

MEMORANDUM OF AGREEMENT

among the

Department of Commerce

Department of Defense

and

Department of Transportation

for

Interagency Operation

of the

Weather Surveillance Radar-1988, Doppler (WSR-88D)

March 2021

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
ARTCC	Air Route Traffic Control Center
CCB	Configuration Control Board
CObs	Committee on Observational Systems
CONUS	Conterminous United States
DOC	Department of Commerce
DoD	Department of Defense
DOT	Department of Transportation
FAA	Federal Aviation Administration
FMH No. 11	Federal Meteorological Handbook Number 11
ICAMS	Interagency Council on Advancing Meteorological Services
ITWS	Integrated Terminal Weather System
MCC	Maintenance Control Center
MOA	Memorandum of Agreement
MSCF	Master System Control Function
NAS	National Airspace System
NEXRAD	Next Generation Weather Radar
NPC	NEXRAD Program Council
NPMC	NEXRAD Program Management Committee
NSSL	National Severe Storms Laboratory
NWS	National Weather Service
OCONUS	Outside the Continental United States
OFCM	Office of the Federal Coordinator for Meteorology
OSTP	Office of Science and Technology Policy
ROC	Radar Operations Center
RPG	Radar Product Generator subsystem of the WSR-88D
TAC	Technical Advisory Committee
TRACON	Terminal Radar Approach Control
URC	Unit Radar Committee
USAF	United States Air Force
U.S.C.	United States Code

WFO
WSR-88D

Weather Forecast Office
Weather Surveillance Radar-1988, Doppler

DEFINITION OF TERMS

Focal Point - A representative within a Principal User Agency who is the point of contact for WSR-88D operational issues. There is one designated Focal Point from each agency to provide program oversight, referenced in Appendix B.

Network Site - A WSR-88D system that continuously collects, collates, and makes available via telecommunications, radar data and products supporting the national weather radar network, the FAA's enroute weather radar coverage requirements, and DoD operations. This support is performed in accordance with Federal Meteorological Handbook Number 11 (FMH No. 11) Part A, System Concepts, Responsibilities, and Procedures and such agreements as may be made among the Principal Users.

Non-Network Site - A non-operational WSR-88D system used for training, development, or operational support of the NEXRAD program or an operational WSR-88D system that supports agency specific requirements and is not utilized by the tri-agencies. This includes the non-operational WSR-88D systems at the National Reconditioning Center, National Weather Service (NWS) Training Center, National Severe Storms Laboratory (NSSL), and Radar Operations Center (ROC). This also includes WSR-88D systems that support agency specific requirements (i.e. Camp Humphreys AB ROK (RKSG), Kunsan AB ROK (RKJK), and Kadena AB JA (RODN)) which are not utilized by the tri-agencies.

Observer - A non-voting Principal User representative at a Unit Radar Committee (URC) meeting.

Principal User - The NWS, U.S. Air Force, and FAA.

Unit Radar Committee - A committee formed at WSR-88D sites where there is interest from more than one of the Principal Users.

Unit Radar Committee Member - The Principal User agency representative for a WSR-88D system on the URC. This member shall vote on WSR-88D system operational issues, coordinate with, and represent the interests of other Principal User(s) from their respective agency at URC meetings.

WSR-88D System - The summation of all hardware, software, facilities, communications, logistics, training, and staff, together with operating, training, and maintenance procedures. The system includes network and non-network sites, both in the CONUS and OCONUS.

WSR-88D Unit - Composed of a Doppler weather radar, computers, work stations, and communications to link the components and distribute the products.

