FINDING OF NO SIGNIFICANT IMPACT (FONSI)

PROPOSED OPERATION OF NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) NATIONAL WEATHER SERVICE (NWS) WEATHER SERVICE RADAR – 1988, DOPPLER (WSR-88D) TO SERVE COASTAL WASHINGTON AT SCAN ANGLES BELOW +0.5 DEGREE

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (EA) 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 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. In 2010, NWS prepared an Environmental Assessment (EA) analyzing potential effects of adding a new WSR-88D to improve coverage of Coastal Washington and Oregon. That report, titled *Final Expanded Site Survey / Environmental Assessment Report, National Weather Service (NWS) Network Radar to Serve Coastal Washington,* found that construction and operation of the WSR-88D to serve Coastal WA would not result in significant environmental effects. Therefore, NWS issued a Finding of No Significant Impact (FONSI). NOAA concurred with the NWS FONSI on July 22, 2010. NWS has installed a WSR-88D to serve the Coastal Washington area. The new radar is expected to become operational by late summer 2011 and will be incorporated into the NWS nationwide network of weather radars. The International Civilian Aviation Organization identifier for this radar is KLGX.

The NWS objectives for this radar would be advanced by altering the scan pattern used by the radar to include scanning at angles below the +0.5 degree (deg) above horizontal, which is the minimum scan angle currently in use during normal operation of the existing WSR-88Ds in the nationwide network. Operating this radar at lower scan angles would increase the area of radar coverage by up to 71.3% and increase the amount of radar information provided to NWS forecasters and other data users. NWS will begin a 1-year test of a lower scan angle, starting at 0.2 degrees, soon after the radar becomes operational. Other angles between 0.0 and 0.5 degrees may be tested. The test will evaluate the impacts of lower scan angles on data quality and on data distribution to other agency display systems.

NOAA requirements for complying with the National Environmental Policy Act (NEPA) are contained in NOAA Administrative Order (NAO) 216-6, *Environmental Review Procedures for Implementing the National Environmental Policy Act* [NOAA, 1999], and NWS is subject to those requirements. Section 6.03c of NAO 216-6 specifies the proper level of NEPA review for actions proposed by NOAA components and lists types of actions that are categorically excluded from the need to prepare a NEPA analysis document (e.g., an EA or environmental impact

statement). Section 6.03c3(h), which addresses NEXRAD Radar Coverage, states that "Change in NEXAD radar coverage patterns which do not lower the lowest scan angle and do not result in direct scanning of previously non-scanned terrain by the NEXRAD main beam" are categorically excluded from NEPA. The proposed action would not meet these specifications and does not qualify for categorical exclusion treatment. Therefore, NEPA analysis is required and the NWS prepared Draft and Final Supplemental EAs analyzing the potential environmental consequences of lowering the minimum scan angle of the Coastal Washington WSR-88D below +0.5 deg.

Description of Proposed Action

The NWS has installed a WSR-88D to Serve Coastal Washington. To improve the capability of this radar, NWS proposes to operate the radar at a center of beam scan angle lower than 0.5 deg above horizontal, which is the lowest scan angle currently used in WSR-88D operations. The WSR-88D is physically equipped to operate at scan angles down to -1.0 deg. To lower the minimum scan angle from the current minimum of +0.5 deg to 0.0 deg (the lowest considered practical), NWS would modify the electronic software used to control operation of the WSR-88D and process data collected by the radar. No changes to the radar's physical plant, including the antenna, tower, support facilities, or utility and access infrastructure, would be required to implement the proposed action. Also, no change in transmitted power output, waveform, duty cycle, or operating frequency of the WSR-88D radio signal would be necessary.

