzed relative to applicable Federal, state and local environmental laws or regulations. No regulatory violations or other significant environmental effects are expected to result.

11. Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

No. The proposed action has no potential to cause the transport, release, propagation or spread of non-indigenous species.

DETERMINATION

After careful and thorough consideration of the Final EA report, the undersigned finds that lowering the minimum scan angle of the KICX WSR-88D serving the Cedar City, UT area from the current +0.5 deg to +0.2 deg is consistent with existing national environmental policies and objectives set forth in sections 101(a) and 101(b) of NEPA and will not significantly affect the quality of the human environment or otherwise result in any condition requiring consultation pursuant to section 102(2) (c) of NEPA.

As described in section 5.03c of NOA 216-6A, a Finding of No Significant Impact is supported and appropriate for lowering the minimum scan angle of the KICX WSR-88D from the current +0.5 deg to +0.2 deg. as analyzed in the EA report. Preparation of an environmental impact statement for this action is not necessary.

____//signed 8/31/2017//_____
Jessica Schultz
Radar Program Manager
Radar Operations Center
National Weather Service

Date