MEMORANDUM OF AGREEMENT
among the
Department of Commerce
Department of Defense
and
Department of Transportation
for
Interagency Operation
of the
Weather Surveillance Radar-1988, Doppler (WSR-88D)

WHEREAS, each of the signatories is responsible for the operation of a number of WSR-88D units, and

WHEREAS, authority is granted for this agreement under the provisions of 15 U.S.C. § 313; 49 U.S.C. § 44720(b); 10 U.S.C. § 8062;

NOW THEREFORE, the parties mutually agree to the following terms and conditions:

1. PURPOSE

This Memorandum of Agreement (MOA) among the Department of Commerce (DOC), the Department of Defense (DoD), and the Department of Transportation (DOT) prescribes the tri-agency policies for mutual support among WSR-88D Principal Users. The responsibilities of the departments required to implement the policies are also defined in this agreement. The Federal Meteorological Handbook for Doppler Radar Meteorological Observations, Number 11 (FMH No. 11) Part A, System Concepts, Responsibilities, and Procedures, states the procedures and standards of operation for the WSR-88D system for the Principal Users.

The Next Generation Weather Radar (NEXRAD) Program is a joint DOC, DoD, and DOT effort that led to the development and installation of an advanced Doppler weather radar system -- the WSR-88D. The NEXRAD Program is necessary and essential to further the mission of the Principal Users of the WSR-88D (DOC, DoD, and DOT). The WSR-88D meets the common weather radar needs of the tri-agencies. These weather radar data are needed to perform or support their activities. These activities include warning and prediction of hazardous weather and flash flood prediction, ensuring safety of flight, protecting DOD resources, and planning military missions.

The three agencies have determined that the NEXRAD Program cannot be done at all, or done as effectively, without the participation of each

agency. Congress has supported the tri-agency nature of the NEXRAD Program since the inception of the program in 1979. The resultant common weather radar has been more cost effective in terms of research and development, and deployment. The cost effective nature has continued in the operational phase of the NEXRAD Program through the consolidation of supply and reconditioning efforts, and life cycle support.

The three agencies have determined the costs associated with the NEXRAD Program are equitably apportioned.

This MOA updates and supersedes all previous MOAs, same title, approved by the NEXRAD Program Management Committee (NPMC).

2. BACKGROUND

The Next Generation Weather Radar (NEXRAD) Program is a joint DOC, DoD, and DOT effort that led to the development and installation of an advanced Doppler weather radar system -- the WSR-88D. The three departments acquired and deployed this system to replace the majority of their aging weather radars and as a major upgrade of previous capability. Through the application of Doppler radar capabilities and computer algorithms, the WSR-88D was developed to detect wind velocity and improve detection of precipitation, severe thunderstorms, and tropical cyclones; increase weather warning lead times; enhance the safety and efficiency of the National Airspace System (NAS); and provide automated exchange of digital weather radar data. Support to these missions was furthered through the deployment of Dual Polarization technology to the WSR-88D baseline being completed in 2013. The following tri-agency organizations have been established to facilitate the operation of the WSR-88D system:

A. NEXRAD Program Council (NPC). The NPC provides overall policy, management guidance, and resource commitments for the NEXRAD Program and approves those items identified in the NEXRAD Joint Program Development Plan as higher authority decisions. The NPC will act as final approval authority for any unresolved program and configuration management problems referred by the Chairman of the NPMC at the request of any NPMC member. Voting members are: Assistant Administrator for Weather Services, National Oceanic and Atmospheric Administration (DOC); Director of Weather (USAF/A3W), (DoD); and the Director of Enterprise Services in Program Management Organization, Federal Aviation Administration (DOT). The NPC is chaired by the Office of the Federal Coordinator for Meteorology (OFCM) as a non-voting member. NPMC representation is provided by the National Weather Service (NWS) Office of Planning and Programming for Service Delivery Director who is Chairman of the NPMC. The OFCM also provides

the Executive Secretary to the NPC. As of November 1997, the NPC retired as an active body and delegated its responsibilities to the NPMC. The NPC was recalled in 2016 to address emerging recommendations and strategic planning for a potential technical solution for replacement of the aging NEXRAD system. The NPC Charter was reviewed and updated and approved in 2020. With the establishment of the Interagency Council on Advancing Meteorological Services (ICAMS) under the Office of Science and Technology Policy (OSTP), the NPC is expected to transition into the Committee on Observational Systems (COBS) Working Group on Future Weather Radar during FY21. This will not impact the execution of the MOA.