Alternatives Considered

The scan angle of the WSR-88D is adjustable in 0.1 deg increments and the NWS investigated all scan angles between the current minimum of +0.5 deg and 0.0 deg. As a worst-case analysis, the Final EA examined lowering the minimum scan angle to 0.0 deg (i.e., center of beam is horizontal) because it would result in the greatest power densities of radiofrequency radiation (RFR) at ground level. For comparison purposes, the EA also quantified and evaluated the levels of RFR power density that would result if the WSR-88D were to be operated at the currently used WSR-88D minimum scan angle of +0.5 deg, which represents the no-action alternative.

Environmental Consequences

NWS prepared a Draft Supplemental EA, analyzing electromagnetic impacts of lowering the minimum scan angle of the WSR-88D serving Coastal Washington. The Draft Supplemental EA was distributed for public and agency review and NWS prepared a Final Supplemental EA report. The proposed action will affect the electromagnetic environment, but would not result in physical changes to the WSR-88D or its environs. Ground-level RFR levels in the vicinity of the radar would increase by up to 15% but would continue to comply with American National Standards Institute safety standards for human exposure to RFR.

The closest terrain that would be illuminated by the WSR-88D main beam operating at 0.0 deg scan angle is 3.5 miles (18,480 ft) from the radar. Table 1 shows the safe standoff distances within the WSR-88D main beam for electro-explosive devices (EEDs), fuel handling activities, and active implantable medical devices (e.g., cardiac pacemakers and defibrillators).

Table 1: Safe Standoff Distances within the WSR-88D Main Beam

Device or Activity	Safe Standoff Distance (ft)	Source of Safety Standard	Nearest Illuminated Terrain (ft)	Safety Hazard
EEDs	900 to 6,030 ft (varies with type of EED)	U.S. Air Force, U.S. Navy	18,480	No
Fuel Handling	537 ft	U.S. Navy	18,480	No
Implantable Medical Devices	2,060 ft	Association for Advancement of Medical Instrumentation	18,480	No

Because the nearest illuminated terrain is more distant than these standoff distances, no safety hazards will result to devices or activities at or near ground level. The potential for unshielded devices or activities to be sufficiently elevated above the ground to be within the main beam in close proximity to the radar is very low. The WSR-88D serving coastal Washington will also be located 2,900 ft from the nearest licensed radio transmitter, which is sufficient distance to preclude electromagnetic interference.

Implementing the proposed action will not require construction of new facilities or physical modification to the WSR-88D tower, antenna, or support equipment and structures. The physical and natural environment would be unchanged. The alternative of taking no action was also examined in the Draft and Final EA reports and would result in minimal and insignificant impacts to the environment as described in the 2010 Final EA.

Mitigation Measures

The proposed action would increase RFR levels at ground level in proximity to the WSR-88SD by up to 15%. RFR exposure of persons, systems, and activities would not exceed applicable safety standards and no harm would result. Current radiofrequency (RF) safety procedures utilized by the NWS are sufficient to prevent harm to persons, or hazards to fuel handling, EEDs, or implanted medical devices. No mitigation is necessary.

PUBLIC INVOLVEMENT

The Draft and Final Supplemental EA reports were prepared in conformance with procedural requirements for implementing the National Environmental Policy Act (NEPA) contained in 40 Code of Federal Regulations (CFR) Parts 1500–1508 and NOA 216-6. The Draft Supplemental EA was distributed to government agencies, interested members of the public, and Native American tribes of the area for review and comment. Additionally, the entire Draft Supplemental EA was posted to an internet site maintained by the NWS Seattle Weather Forecast Office. On July 8, 2011, a notice of the availability of the Draft Supplemental EA was published in *The Daily World*, a general circulation newspaper serving the Grays Harbor County, Washington, area. NWS accepted comments on the original Draft Supplemental EA during an official 30-day comment period, lasting from July 8, 2011, through August 7, 2011. Two email messages were received by NWS, both from NOAA offices. The Final Supplemental EA report contains official NWS responses to all comments received on the Draft Supplemental EA report.