B. NEXRAD Program Management Committee (NPMC). The NPMC is a tri-agency committee. The primary role of NPMC members is to make higher authority decisions for each agency throughout the operational life of the WSR-88D equipment. The NPC has delegated its authority to the NPMC to act as the final arbiter on major policy and financial issues. The NPMC provides tri-agency guidance and management oversight of the WSR-88D system during its operational life cycle. The NPMC is responsible for decisions involving changes and modifications, and new work which require authority to expend significant Radar Operations Center (ROC) resources.

Voting members of the NPMC are the Director of the Office Observations, NWS; Chief, Weather Systems Branch, Air Force Lifecycle Management Center; and the Director of Enterprise Services in Program Management Organization, Federal Aviation Administration (FAA). The NPMC is chaired by the Director of the NWS Office of Planning and Programming for Service Delivery. The NWS Office of Observations provides the Executive Secretary to the NPMC. Operational support representation is provided by the Radar Operations Center (ROC) Director, who also serves as the Integration Program Manager. Further details on the NPMC are contained in the NPMC Charter. With the establishment of ICAMS under OSTP, the NPMC is expected to operate under its established charter, and with the transition to the COBS Working Group on NEXRAD during FY21, only elevate NEXRAD issues to the COBS level that cannot be resolved among the partner agencies. This will not impact the execution of this MOA.

C. Radar Operations Center. Operational support for all deployed WSR-88D units is the responsibility of the tri-agency ROC located in Norman, Oklahoma. The ROC provides centralized radar operations support, field assistance including around-the-clock (24/7) hotline support, software maintenance, logistics, and engineering support; and special depot-level support of the WSR-88D units deployed by the three Principal Users. The ROC performs systematic and coordinated analyses of the day-to-day operations and maintenance of WSR-88D units to determine the need for improvement, and for providing both immediate

and long-term support during the WSR-88D life cycle. The ROC analyzes, develops, tests, and evaluates proposed changes to the WSR-88D hardware/software configuration, materials, techniques, procedures, and may approve minor changes. The ROC is responsible for implementation of approved hardware, software, and documentation changes. In addition, the ROC provides tri-agency support for analyzing the potential impacts of wind turbines, communications towers, other obstacles, and potential sources of electromagnetic interference. Furthermore, the ROC operates and maintains a WSR-88D testbed to assist in the ROC's life cycle support and improvement responsibilities. FAA, AJW-144 at Oklahoma City, also is responsible for the operational support of the 12 FAA NEXRAD systems.

D. Technical Advisory Committee (TAC). The TAC is a tri-agency committee established to address technical needs and issues related to the operational use and evolution of the WSR-88D system. The TAC consists of up to 16 members: a non-voting chairperson, a non-voting executive secretary, up to 12 voting agency representatives (up to 4 per agency), and 2 voting members-at-large. Further details on the TAC are contained in the TAC Charter.

E. WSR-88D Sites. Each WSR-88D unit is categorized as either a network or non-network site. Together, they satisfy the weather mission needs of the Principal Users.

A network site is a WSR-88D system that continuously collects, collates, and makes available via telecommunications, radar data and products supporting the national weather radar network, the FAA's enroute weather radar coverage requirements, and DoD operations. This support is performed in accordance with Federal Meteorological Handbook Number 11 (FMH No. 11) Part A, System Concepts, Responsibilities, and Procedures and such agreements as may be made among the Principal Users.

A non-network site is a non-operational WSR-88D system used for training, development, or operational support of the NEXRAD program or an operational WSR-88D system that supports agency specific requirements and is not utilized by the tri-agencies. This includes the non-operational WSR-88D systems at the National Reconditioning Center, National Weather Service (NWS) Training Center, National Severe Storms Laboratory (NSSL), and Radar Operations Center (ROC). This also includes WSR-88D systems that support agency specific requirements (i.e. Camp Humphreys AB ROK (RKSG), Kunsan AB ROK (RKJK), and Kadena AB JA (RODN)) which are not utilized by the tri-agencies.

F. Federal Meteorological Handbook Number 11, Doppler Radar Meteorological Observations. The FMH No. 11 provides standards and procedures for the tri-agency management and operation of the WSR-88D units. The responsibilities of the network and non-network sites are

specified in FMH No. 11 Part A.

G. Recent Changes in Data Distribution to Principal Users.

Previously, membership in the URC had been based on those Principal User systems with direct connections to one or more WSR-88Ds. These directly connected users were called Associated Principal Users. Non-Associated Principal Users (i.e. those users without direct data communications connection to a WSR-88D) were not included as voting members of a URC. The removal of all or most of these direct connections by two of the three Principal User Agencies necessitated a change in URC membership rules. Going forward, Air Force and FAA end users will still participate as voting members in Unit Radar Committee meetings, despite not being directly connected to a WSR-88D. Also, the terms Associated and Non-Associated Users have been removed from this agreement.

3. POLICY

This MOA sets forth policies and ground rules for the activities of the Unit Radar Committees (URC). The URCs shall be coordinating committees composed of a single member for a particular WSR-88D unit from each of the Principal Users. The Principal Users are DOC NWS, DoD U.S. Air Force (USAF), and DOT FAA.

The WSR-88D system is vital to the operations of each Principal User Agency. Therefore, the WSR-88D units shall be operated to satisfy the integrated needs of all three agencies. Each agency shall endeavor to support, to the maximum extent possible, the data, product, and operational requirements of the others, consistent with the capabilities and mission priorities of each agency. Policies set forth in this MOA shall be adhered to by each agency, using the procedures and responsibilities as described in FMH No. 11 Part A.

By this MOA, access to data and products from WSR-88D units is granted by the operating agencies to each other.

4. UNIT RADAR COMMITTEE (URC)

All of the WSR-88Ds located on US territory (including Puerto Rico and Guam) provide NEXRAD data to tri-agency (DOC, DoD, and DOT) end users. As such, and per this agreement, a Unit Radar Committee (URC) shall be convened at least biannually at each of these WSR-88Ds. The goal of the URC shall be to meet the radar information needs of the Principal Users. The URC shall address operational concerns in support of Principal User requirements at that WSR-88D unit. The extent of support provided shall be consistent with each agency's mission needs and shall not violate any higher-level agreements. The URC shall

ensure operation of a WSR-88D unit in accordance with those procedures provided in FMH No. 11 Part A and all other properly authorized system documents.

The URCs shall meet in person or via teleconference calls a minimum of twice a year and more often as necessary to conduct business. At URC meetings, WSR-88D operational issues shall be resolved only by unanimous vote of the URC members for that WSR-88D unit. Each Principal User Agency member shall have equal voice in decisions of the URC.

The ROC's WSR-88D Hotline, which provides around-the-clock field support, will be available to participate, by phone, in URC meetings as a resource of technical information to help answer questions or resolve problems more quickly. The WSR-88D Hotline should be contacted in advance of the URC meeting to schedule participation.

A. Membership. The URCs shall be established to meet the local radar information needs of the Principal Users. The individual URC is to serve as the coordinating committee for the particular WSR-88D unit. The URC shall be composed of one voting member from each Principal User Agency. A member of a URC shall represent the interests of all users of the WSR-88D unit from the member's respective agency. The member that is the manager of the Master System Control Function (MSCF), or designee, shall be the chairperson of the URC. The URCs should solicit attendance of a representative from the radar maintenance section. The URC Chairperson should extend URC meeting invitations to those FAA Terminal Radar Approach Control (TRACON) units that have an Integrated Terminal Weather System (ITWS) connection to the WSR-88D. Similarly, when the WFO has an SPG connection, the URC Chairperson should extend an invitation to the FAA's NAS Engineering, Weather Systems Team, TDWR Meteorological Support POC as noted in the SPG MOA. The functions, responsibilities, and limitations of the URC are defined in sections 4.B. and 4.C., and their respective subparagraphs.