The Final Supplemental EA report and this FONSI will be made available to interested members of the public. A notice of the availability of these documents will be published in a general circulation newspaper serving the Grays Harbor County, WA area.

FINDING OF NO SIGNIFICANT IMPACT

The Council on Environmental Quality (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 216-6, 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 Final Supplemental EA report analyzes the full range of possible minimum scan angles between +0.5 deg (minimum in current WSR-88D use) and 0.0 deg (lowest scan angle considered by NWS). The minimum scan angle in current WSR-88D use (i.e., +0.5 deg) represents the no-action alternative. The Final Supplemental EA report describes the proposed action and environmental setting, and analyzes associated environmental consequences based on established standards and criteria. The Final Supplemental EA report contains an analysis of the potential for the proposed action to result in environmental impacts in the following topic areas: Exposure of Persons to RFR, Exposure of Equipment and Activities to RFR, Land Use, Zoning, Coastal Zone Management, and Air Space Compliance; Geology, Soils, and Seismic/Tsunami Hazards; Drainage and Water Quality; Transportation; Air Quality; Floodplains; Wetlands; Biological Resources/Protected Species; Cultural and Historic Resources; Environmental Justice/Socioeconomic Impacts; Farmlands; Energy Consumption; Visual / Light Emissions; Solid and Hazardous Waste; and Wild and Scenic Rivers. No significant environmental consequences, either adverse or beneficial, will result.

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

No. Radio emissions from the radar would comply by a wide margin with exposure standards for the general public established by the American National Standards Institute. In addition, the radar's emissions would comply with safety standards for activities and equipment that may be susceptible to electromagnetic effects.

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 places listed or eligible for listing on the National Register of Historic Places or the Washington Heritage Register, parklands, prime farmland, wetlands, wild and scenic rivers, environmentally sensitive habitats (ESH), or other ecologically critical areas are present in proximity to the radar. No effects on any of these resources will result.

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

No. The Draft Supplemental EA was distributed to government agencies, interested members of the public, and Native American tribes of the area for review and comment in July 2011. NWS accepted comments on the Draft Supplemental EA during an official 30-day comment period, lasting from July 8, 2011, through August 7, 2011. Two email messages were received by NWS, asking for additional information on cumulative effects. The Final EA contains the requested information. No comments were received in opposition to the proposed action.

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

No. The power density of the WSR-88D radio signal has been quantified and compared to numerical RF safety standards developed by government agencies and independent organizations with expertise in the area of electromagnetic effects. The WSR-88D radio emissions will comply with applicable safety standards with considerable safety margins.

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 change in WSR-88D scan angles is limited to the WSR-88D serving Coastal Washington. Under NOAA regulations, environmental review would be required before a lower minimum scan angle is established at other WSR-88Ds.

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

No. The WSR-88D is sufficiently distant from other radio transmitters to preclude cumulative RF exposure that would exceed safety levels.

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. None of these resources are located in proximity to the WSR-88D to serve Coastal Washington.

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. Implementation of the proposed action would have no impact on the physical or natural environment. The WSR-88D is not located on or near critical habitat for threatened or endangered species. No impact on protected species or their habitat will result.

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 will result.

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

No.

DETERMINATION

After careful and thorough consideration of the Final Supplemental EA report, the undersigned finds that lowering the minimum scan angle used during operation of the WSR-88D to serve Coastal Washington 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. This finding applies to lowering the minimum scan angle to any center of beam angle between +0.5 and 0.0 deg. Based on technical considerations, the most beneficial minimum scan angle would be +0.2 deg, but the NWS may choose to operate this radar at a different minimum scan angle.

As described in section 5.03.c of NOA 216-6, a Finding of No Significant Impact is supported and appropriate for lowering the minimum scan angle of the WSR-88D to serve Coastal Washington down to 0.0 deg, or another angle between +0.5 and 0.0 deg. Preparation of an environmental impact statement for this action is not necessary.

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Date