B. Functions. Functions of the URC shall include:

1. Providing a forum for addressing the operational needs of Principal Users.
 - a. Principal Users, by definition, will be represented on their URC and shall present their needs directly to their URC.
 - b. Other Principal User organizations whose agency has membership on a particular URC shall request consideration for support from the agency member of that URC.

2. Coordinating joint standard operating procedures for the unit within the constraints of FMH No. 11 Part A, this agreement, and all related interagency agreements.
3. Identifying operational and data quality issues.
4. Referring issues from paragraph 3 (above) to their respective agency focal points if the issues cannot initially be resolved by unanimous vote of the URC members for that WSR-88D unit.

After receiving guidance from their respective focal points, the URC shall re-address the issue and obtain resolution by unanimous vote of the members. If resolution still cannot be obtained, the URC members shall seek further guidance from their focal points. The URC shall continue to work to resolve the issue and gain unanimous agreement by vote. If several attempts to resolve the issue fail and the URC determines no progress is being made, a URC-coordinated package documenting the issue shall be forwarded through appropriate agency channels to the WSR-88D Configuration Control Board (CCB) for resolution. If the CCB cannot resolve the issue, the issue shall be forwarded to the NPMC for resolution.

5. Providing recommendations for operational enhancements, through appropriate agency channels, for WSR-88D Configuration Management review and action.
6. Coordinating values for site-adaptable parameters for which it has change authority (defined in Operator Handbook, Guidance on Adaptable Parameters, Doppler Meteorological Radar, WSR-88D).
7. Coordinating preventive maintenance and modification implementation schedules that may impact radar operations with URC members and the URC Chairperson(s) of adjacent WSR-88D units which may provide coverage during these outage periods. The URC Chairperson (or representative) will notify all Principal Users of scheduled downtime using the procedures in Appendix A.
8. Notifying Principal Users of unscheduled outages. The URC Chairperson (or representative) will notify all Principal Users of the estimated return to service time using the procedures in Appendix A.
9. Notifying Principal Users of known persistent airborne chaff that could be misinterpreted by users who are not trained

forecasters. The URC Chairperson (or representative) will notify the Principal Users of this situation via a Free Text Message.

C. Responsibilities and Limitations of Authority.

1. Routine Operations

Each agency URC member is empowered to make committee-level decisions within the authority delegated by the member's respective agency.

Once a unanimous decision has been made, the URC has the authority to effect implementation of that decision.

2. Emergency Operations

The manager, or designee, of the agency operating the MSCF shall have the authority to make any short-term, URC-level changes to radar operating parameters, including those requested by other Principal Users, which, in the manager's judgment, are necessary for the protection of life or property. The manager, or designee, shall notify the other Principal Users of the change as soon as possible.

The situation shall be discussed at the next meeting of the URC to determine what action shall be taken in the future if a similar situation were to occur.

3. Chairperson's Responsibilities

The URC Chairperson's responsibilities include the following:

- a. Administer the preparation of agreements made within the URC.
- b. Schedule and chair all meetings of the URC.
- c. Prepare meeting agenda and minutes and provide one copy to each Principal User Agency member.
- d. Arrange for a meeting place and/or teleconference for URC meetings.
- e. Provide an electronic copy of the URC meeting minutes to the Radar Operations Center WSR-88D Hotline (NEXRAD.Hotline@noaa.gov).
- f. Ensure the operation of the MSCF is within the terms of

the FMH No. 11 Part A, this agreement, and any other appropriate interagency agreements.

- g. Coordinate scheduled or routine unit maintenance activities with Principal Users.

4. Members' Responsibilities

The URC members shall take appropriate actions to ensure compliance with URC-established procedures for activities within their purview. They shall advise their agency of activities through normal channels. Requests for assistance in resolution of any interagency issues that might arise shall be made to their respective agency focal points (refer to Section 5, Focal Points). The URC members shall coordinate with and represent the interests (including requests for operational support) of other principal users from their respective agency.

- a. A member receiving a request from another organization within the member's agency shall present that request to the URC at their next meeting. If warranted, the member shall ask the URC Chairperson to call a special meeting to consider the request. Subsequent to the meeting, the member shall advise the requesting organization of the URC's decision.
- b. As required, prepare information on unresolved issues for presentation to the CCB, through their agency's channels, for resolution.
- c. Each agency should notify their respective Principal Users of scheduled URC meeting dates and solicit input regarding agenda items. Following the URC meeting, that agency should provide a copy of the meeting minutes to their Principal Users.

D. Equitable Apportionment of Costs. The costs of the URC are generally in-kind costs of the agencies designated employees and include: the costs of the agencies' employees attending meetings or teleconferences, monitoring the radar unit, coordinating joint standard operating procedures for the unit, identifying operational issues such as scheduling outages, and coordinating maintenance and other business associated with the use and maintenance of the radar units.

5. FOCAL POINTS

Each agency shall designate one or more focal points for WSR-88D operational issues or requests for operational support, as referred by a URC member or by another Principal User organization not represented on a particular URC. The focal point shall coordinate the issues within that individual's agency and interact with other intra-agency focal points to propose a resolution to issues. (See Appendix B for list of current agency focal points.) This coordination shall consider established regional and national policy by the particular agency pertaining to resolution of service requirements and configuration management issues. Upon determination of a proposed resolution to an issue, the agency focal point shall advise the referring URC member or the unrepresented Principal User organization of that determination. In the case of a request from an unrepresented Principal User, and where the agency focal point supports the request, the request shall be forwarded to the chairperson of the particular URC for consideration by the committee and the requesting user advised that the request was forwarded. If the agency focal point does not support the request, that focal point shall so inform the requesting user.

6. DEPARTMENT OF COMMERCE RESPONSIBILITIES

The DOC, via the NWS Office of Observations, has management responsibility for the ROC and for operational support of all deployed WSR-88D units. The NWS Office of Observations, through the Office of Planning and Programming for Service Delivery, also has overall management responsibility for the NEXRAD Program.

The DOC, via the Director, NWS Office of Observations, and the NWS Assistant Chief Information Officer (ACIO) has Authorizing Official (AO) and Co-AO responsibility for all deployed WSR-88D units. The Office of Observations AO/Co-AO shall ensure the WSR-88D is properly assessed and authorized in accordance with the National Institute of Standards and Technology guidance for authorization and accreditation of Federal Information Systems in a manner consistent with DOC, DoT, and DOD security policy.

The NWS, via the ROC, will specify tri-agency system security responsibilities for the WSR-88D in the NEXRAD Engineering Handbook 6-504, System Security Manual.

The DOC, via the NWS, will manage all DOC WSR-88D network sites through its National and Regional Headquarters in a manner consistent with existing and planned NWS operational weather systems.

The NWS shall provide radar data from their WSR-88D units to other

Principal Users, as requested, consistent with capabilities and mission priorities of each Principal User Agency.

The NWS will operate the MSCF for all WSR-88D units (excluding the DoD units in Korea, Japan, and at Vandenberg AFB, CA) except during maintenance operations. Operations of the MSCFs will be in a manner consistent with the mission priorities of the DOT and DoD.

The NWS shall designate one member to each appropriate URC. The NWS URC member, or designee, shall attend all URC meetings for their WSR-88D unit.

The NWS shall designate a focal point for each network site with which NWS personnel will interact. This focal point will ensure that appropriate NWS Principal User organizations are informed of a given URC's meeting dates, their input regarding agenda items is solicited, and a copy of the meeting minutes is distributed to them in a timely fashion.

All logistics/supply costs for fielded WSR-88D equipment provided by NOAA will be paid by the operating agency pursuant to subsequent agreement.

A. Office of the Federal Coordinator for Meteorology (OFCM). The OFCM is responsible for the development, maintenance, and publication of FMH No. 11 using its interagency coordination infrastructure. The responsibility for Federal Meteorological Handbooks was assigned to OFCM by the Interdepartmental Committee for Meteorological Services and Supporting Research. With the establishment of ICAMS under OSTP, the Interagency Meteorological Coordination Office (IMCO), operating under the guidance of ICAMS, will provide much of the administrative and logistical support to agencies previously provided by OFCM. This transition will occur during FY21.

7. DEPARTMENT OF DEFENSE RESPONSIBILITIES

The DoD, via the USAF, will manage the DoD WSR-88D network and non-network sites through appropriate command headquarters in a manner consistent with existing and planned DoD operational systems and shall provide support to network sites as outlined in FMH No. 11 Part A.

The USAF shall provide radar data from their WSR-88D network units to other Principal Users, as requested, consistent with the capabilities and mission priorities of each Principal User Agency.

The USAF, while operating the MSCF to perform maintenance on the CONUS DoD WSR-88D units, will do so in a manner consistent with the mission priorities of the DOT and DOC.

The USAF shall designate one member to each appropriate URC.

The USAF URC member, or designee, shall attend all URC meetings for their WSR-88D unit.

The USAF shall designate a focal point for each network and non-network site with which USAF personnel will interact.

All logistics/supply costs for fielded WSR-88D equipment will be paid by the operating agency IAW the tri-agency NEXRAD Integrated Logistics Support Plan and NEXRAD Allocation of Program Cost Agreement.

8. DEPARTMENT OF TRANSPORTATION RESPONSIBILITIES

The DOT, via the FAA, will manage all DOT WSR-88D network sites through its headquarters in a manner consistent with existing and planned FAA operational systems and shall provide support to network sites as outlined in FMH No. 11 Part A.

As requested, the FAA shall provide radar data from their WSR-88D units to other Principal Users, consistent with the capabilities and mission priorities of each Principal User Agency.

The FAA, while operating the MSCF to perform maintenance on DOT WSR-88D units, will do so in a manner consistent with the mission priorities of the DoD and DOC.

The FAA shall designate one member to each appropriate URC.

The FAA URC member, or designee, shall attend all URC meetings for their WSR-88D unit.

The FAA shall designate a focal point for each network site with which FAA personnel will interact.

All logistics/supply costs for fielded WSR-88D equipment will be paid by the operating agency.

9. PERIOD OF AGREEMENT AND MODIFICATION/TERMINATION

This MOA shall become effective on the date of the last approval signature.

This agreement will be in effect upon the signatures of all parties and will remain in effect for two years from its effective date unless superseded by an agreement among the parties.

The parties will review this MOA periodically to determine whether it should be revised, renewed, or cancelled. Additional reviews will be conducted as directed by the NPMC. This MOA may be amended at any time by mutual agreement by the parties.

Termination for cause or program completion shall require a termination review to consider the elements negotiated in this MOA. The terminating agency shall notify the other agencies, in writing, of the required termination, within a time frame to permit orderly transfer of support, and not less than one year in advance of the termination. In the event this MOA is terminated, each agency shall be solely responsible for the payment of any expenses it has incurred. This MOA is subject to availability of funds.

10. CONTACTS

The contacts of each party to this agreement are listed in Appendix B. The agencies agree that if there is a change regarding the information concerning the contacts, the agency making the change will notify the other agency contacts in writing of such change.

11. OTHER PROVISIONS

Nothing herein is intended to conflict with current DOC, DoD, or DOT directives. If the terms of this agreement are inconsistent with existing directives of any of the agencies entering into this agreement, then those portions of this agreement which are determined to be inconsistent shall be invalid; but the remaining terms and conditions not affected by the inconsistency shall remain in full force and effect. At the first opportunity for review of the agreement, all necessary changes will be accomplished by either an amendment to this agreement or by entering into a new agreement, whichever is deemed expedient to the interest of all parties.

Should disagreement arise on the interpretation of the provisions of this agreement, or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement on interpretation is not reached within thirty days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution.

Under the Inspector General Act of 1978, as amended, 5 USC App. 3, a review of this agreement may be conducted at any time. The Inspector General of DOC, DOD, or DOT, or any of their duly authorized

representatives, shall have access to any pertinent books, documents, papers and records of the parties to this agreement, whether written, printed, recorded, produced, or reproduced by any mechanical, magnetic or other process or medium, in order to make audits, inspections, excerpts, transcripts, or other examinations as authorized by law.

SIGNATORIES

FOR THE DEPARTMENT OF COMMERCE:

Approved _____
Thomas Cuff,
Director, Office of Observations
NOAA/NWS

FOR THE DEPARTMENT OF DEFENSE:

Approved _____
John P. Dreher,
Chief, Weather Programs Branch
Air Force Life Cycle Management Center

FOR THE DEPARTMENT OF TRANSPORTATION:

Approved _____
Malcolm Andrews,
Director, Enterprise Services, (AJM-3)
Federal Aviation Administration

APPENDIX A

PROCEDURES FOR COORDINATING WSR-88D MAINTENANCE OUTAGES WITH PRINCIPAL USERS

1. SCHEDULED OUTAGES

IF POSSIBLE, AT LEAST 24 HOURS PRIOR TO OUTAGE

- A. The NEXRAD electronics technician will coordinate the outage with the National Weather Service Lead Forecaster. Vandenberg AFB technicians will coordinate the outage with the Weather Flight duty forecaster. Technicians in Japan and South Korea will coordinate outages with the 17 OWS Theater Meteorologists Supervisor.
- B. The Unit Radar Committee Chairperson or designated representative will notify the NEXRAD agency users associated with the radar of the outage by Free Text Message from the WSR-88D MSCF. The message will provide the proposed start and stop times for the preventative maintenance action.

DAY of OUTAGE

- A. If there is a cancellation or change in plans, the Unit Radar Committee Chairperson or designated representative will notify the NEXRAD agency users associated with the radar by Free Text Message.
- B. Shortly before the start of the outage, the Unit Radar Committee Chairperson or designated representative will send a Free Text Message to the NEXRAD agency users associated with the radar informing/reminding them of the preventative maintenance action and the anticipated start and stop times.
- C. Just prior to taking the radar off-line, the NEXRAD electronics technician or the MSCF operator will disconnect the narrowband communication lines.
- D. If during the maintenance action the NEXRAD electronics technician determines more time is needed to complete the action than was originally scheduled, he/she will notify the Lead Forecaster. Vandenberg AFB technicians will coordinate

the outage with the Weather Flight duty forecaster. Technicians in Japan and South Korea will coordinate outages with the 17 OWS Theater Meteorologists Supervisor. The Unit Radar Committee Chairperson or designated representative will then notify all NEXRAD agency users associated with the radar of the updated completion time via Free Text Message, if possible.

2. UNSCHEDULED OUTAGES

If the Radar Product Generator (RPG) is still operational, the Unit Radar Committee Chairperson or designated representative will send a Free Text Message to the NEXRAD agency users associated with the radar and provide an estimated return to service time. If the time changes substantially, the notification should be repeated, if possible.

3. ALL OUTAGES

To prevent the inadvertent distribution of invalid base data and products to external users, the technician or engineer, when making any repairs to the WSR-88D that could negatively affect the calibration of the radar or introduce anomalies into the system, shall operate the radar with all (external communications disabled until personnel verify the radar products are being generated within specifications.

Examples of changes that could potentially affect the operation of the system include but are not limited to hardware component replacements, realignments, retuning, changing of adaptable parameters, regeneration and selection of clutter bypass maps, loading of new software builds during beta testing or during normal software loads, preventive maintenance activities, general remedial maintenance, etc.

The intent of this caution is to avoid the unintentional distribution of products to end users which contain incorrectly calibrated information, incorrectly derived algorithm products, or any anomalies such as test patterns, spikes, spokes, interference, or obviously invalid non-meteorological data that could be misinterpreted by users who are not trained forecasters.

APPENDIX B

CONTACTS

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